MHI

TECHNICAL MANUAL
Collection data

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PACKAGED AIR-CONDITIONER

(Split system, Air to air heat pump type)

CEILING CASSETTE-4 WAY COMPACT (600×600mm)-TYPE

FDTC40ZHXV	FDTC71VNPV	FDTC140VNTV
50ZHXV	100VNPV	140VSTV
	100VSPV	

CEILING CASSETTE-4 WAY TYPE

FDT40ZHXV	FDT71VNPV	FDT140VNTV
50ZHXV	100VNPV	140VSTV
60ZHXV	100VSPV	200VSTV
71VNV	125VNPV	
100VNV	125VSPV	FDT200VSDV
100VSV	140VNPV	250VSDV
125VNV	140VSPV	
125VSV	200VSPV	
140VNV	250VSPV	
140VSV		

CEILING SUSPENDED TYPE

FDEN40ZHXV	FDEN71VNPV	FDEN140VNTV
50ZHXV	100VNPV	140VSTV
60ZHXV	100VSPV	200VSTV
71VNV	125VNPV	
100VNV	125VSPV	
100VSV	140VNPV	
125VNV	140VSPV	
125VSV	200VSPV	
140VNV	250VSPV	
140VSV		

DUCT CONNECTED-MIDDLE STATIC PRESSURE- TYPE

FDUM50ZHXV	FDUM100VNPV	FDUM140VNTV
60ZHXV	100VSPV	140VSTV
71VNV	125VNPV	200VSTV
100VNV	125VSPV	
100VSV	140VNPV	
125VNV	140VSPV	
125VSV	200VSPV	
140VNV	250VSPV	
140VSV		

DUCT CONNECTED-HIGH STATIC PRESSURE- TYPE

FDU71VNV
100VNV
100VSV
125VNV
125VSV
140VNV
140VSV
200VSV
250VSV

MULTI-TYPE (V-MULTI) PACKAGED AIR-CONDITIONER

(OUTDOOR UNIT)

FDC71VN
100VN
100VS
125VN
125VS
140VN
140VS
200VS
250VS

(INDOOR UNIT)

FDTC40V	FDT40V	FDEN40V	FDUM50V
50V	50V	50V	60V
	60V	60V	71V
	71V	71V	100V
	100V	100V	125V
	125V	125V	

MITSUBISHI HEAVY INDUSTRIES, LTD.

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1. PACKAGED AIR-CONDITIONER

CONTENTS

1.1 GENERAL INFORMATION

1.1.1 Specific features

(1) All models employ R410A, with RoHS compliance.

(2) Industry leading COP.

Thanks to achievement of the highest COP level in the industry, the energy consumption has been cut by 39~49% compared with our former models (constant speed models).

(3) Energy labeling “Class A”

MHI models have cleared the class A standard, the highest energy saving level, with their high COP (coefficient of performance).

(4) The microcomputer chip is installed in the indoor unit and outdoor unit. There is no need for the unit to communicate between the outdoor and indoor units so the unit is more resistant to electromagnetic noise thus the incidence of microcomputer malfunction has been reduced. The compressor in the outdoor unit has its own self protection function, that reacts according to abnormal high pressure and excessive high temperature.

(5) Wide range of operation

Heating and cooling operation at -15°C Our new advanced technology has expanded the heating and cooling operation range. This permits installation of the units considering a heating and cooling operation under a low outdoor temperature condition down to -15°C .

(6) New remote control for all indoor units

Applying nonpolar 2-core in new remote control line, it is very convenient for installation including renewal case.

(7) There are only three power lines between the outdoor and indoor unit. One cabtyre cable with 3 wires encased in one sheath is enough for conducting the wiring work between the outdoor unit and the indoor unit. This contributes to simpler wiring work in the field.

(8) All air supply ports have auto swing louvers. (Only case of FDTC, FDT and FDEN models). The indoor fan motor has three speeds of high, medium and low.

(9) All models have service valves protruding from the outdoor unit for faster flare connection (FDCVA802, 1002: Only a gas side is brazing) work in the field.

(10) The size and weight of the outdoor units in the SRC40~60 and FDC71 Series have been greatly reduced. Use of an inverter has also improved energy conservation and economy.

(11) Compared to the previous models, a single fan is used in the FDC100~140 outdoor unit models and forward blowing is used in the FDC200 and FDC250 models,resulting in markedly reduced weight and greater compactness.In addition, use of an inverter makes these units much more economical compared to the previous fixed speed units.

1.1.2 How to read the model name

Example: FDT 100 VN P V

- ◌ (blank): Single type
  P: Twin type
  T: Triple type
  D: Double twin type
- Applicable power source ... See the specifications
- Product capacity
- Model name
  - FDTC : Ceiling cassette-4way compact (600 × 600 mm) type unit
  - FDT : Ceiling cassette-4way type unit
  - FDEN : Ceiling suspended type unit
  - FDUM: Duct connected-Middle static pressure type unit
  - FDU : Duct connected-High static pressure type unit
  - SRC : Outdoor unit
  - FDC : Outdoor unit

1.2 SELECTION DATA

1.2.1 Specifications

(1) Ceiling cassette-4way compact (600 × 600 mm) type (FDTC)

(a) Single type

Model FDTC40ZHXV

Item		Model	FDTC40ZHXV	
			FDTC40V	SRC40ZHX-S
Nominal cooling capacity(1)		kW	**4.0 [1.8~4.7]**	
Nominal heating capacity(1)		kW	**4.5 [2.0~5.4]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.04/1.04**	
	Running current (Cooling)	A	**4.6/4.8**	
	Power factor (Cooling)	%	**98/99**	
	Heating power consumption	kW	**1.10/1.10**	
	Running current (Heating)	A	**4.9/5.2**	
	Power factor (Heating)	%	**97/97**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <12>**	
	Noise level	dB(A)	Hi:42 Me:38 Lo:35	47
Exterior dimensions Height × Width × Depth		**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**640 × 800 × 290**
Net weight		**kg**	**18.5 (Unit:15 Panel:3.5)**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**52 × 1**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:11.5 Me:10 Lo:8**	**40**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	–
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-ER)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ12.7 (1/2″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDTC50ZHXV

Item		Model	FDTC50ZHXV	
			FDTC50V	SRC50ZHX-S
Nominal cooling capacity(1)		kW	**5.0 [2.2~5.6]**	
Nominal heating capacity(1)		kW	**5.4 [2.5~6.3]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.56/1.56**	
	Running current (Cooling)	A	**6.9/7.2**	
	Power factor (Cooling)	%	**99/98**	
	Heating power consumption	kW	**1.45/1.45**	
	Running current (Heating)	A	**6.4/6.7**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <14>**	
	Noise level	dB(A)	Hi:42 Me:38 Lo:35	47
Exterior dimensions Height × Width × Depth		**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**640 × 800 × 290**
Net weight		**kg**	**18.5 (Unit:15 Panel:3.5)**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**52 × 1**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:11.5 Me:10 Lo:8**	**40**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	–
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-ER)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ12.7 (1/2″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(b) Twin type

Model FDTC71VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDTC71VNPV	
			FDTC40V	FDC71VN
Nominal cooling capacity(1)		kW	**7.1[3.2~8.0]**	
Nominal heating capacity(1)		kW	**8.0[3.6~9.0]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.91/1.91**	
	Running current (Cooling)	A	**8.3/8.8**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**2.08/2.08**	
	Running current (Heating)	A	**9.0/9.6**	
	Power factor (Heating)	%	**99/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <17>**	
	Noise level	dB(A)	Hi:42 Me:38 Lo:35	48
Exterior dimensions Height × Width × Depth		**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**750 × 968 × 340**
Net weight		**kg**	**18.5 (Unit:15 Panel:3.5)**	**60**
Refrigerant equipment Compressor type & Q'ty			–	**2YC45DXD × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**2.95 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.65 (FVC50K)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**52 × 1**	**86 × 1**
Starting method			Direct line start	
Air flow		**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:60 Heating:50**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-ER)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**I/UΦ6.35(1/4") ②Φ9.52(3/8")×0.8 ①Φ9.52(3/8")×0.8 O/UΦ9.52(3/8")**	
	Gas line		**I/UΦ12.7(1/2") ②Φ12.7(1/2")×0.8 ①Φ15.88(5/8")×1.0 O/UΦ15.88(5/8")**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) Branching pipe set "DIS-WA1"×1(option). ①:Pipe of O/U~Branch, ②:Pipe of Branch~I/U

(7) See page 11(1)~(4) for RANGE OF USAGE & LIMITATIONS.

Model FDTC100VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDTC100VNPV	
			FDTC50V	FDC100VN
Nominal cooling capacity(1)		kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW	**11.2 [4.0~12.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**2.84/2.84**	
	Running current (Cooling)	A	**12.4/13.0**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**3.08/3.08**	
	Running current (Heating)	A	**13.5/14.1**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:42 Me:38 Lo:35	49
Exterior dimensions Height × Width × Depth		**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**845 × 970 × 370**
Net weight		**kg**	**18.5 (Unit:15 Panel:3.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**52 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:75, Heating:73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-ER)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**I/UΦ6.35(1/4") ②Φ9.52(3/8")×0.8 ①Φ9.52(3/8")×0.8 O/UΦ9.52(3/8")**	
	Gas line		**I/UΦ12.7(1/2") ②Φ12.7(1/2")×0.8 ①Φ15.88(5/8")×1.0 O/UΦ15.88(5/8")**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) Branching pipe set "DIS-WA1" ×1(option). ①: Pipe of O/U~Branch, ②: Pipe of Branch~I/U

(7) See page 11(1)~(4) for RANGE OF USAGE & LIMITATIONS.

Model FDTC100VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDTC100VSPV	
			FDTC50V	FDC100VS
Nominal cooling capacity(1)		kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW	**11.2 [4.0~12.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**2.84/2.84**	
	Running current (Cooling)	A	**4.2/4.4**	
	Power factor (Cooling)	%	**98/98**	
	Heating power consumption	kW	**3.08/3.08**	
	Running current (Heating)	A	**4.5/4.8**	
	Power factor (Heating)	%	**99/97**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:42 Me:38 Lo:35	49
Exterior dimensions Height × Width × Depth		**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**845 × 970 × 370**
Net weight		**kg**	**18.5 (Unit:15 Panel:3.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**52 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:75, Heating:73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-ER)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**I/UΦ6.35(1/4") ②Φ9.52(3/8")×0.8 ①Φ9.52(3/8")×0.8 O/UΦ9.52(3/8")**	
	Gas line		**I/UΦ12.7(1/2") ②Φ12.7(1/2")×0.8 ①Φ15.88(5/8")×1.0 O/UΦ15.88(5/8")**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) Branching pipe set "DIS-WA1"×1(option). ①:Pipe of O/U~Branch, ②:Pipe of Branch~I/U

(7) See page 11(1)~(4) for RANGE OF USAGE & LIMITATIONS.

(c) Triple type

Model FDTC140VNTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item		Model	FDTC140VNTV	
			FDTC50V	FDC140VN
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.64/4.64**	
	Running current (Cooling)	A	**20.4/21.3**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**4.52/4.52**	
	Running current (Heating)	A	**20.0/20.9**	
	Power factor (Heating)	%	**98/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:42 Me:38 Lo:35	51
Exterior dimensions Height × Width × Depth		**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**845 × 970 × 370**
Net weight		**kg**	**18.5 (Unit:15 Panel:3.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**52 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:75, Heating:73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-ER)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**I/UΦ6.35(1/4") ②Φ9.52(3/8")×0.8 ①Φ9.52(3/8")×0.8 O/UΦ9.52(3/8")**	
	Gas line		**I/UΦ12.7(1/2") ②Φ12.7(1/2")×0.8 ①Φ15.88(5/8")×1.0 O/UΦ15.88(5/8")**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(6) Branching pipe set "DIS-TA1"×1 (option). ①:Pipe of O/U~Branch, ②:Pipe of Branch~I/U

(7) See page 11(1)~(4) for RANGE OF USAGE & LIMITATIONS.

Model FDTC140VSTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item			Model	FDTC140VSTV	
				FDTC50V	FDC140VS
Nominal cooling capacity(1)			kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)			kW	**16.0 [4.0~16.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.64/4.64**	
	Running current (Cooling)		A	**6.8/7.1**	
	Power factor (Cooling)		%	**98/99**	
	Heating power consumption		kW	**4.52/4.52**	
	Running current (Heating)		A	**6.6/7.0**	
	Power factor (Heating)		%	**99/98**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:42 Me:38 Lo:35	51
Exterior dimensions Height × Width × Depth			**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**845 × 970 × 370**
Net weight			**kg**	**18.5 (Unit:15 Panel:3.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**52 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:75, Heating:73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-ER)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**I/UΦ6.35(1/4") ②Φ9.52(3/8")×0.8 ①Φ9.52(3/8")×0.8 O/UΦ9.52(3/8")**	
	Gas lin			**I/UΦ12.7(1/2") ②Φ12.7(1/2")×0.8 ①Φ15.88(5/8")×1.0 O/UΦ15.88(5/8")**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(6) Branching pipe set "DIS-TA1"×1 (option). ①:Pipe of O/U~Branch, ②:Pipe of Branch~I/U

(7) See page 11(1)~(4) for RANGE OF USAGE & LIMITATIONS.

Operating temperature range		See the next page.
		When used below -5°C, install a snow hood(option).<71～140 only>
Recommendable area to install		Considering to get sufficient heating capacity, the area where the averaged lowest ambient air temperature in day time during winter is above 0°C, and it has no accumulation of snow.
Installation site		The limitations of installation space are shown in the page for outline drawing . Install the indoor unit at least 2.5m higher than the floor surface.
Temperature and humidity conditions surrounding the indoor unit in the ceiling (Note 2)		Dew point temperature:28°C or less, relative hummdity:80% or less
Limitations on unit and piping installation		See page 3 and 4
Compressor ON-OFF cycling	Cycle Time	7 minutes or more (from OFF to OFF)or(from ON to ON)
	Stop Time	3 minutes or more
Power source	Voltage range	Rating ±10%
	Voltage drop at start-up	Min.85% of rating
	Phase-to-phase imbalance	3 % or less

Note 1. Do not install the unit in places which :
flammable gas may leak.
carbon fiber, metal particles, powder, etc. are floating.
cosmetic or special sprays are used frequently.
exposed to oil splashes or steam (e.g. kitchen and machine plant).
exposed to sea breeze (e.g. coastal area) or calcium chloride (e.g. snow melting agent).
exposed to ammonia substance (e.g. organic fertilizer).
matters affecting devices, such as sulfuric gas, chlorine gas, acid, alkali, etc. may generate or accumulate.
chimney smoke is hanging.
sucking the exhaust gas from heat exchanger.
adjacent to equipment generating electromagnetic waves or high frequency waves.
there is light beams that affect the receiving device of indoor unit in case of the wireless specification.
snow falls heavily.
at an elevation of 1000 meters or higher.
on mobile machine (e.g. vehicle, ship, etc.)
splashed with water to indoor unit (e.g. laundry room).
indoor units of twin, triple and double-twin specifications separately in a room with partition.

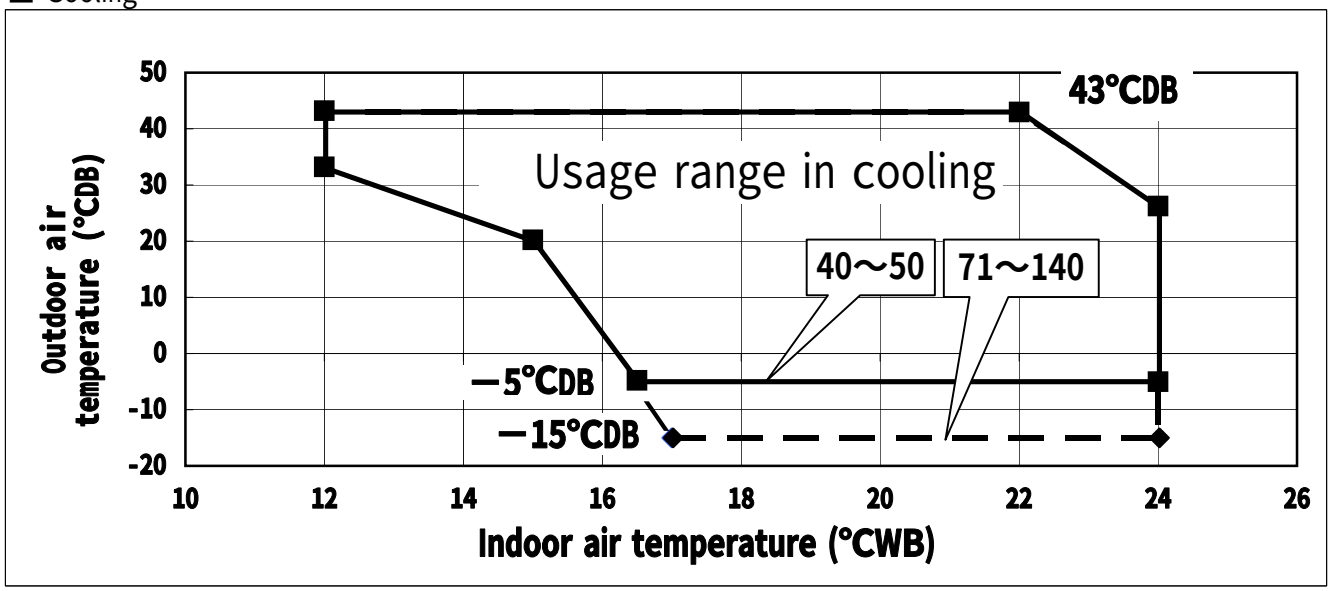
Note 2. If the surrounding temperature and humidity exceed above values, paste polyurethane foam insulation of 10mm or thicker on the outer panels of indoor unit additionally.

Note 3. If ambient temperature and humidity exceed the above values, add polyurethane foam insulation on the outer plate (10mm or thicker)of indoor unit.

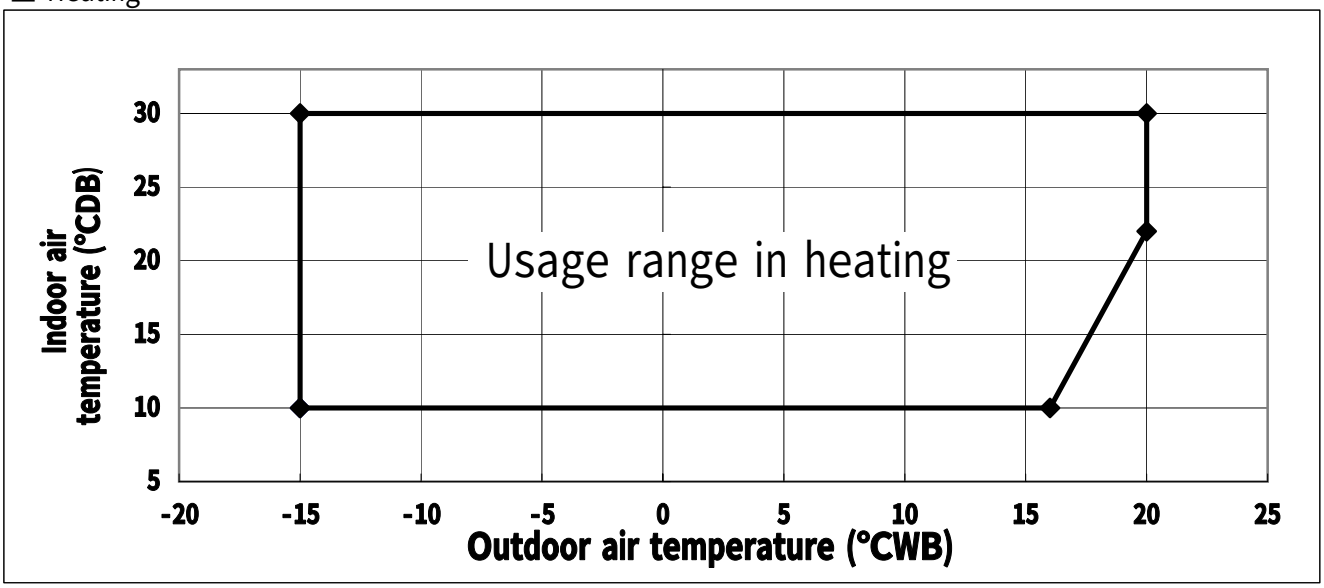
Both gas and liquid pipes need to be cover with 20mm or thicker heat insulation materials at the place where humidity exceeds 70%.

Operating temperature range

■ Cooling



■ Heating

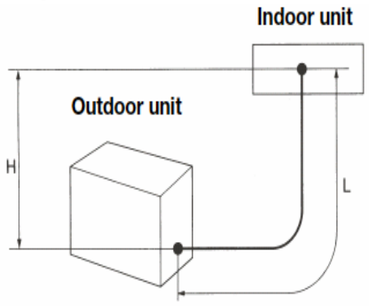


Decline in cooling and heating capacity or operation stop may occur when the outdoor unit is installed in places where natural wind can increase or decrease its design airflow rate.

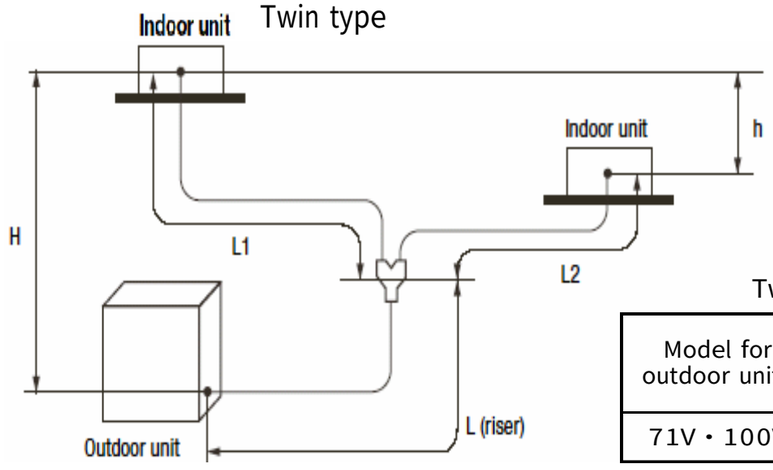
Limitation on unit and piping installation - single, twin, W-twin.

Descriptions		Models for outdoor unit	Dimensional limitations	Single type	Twin type
One-way pipe length		40・50	≦ 30m	L	
		71V・100V	≦ 50m		L+L1+L2
Main pipe length		71V・100V	≦ 50m		L
One-way pipe length after first branching point		71V	≦ 20m		L1, L2
		100V	≦ 30m		
Difference of pipe length after first branching point			≦ 10m		L1-L2 L2-L1
Elevation difference between indoor and outdoor unit	When outdoor unit is positioned higher	40・50	≦ 20m	H	
		71V・100V	≦ 30m		H
	When outdoor unit is positioned lower	40・50	≦ 20m	H	
		71V・100V	≦ 15m		H
Elevation difference among indoor units			≦ 0.5m		h

Single type



Twin type



Twin type

Model for outdoor units	Branch piping set (option)
71V・100V	DIS-WA1

(1) A riser pipe must be part of the main.

A branching pipe set should be installed horizontally at point as close to an indoor unit as possible.

(2) Reduce refrigerant amount by according to table below from the factory charge when refrigerant piping is shorter than 3m.

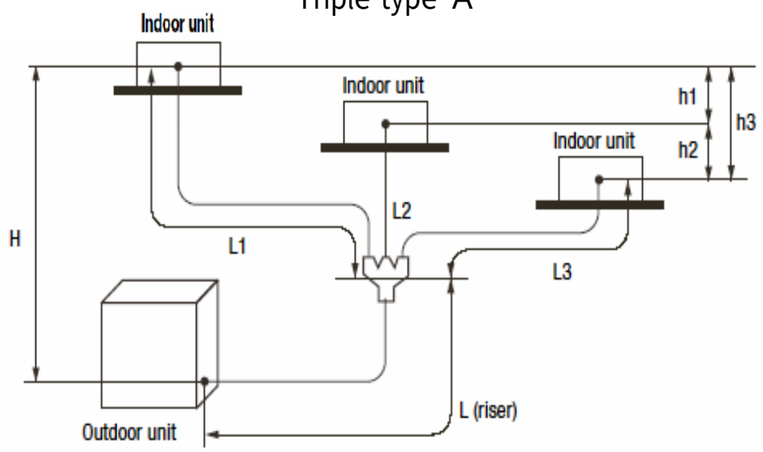
Model for outdoor units	refrigerant to be reduced
71V・100V	1.0 kg

Limitation on unit and piping installation - triple.

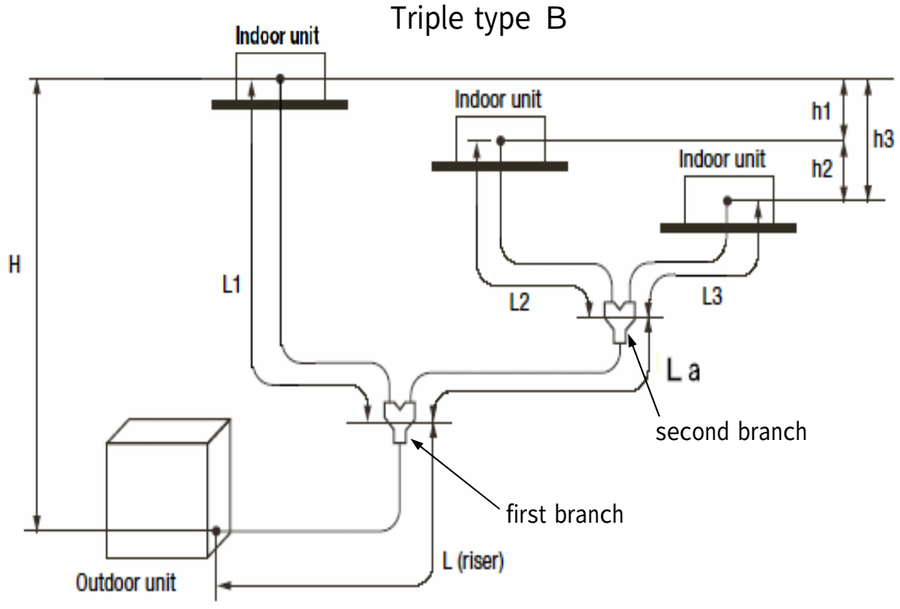
Descriptions	Models for outdoor unit	Dimensional limitations	Marks appearing in the drawing: Triple type A	Marks appearing in the drawing: Triple type B
One-way pipe length	140V	≦ 50m	L＋L1＋L2＋L3	L＋La＋L1＋L2＋L3 ※1
Main pipe length	140V	≦ 50m	L	L
One-way pipe length first branching point to indoor units between	140V	≦ 30m	L1, L2, L3	L1 ※1
One-way pipe length between first branching point from and second branching point	140V	≦ 5m		La
One-way pipe length first branching point and indoor units	140V	≦ 27m		La＋L2 , La＋L3 ※1
Piping length difference among piping to indoor units from first branch		＜ 3m	L1－L2, L1－L3, L2－L3	(not possible)
		3m ≦ ≦ 10m	(not possible)	L1－(La＋L2), L1－(La＋L3) ※1
One-way pipe length difference from second branching point to indoor units		≦ 10m		L2－L3
Elevation difference between indoor and outdoor: When outdoor unit is positioned higher		≦ 30m	H	H
Elevation difference between indoor and outdoor: When outdoor unit is positioned lower		≦ 15m		
Elevation difference among indoor units		≦ 0.5m	h1, h2, h3	h1, h2, h3

※1
Install the indoor units so that L＋L1 becomes the longest one-way pipe.
Keep the pipe length difference between L1 and (La＋L2) or (La＋L3) within 10m.

Triple type A



Triple type B



Branch piping set (option)

Model for outdoor units	Triple type A	Triple type B	
	branch piping	first branch	second branch
140V	DIS-TA1	DIS-WA1	DIS-WA1

(1) A riser pipe must be part of the main.
A branching pipe set should be installed horizontally at point as close to an indoor unit as possible.
(2) Reduce refrigerant amount by 1.0kg from the factory charge when refrigerant piping is shorter than 3m.

(b) Twin type

Model FDTC71VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDTC71VNPV	
			FDTC40V	FDC71VN
Nominal cooling capacity(1)		kW	**7.1[3.2~8.0]**	
Nominal heating capacity(1)		kW	**8.0[3.6~9.0]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.91/1.91**	
	Running current (Cooling)	A	**8.3/8.8**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**2.08/2.08**	
	Running current (Heating)	A	**9.0/9.6**	
	Power factor (Heating)	%	**99/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <17>**	
	Noise level	dB(A)	Hi:42 Me:38 Lo:35	48
Exterior dimensions Height × Width × Depth		**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**750 × 968 × 340**
Net weight		**kg**	**18.5 (Unit:15 Panel:3.5)**	**60**
Refrigerant equipment Compressor type & Q'ty			–	**2YC45DXD × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**2.95 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.65 (FVC50K)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**52 × 1**	**86 × 1**
Starting method			Direct line start	
Air flow		**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:60 Heating:50**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-ER)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDTC100VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDTC100VNPV	
				FDTC50V	FDC100VN
Nominal cooling capacity(1)			kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)			kW	**11.2 [4.0~12.5]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**2.84/2.84**	
	Running current (Cooling)		A	**12.4/13.0**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**3.08/3.08**	
	Running current (Heating)		A	**13.5/14.1**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:42 Me:38 Lo:35	49
Exterior dimensions Height × Width × Depth			**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**845 × 970 × 370**
Net weight			**kg**	**18.5 (Unit:15 Panel:3.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**52 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:75, Heating:73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-ER)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDTC100VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDTC100VSPV	
				FDTC50V	FDC100VS
Nominal cooling capacity(1)			kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)			kW	**11.2 [4.0~12.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**2.84/2.84**	
	Running current (Cooling)		A	**4.2/4.4**	
	Power factor (Cooling)		%	**98/98**	
	Heating power consumption		kW	**3.08/3.08**	
	Running current (Heating)		A	**4.5/4.8**	
	Power factor (Heating)		%	**99/97**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:42 Me:38 Lo:35	49
Exterior dimensions Height × Width × Depth			**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**845 × 970 × 370**
Net weight			**kg**	**18.5 (Unit:15 Panel:3.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**52 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:75, Heating:73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(c) Triple type

Model FDTC140VNTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item		Model	FDTC140VNTV	
			FDTC50V	FDCV140VN
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.64/4.64**	
	Running current (Cooling)	A	**20.4/21.3**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**4.52/4.52**	
	Running current (Heating)	A	**20.0/20.9**	
	Power factor (Heating)	%	**98/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:42 Me:38 Lo:35	51
Exterior dimensions Height × Width × Depth		**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**845 × 970 × 370**
Net weight		**kg**	**18.5 (Unit:15 Panel:3.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**52 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:75, Heating:73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

Model FDTC140VSTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item		Model	FDTC140VSTV	
			FDTC50V	FDC140VS
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.64/4.64**	
	Running current (Cooling)	A	**6.8/7.1**	
	Power factor (Cooling)	%	**98/99**	
	Heating power consumption	kW	**4.52/4.52**	
	Running current (Heating)	A	**6.6/7.0**	
	Power factor (Heating)	%	**99/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:42 Me:38 Lo:35	51
Exterior dimensions Height × Width × Depth		**mm**	**Unit 248 × 570 × 570 Panel 35 × 700 × 700**	**845 × 970 × 370**
Net weight		**kg**	**18.5 (Unit:15 Panel:3.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**52 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:11.5 Me:10 Lo:8**	**Cooling:75, Heating:73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-TC-24W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (TC-PSA-24W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(2) Ceiling cassette-4way type (FDT)

(a) Single type

Model FDT40ZHXV

Item		Model	FDT40ZHXV	
			FDT40V	SRC40ZHX-S
Nominal cooling capacity(1)		kW	**4.0 [1.8~4.7]**	
Nominal heating capacity(1)		kW	**4.5 [2.0~5.4]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**0.93/0.93**	
	Running current (Cooling)	A	**4.1/4.3**	
	Power factor (Cooling)	%	**98/98**	
	Heating power consumption	kW	**1.15/1.15**	
	Running current (Heating)	A	**5.2/5.4**	
	Power factor (Heating)	%	**97/97**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <12>**	
	Noise level	dB(A)	Hi:33 Me:31 Lo:30	47
Exterior dimensions Height × Width × Depth		**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**640 × 800 × 290**
Net weight		**kg**	**27.5 (Unit:22 Panel:5.5)**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**50 × 1**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:18 Me:16 Lo:14**	**40**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	–
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ12.7 (1/2″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDT50ZHXV

Item		Model	FDT50ZHXV	
			FDT50VN	SRC50ZHX-S
Nominal cooling capacity(1)		kW	**5.0 [2.2~5.6]**	
Nominal heating capacity(1)		kW	**5.4 [2.5~6.3]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.29/1.29**	
	Running current (Cooling)	A	**5.7/6.0**	
	Power factor (Cooling)	%	**98/98**	
	Heating power consumption	kW	**1.29/1.29**	
	Running current (Heating)	A	**5.7/6.0**	
	Power factor (Heating)	%	**98/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <14>**	
	Noise level	dB(A)	Hi:33 Me:31 Lo:30	47
Exterior dimensions Height × Width × Depth		**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**640 × 800 × 290**
Net weight		**kg**	**29.5 (Unit:24 Panel:5.5)**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**50 × 1**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:18 Me:16 Lo:14**	**40**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	–
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ12.7 (1/2″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDT60ZHXV

Item		Model	FDT60ZHXV	
			FDT60V	SRC60ZHX-S
Nominal cooling capacity(1)		kW	**5.6 [2.8~6.3]**	
Nominal heating capacity(1)		kW	**6.7 [3.1~7.1]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.57/1.57**	
	Running current (Cooling)	A	**7.0/7.2**	
	Power factor (Cooling)	%	**98/99**	
	Heating power consumption	kW	**1.85/1.85**	
	Running current (Heating)	A	**8.2/8.7**	
	Power factor (Heating)	%	**98/97**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <14>**	
	Noise level	dB(A)	Hi:33 Me:31 Lo:30	48
Exterior dimensions Height × Width × Depth		**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**640 × 800 × 290**
Net weight		**kg**	**29.5 (Unit:24 Panel:5.5)**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**50 × 1**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:18 Me:16 Lo:14**	**40**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	–
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDT71VNV

Item		Model	FDT71VNV	
			FDT71V	FDC71VN
Nominal cooling capacity(1)		kW	**7.1[3.2~8.0]**	
Nominal heating capacity(1)		kW	**8.0[3.6~9.0]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.90/1.90**	
	Running current (Cooling)	A	**8.3/8.8**	
	Power factor (Cooling)	%	**99/98**	
	Heating power consumption	kW	**2.07/2.07**	
	Running current (Heating)	A	**9.0/9.6**	
	Power factor (Heating)	%	**99/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <17>**	
	Noise level	dB(A)	Hi:35 Me:33 Lo:31	48
Exterior dimensions Height × Width × Depth		**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**750 × 968 × 340**
Net weight		**kg**	**29.5 (Unit:24 Panel:5.5)**	**60**
Refrigerant equipment Compressor type & Q'ty			–	**2YC45DXD × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**2.95 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.65 (FVC50K)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**50 × 1**	**86 × 1**
Starting method			Direct line start	
Air flow		**CMM**	**Hi:21 Me:19 Lo:17**	**Cooling:60 Heating:50**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDT100VNV

Item		Model	FDT100VNV	
			FDT100V	FDC100VN
Nominal cooling capacity(1)		kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW	**11.2 [4.0~12.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**2.76/2.76**	
	Running current (Cooling)	A	**12.1/12.7**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**2.74/2.74**	
	Running current (Heating)	A	**12.0/12.6**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:40 Me:37 Lo:35	49
Exterior dimensions Height × Width × Depth		**mm**	**Unit 298 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight		**kg**	**32.5 (Unit:27 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**140 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:27 Me:24 Lo:20**	**Cooling: 75, Heating: 73**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-35W-ER)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDT100VSV

Item		Model	FDT100VSV	
			FDT100V	FDC100VS
Nominal cooling capacity(1)		kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW	**11.2 [4.0~12.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**2.76/2.76**	
	Running current (Cooling)	A	**4.2/4.4**	
	Power factor (Cooling)	%	**95/91**	
	Heating power consumption	kW	**2.74/2.74**	
	Running current (Heating)	A	**4.2/4.4**	
	Power factor (Heating)	%	**94/95**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:40 Me:37 Lo:35	49
Exterior dimensions Height × Width × Depth		**mm**	**Unit 298 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight		**kg**	**32.5 (Unit:27 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**140 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:27 Me:24 Lo:20**	**Cooling: 75, Heating: 73**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDT125VNV

Item		Model	FDT125VNV	
			FDT125V	FDC125VN
Nominal cooling capacity(1)		kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)		kW	**14.0 [4.0~16.0]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.05/4.05**	
	Running current (Cooling)	A	**17.6/18.6**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**3.77/3.77**	
	Running current (Heating)	A	**16.6/17.3**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:42 Me:40 Lo:37	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth		**mm**	**Unit 298 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight		**kg**	**32.5 (Unit:27 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**140 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:30 Me:27 Lo:23**	**Cooling: 75, Heating: 73**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDT125VSV

Item		Model	FDT125VS	
			FDT125V	FDC125VS
Nominal cooling capacity(1)		kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)		kW	**14.0 [4.0~16.0]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.05/4.05**	
	Running current (Cooling)	A	**5.9/6.3**	
	Power factor (Cooling)	%	**99/98**	
	Heating power consumption	kW	**3.77/3.77**	
	Running current (Heating)	A	**5.5/5.9**	
	Power factor (Heating)	%	**99/97**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:42 Me:40 Lo:37	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth		**mm**	**Unit 298 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight		**kg**	**32.5 (Unit:27 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**140 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:30 Me:27 Lo:23**	**Cooling: 75, Heating: 73**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDT140VNV

Item		Model	FDT140VNV	
			FDT140V	FDC140VN
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.98/4.98**	
	Running current (Cooling)	A	**22.0/23.0**	
	Power factor (Cooling)	%	**98/98**	
	Heating power consumption	kW	**4.57/4.57**	
	Running current (Heating)	A	**20.2/21.2**	
	Power factor (Heating)	%	**98/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:43 Me:41 Lo:38	51
Exterior dimensions Height × Width × Depth		**mm**	**Unit 298 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight		**kg**	**32.5 (Unit:27 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**140 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:30 Me:27 Lo:23**	**Cooling: 75, Heating: 73**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDT140VS

Item		Model	FDT140VSV	
			FDT140V	FDC140VS
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.98/4.98**	
	Running current (Cooling)	A	**7.4/7.8**	
	Power factor (Cooling)	%	**97/97**	
	Heating power consumption	kW	**4.57/4.57**	
	Running current (Heating)	A	**6.7/7.4**	
	Power factor (Heating)	%	**98/94**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:43 Me:41 Lo:38	51
Exterior dimensions Height × Width × Depth		**mm**	**Unit 365 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight		**kg**	**32.5 (Unit:27 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**140 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:30 Me:27 Lo:23**	**Cooling: 75, Heating: 73**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(b) Twin type

Model FDT71VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDT71VNPV	
			FDT40V	FDC71VN
Nominal cooling capacity(1)		kW	**7.1[3.2~8.0]**	
Nominal heating capacity(1)		kW	**8.0[3.6~9.0]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.85/1.85**	
	Running current (Cooling)	A	**8.0/8.6**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**1.99/1.99**	
	Running current (Heating)	A	**8.7/9.1**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <17>**	
	Noise level	dB(A)	Hi:33 Me:31 Lo:30	48
Exterior dimensions Height × Width × Depth		**mm**	**Unit 246 × 840 × 840 Panel 30 × 950 × 950**	**750 × 968 × 340**
Net weight		**kg**	**27.5 (Unit:22 Panel:5.5)**	**60**
Refrigerant equipment Compressor type & Q'ty			–	**2YC45DXD × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**2.95 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.65 (FVC50K)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**50 × 1**	**86 × 1**
Starting method			Direct line start	
Air flow		**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling:60 Heating:50**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDT100VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDT100VNPV	
				FDT50V	FDC100VN
Nominal cooling capacity(1)			kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)			kW	**11.2 [4.0~12.5]**	
Power source				**1 Phase, 220-240V 50Hz**	
Operation data(3)	Cooling power consumption		kW	**2.94/2.94**	
	Running current (Cooling)		A	**12.9/13.7**	
	Power factor (Cooling)		%	**99/98**	
	Heating power consumption		kW	**3.09/3.09**	
	Running current (Heating)		A	**13.6/14.2**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:33 Me:31 Lo:30	49
Exterior dimensions Height × Width × Depth			**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight			**kg**	**29.5 (Unit:24 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**50 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling: 75, Heating: 73**
Outside air intake				Possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) Not available in 60Hz.

Model FDT100VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDT100VSPV	
				FDT50V	FDC125VS
Nominal cooling capacity(1)			kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)			kW	**11.2 [4.0~12.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**2.94/2.94**	
	Running current (Cooling)		A	**4.3/4.6**	
	Power factor (Cooling)		%	**99/97**	
	Heating power consumption		kW	**3.09/3.09**	
	Running current (Heating)		A	**4.5/4.8**	
	Power factor (Heating)		%	**99/98**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:33 Me:31 Lo:31	49
Exterior dimensions Height × Width × Depth			**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight			**kg**	**29.5 (Unit:24 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**50 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling: 75, Heating: 73**
Outside air intake				Possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDT125VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDT125VNPV	
				FDT60V	FDC125VN
Nominal cooling capacity(1)			kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)			kW	**14.0 [4.0~16.0]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**3.95/3.95**	
	Running current (Cooling)		A	**18.9/20.0**	
	Power factor (Cooling)		%	**91/90**	
	Heating power consumption		kW	**4.13/4.15**	
	Running current (Heating)		A	**18.2/19.2**	
	Power factor (Heating)		%	**99/98**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:33 Me:31 Lo:30	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth			**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight			**kg**	**29.5 (Unit:24 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**50 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling: 75, Heating: 73**
Outside air intake				Possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDT125VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDT125VSPV	
				FDT60V	FDC125VS
Nominal cooling capacity(1)			kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)			kW	**14.0 [4.0~16.0]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**3.95/3.95**	
	Running current (Cooling)		A	**6.3/6.7**	
	Power factor (Cooling)		%	**95/90**	
	Heating power consumption		kW	**3.70/3.70**	
	Running current (Heating)		A	**6.1/6.4**	
	Power factor (Heating)		%	**92/88**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:33 Me:31 Lo:30	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth			**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight			**kg**	**29.5 (Unit:24 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**50 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling: 75, Heating: 73**
Outside air intake				Possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDT140VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDT140VNPV	
				FDT71V	FDC140VN
Nominal cooling capacity(1)			kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)			kW	**16.0 [4.0~16.5]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.51/4.51**	
	Running current (Cooling)		A	**19.8/20.7**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**4.58/4.58**	
	Running current (Heating)		A	**20.1/21.0**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:35 Me:33 Lo:31	51
Exterior dimensions Height × Width × Depth			**mm**	**Unit 270 × 840 × 840 Panel 30 × 950 × 950**	**845 × 970 × 370**
Net weight			**kg**	**29.5 (Unit:24 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**50 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:21 Me:19 Lo:17**	**Cooling: 75, Heating: 73**
Outside air intake				Possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDT140VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDT140VSPV	
				FDT71V	FDC140VS
Nominal cooling capacity(1)			kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)			kW	**16.0 [4.0~16.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.51/4.51**	
	Running current (Cooling)		A	**6.7/7.1**	
	Power factor (Cooling)		%	**97/97**	
	Heating power consumption		kW	**4.58/4.58**	
	Running current (Heating)		A	**6.7/7.0**	
	Power factor (Heating)		%	**99/98**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:35 Me:33 Lo:31	51
Exterior dimensions Height × Width × Depth			**mm**	**Unit 246 × 840 × 840 Panel 30 × 950 × 950**	**845 × 970 × 370**
Net weight			**kg**	**29.5 (Unit:24 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**50 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:21 Me:19 Lo:17**	**Cooling: 75, Heating: 73**
Outside air intake				Possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDT200VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDT200VSPV	
			FDT100V	FDC200VS
Nominal cooling capacity(1)		kW	**20.0 [7.0~22.4]**	
Nominal heating capacity(1)		kW	**22.4 [7.6~25.0]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**6.58/6.58**	
	Running current (Cooling)	A	**9.9/10.6**	
	Power factor (Cooling)	%	**96/94**	
	Heating power consumption	kW	**6.02/6.02**	
	Running current (Heating)	A	**9.1/9.8**	
	Power factor (Heating)	%	**95/93**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:40 Me:37 Lo:35	57
Exterior dimensions Height × Width × Depth		**mm**	**Unit 298 × 840 × 840 Panel 35 × 950 × 950**	**1300 × 970 × 370**
Net weight		**kg**	**32.5 (Unit:27 Panel:5.5)**	**122**
Refrigerant equipment Compressor type & Q'ty			–	**GTC5150ND70K × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**5.4 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**1.45 (M-MA32R)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**140 × 1**	**86 × 2**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:25 Me:22 Lo:20**	**Cooling: 150, Heating: 145**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line(6)		**Indoor branch pipe: ϕ15.88 (5/8″), Outdoor main pipe: ϕ22.22 (7/8″)**	
Connecting method			**Flare piping (Outdoor gas piping: Brazing)**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose, Reducer kit (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

Model FDT250VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDT250VSPV	
			FDT125V	FDC250VS
Nominal cooling capacity(1)		kW	**25.0 [10.0~28.0]**	
Nominal heating capacity(1)		kW	**28.0 [9.5~31.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**8.30/7.75**	
	Running current (Cooling)	A	**12.8/13.4**	
	Power factor (Cooling)	%	**94/94**	
	Heating power consumption	kW	**7.75/7.75**	
	Running current (Heating)	A	**11.8/12.3**	
	Power factor (Heating)	%	**95/96**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <27>**	
	Noise level	dB(A)	Hi:42 Me:40 Lo:37	Cooling:57, Heating: 58
Exterior dimensions Height × Width × Depth		**mm**	**Unit 365 × 840 × 840 Panel 35 × 950 × 950**	**1505 × 970 × 370**
Net weight		**kg**	**32.5 (Unit:27 Panel:5.5)**	**140**
Refrigerant equipment Compressor type & Q'ty			–	**GTC5150ND70K × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**7.2 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**1.45 (M-MA32R)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**14 × 1**	**86 × 2**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:30 Me:27 Lo:23**	**Cooling: 150, Heating: 145**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe: ϕ9.52 (3/8″), Outdoor main pipe: ϕ12.7 (1/2″)**	
	Gas line(6)		**Indoor branch pipe: ϕ15.88 (5/8″), Outdoor main pipe: ϕ22.22 (7/8″)**	
Connecting method			**Flare piping (Outdoor gas piping: Brazing)**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose, Reducer kit, (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

(c) Triple type

Model FDT140VNTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item		Model	FDT140VNTV	
			FDT50V	FDC140VN
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.65/4.65**	
	Running current (Cooling)	A	**20.8/22.1**	
	Power factor (Cooling)	%	**97/96**	
	Heating power consumption	kW	**4.63/4.63**	
	Running current (Heating)	A	**20.3/21.2**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:33 Me:31 Lo:30	51
Exterior dimensions Height × Width × Depth		**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight		**kg**	**29.5 (Unit:24 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**50 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling: 75, Heating: 73**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

Model FDT140VSTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item			Model	FDT140VSTV	
				FDT50V	FDC140VS
Nominal cooling capacity(1)			kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)			kW	**16.0 [4.0~16.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.65/4.65**	
	Running current (Cooling)		A	**6.9/7.4**	
	Power factor (Cooling)		%	**97/95**	
	Heating power consumption		kW	**4.63/4.63**	
	Running current (Heating)		A	**6.8/7.1**	
	Power factor (Heating)		%	**98/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:33 Me:31 Lo:30	51
Exterior dimensions Height × Width × Depth			**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**845 × 970 × 370**
Net weight			**kg**	**29.5 (Unit:24 Panel:5.5)**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 1
Motor			W	**50 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling: 75, Heating: 73**
Outside air intake				Possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(c) Triple type

Model FDT200VSTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item			Model	FDT200VSTV	
				FDT71V	FDC200VS
Nominal cooling capacity(1)			kW	**20.0 [7.0~22.4]**	
Nominal heating capacity(1)			kW	**22.4 [7.6~25.0]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**6.49/6.49**	
	Running current (Cooling)		A	**10.0/10.8**	
	Power factor (Cooling)		%	**94/91**	
	Heating power consumption		kW	**6.12/6.12**	
	Running current (Heating)		A	**10.0/10.8**	
	Power factor (Heating)		%	**88/86**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:35 Me:33 Lo:31	57
Exterior dimensions Height × Width × Depth			**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**1300 × 970 × 370**
Net weight			**kg**	**29.5 (Unit:24 Panel:5.5)**	**122**
Refrigerant equipment Compressor type & Q'ty				–	**GTC5150ND70K × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**5.4 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**1.45 (M-MA32R)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Turbo fan × 1	Propeller fan × 2
Motor			W	**50 × 1**	**86 × 2**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:21 Me:19 Lo:17**	**Cooling: 150, Heating: 145**
Outside air intake				Possible	–
Air filter, Q'ty				Pocket plastic net × 1 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	33 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line (6)			**Indoor branch pipe: ϕ15.88 (5/8″), Outdoor main pipe: ϕ22.22 (7/8″)**	
Connecting method				**Flare piping (Outdoor gas piping: Brazing)**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	–
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose, Reducer kit, (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts				Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(6) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

(d) Double twin type

Model FDT200VSDV (Indoor unit: 4 units, Outdoor unit: 1 unit)

Item		Model	FDT200VSDV	
			FDT50V	FDC200VS
Nominal cooling capacity(1)		kW	**20.0 [7.0~22.4]**	
Nominal heating capacity(1)		kW	**22.4 [7.6~25.0]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**6.58/6.58**	
	Running current (Cooling)	A	**10.1/11.0**	
	Power factor (Cooling)	%	**94/91**	
	Heating power consumption	kW	**6.15/6.15**	
	Running current (Heating)	A	**10.2/10.7**	
	Power factor (Heating)	%	**87/87**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:33 Me:31 Lo:30	57
Exterior dimensions Height × Width × Depth		**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**1300 × 970 × 370**
Net weight		**kg**	**29.5 (Unit:24 Panel:5.5)**	**122**
Refrigerant equipment Compressor type & Q'ty			–	**GTC5150ND70K × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**5.4 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**1.45 (M-MA32R)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**50 × 1**	**86 × 2**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling: 150, Heating: 145**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line(6)		**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ22.22 (7/8″)**	
Connecting method			**Flare piping (Outdoor gas piping: Brazing)**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose, Reducer kit, (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where four indoor units are combined and run together.

(6) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

Model FDT250VSDV (Indoor unit: 4 units, Outdoor unit: 1 unit)

Item		Model	FDT250VSDV	
			FDT60V	FDC250VS
Nominal cooling capacity(1)		kW	**25.0 [10.0~28.0]**	
Nominal heating capacity(1)		kW	**28.0 [9.5~31.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**8.28/8.28**	
	Running current (Cooling)	A	**13.3/14.3**	
	Power factor (Cooling)	%	**90/88**	
	Heating power consumption	kW	**7.70/7.70**	
	Running current (Heating)	A	**12.9/13.9**	
	Power factor (Heating)	%	**86/84**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <27>**	
	Noise level	dB(A)	Hi:33 Me:31 Lo:30	Cooling:57, Heating: 58
Exterior dimensions Height × Width × Depth		**mm**	**Unit 246 × 840 × 840 Panel 35 × 950 × 950**	**1505 × 970 × 370**
Net weight		**kg**	**29.5 (Unit:24 Panel:5.5)**	**140**
Refrigerant equipment Compressor type & Q'ty			–	**GTC5150ND70K × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**7.2 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**1.45 (M-MA32R)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**50 × 1**	**86 × 2**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling: 150, Heating: 145**
Outside air intake			Possible	–
Air filter, Q'ty			Pocket plastic net × 1 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-T-36W-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Overload protection for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe: ϕ9.52 (3/8″), Outdoor main pipe: ϕ12.7 (1/2″)**	
	Gas line(6)		**Indoor branch pipe: ϕ15.88 (5/8″), Outdoor main pipe: ϕ22.22 (7/8″)**	
Connecting method			**Flare piping (Outdoor gas piping: Brazing)**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose, Reducer kit, (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts			Decorative Panel (T-PSA-36W-E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where four indoor units are combined and run together.

(6) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

(3) Ceiling suspended type (FDEN)

(a) Single type

Model FDEN40ZHXV

Item		Model	FDEN40ZHXV	
			FDEN40V	SRC40ZHX-S
Nominal cooling capacity(1)		kW	**4.0 [1.8~4.7]**	
Nominal heating capacity(1)		kW	**4.5 [2.0~5.4]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.04/1.04**	
	Running current (Cooling)	A	**4.7/4.8**	
	Power factor (Cooling)	%	**97/98**	
	Heating power consumption	kW	**1.13/1.13**	
	Running current (Heating)	A	**5.1/5.3**	
	Power factor (Heating)	%	**97/97**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <12>**	
	Noise level	dB(A)	Hi:39 Me:38 Lo:37	47
Exterior dimensions Height × Width × Depth		**mm**	**210 × 1070 × 690**	**640 × 800 × 290**
Net weight		**kg**	**30**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**25 × 1**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:11 Me:9 Lo:7**	**40**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	–
Operation control Operation switch			Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ12.7 (1/2″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDEN50ZHXV

Item		Model	FDEN50ZHXV	
			FDEN50V	SRC50ZHX-S
Nominal cooling capacity(1)		kW	**5.0 [2.2~5.6]**	
Nominal heating capacity(1)		kW	**5.4 [2.5~6.3]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.59/1.59**	
	Running current (Cooling)	A	**7.1/7.5**	
	Power factor (Cooling)	%	**97/97**	
	Heating power consumption	kW	**1.58/1.58**	
	Running current (Heating)	A	**7.0/7.3**	
	Power factor (Heating)	%	**98/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <14>**	
	Noise level	dB(A)	Hi:39 Me:38 Lo:37	47
Exterior dimensions Height × Width × Depth		**mm**	**210 × 1070 × 690**	**640 × 800 × 290**
Net weight		**kg**	**30**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**25 × 1**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:11 Me:9 Lo:7**	**40**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ12.7 (1/2″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDEN60ZHXV

Item		Model	FDEN60ZHXV	
			FDEN60V	SRC60ZHX-S
Nominal cooling capacity(1)		kW	**5.6 [2.8~6.3]**	
Nominal heating capacity(1)		kW	**6.7 [3.1~7.1]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.95/1.95**	
	Running current (Cooling)	A	**8.7/9.7**	
	Power factor (Cooling)	%	**97/96**	
	Heating power consumption	kW	**2.12/2.12**	
	Running current (Heating)	A	**9.4/9.8**	
	Power factor (Heating)	%	**98/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <14>**	
	Noise level	dB(A)	Hi:41 Me:39 Lo:38	48
Exterior dimensions Height × Width × Depth		**mm**	**210 × 1320 × 690**	**640 × 800 × 290**
Net weight		**kg**	**36**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 4	Propeller fan × 1
Motor		W	**20 × 2**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:18 Me:14 Lo:12**	**40**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	–
Operation control Operation switch			Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDEN71VNV

Item		Model	FDEN71VNV	
			FDEN71V	FDC71VN
Nominal cooling capacity(1)		kW	**7.1[3.2~8.0]**	
Nominal heating capacity(1)		kW	**8.0[3.6~9.0]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**2.01/2.01**	
	Running current (Cooling)	A	**8.9/9.2**	
	Power factor (Cooling)	%	**98/99**	
	Heating power consumption	kW	**2.21/2.21**	
	Running current (Heating)	A	**9.8/10.2**	
	Power factor (Heating)	%	**98/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <17>**	
	Noise level	dB(A)	Hi:41 Me:39 Lo:38	48
Exterior dimensions Height × Width × Depth		**mm**	**210 × 1320 × 690**	**750 × 968 × 340**
Net weight		**kg**	**36**	**60**
Refrigerant equipment Compressor type & Q'ty			–	**2YC45DXD × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**2.95 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.65 (FVC50K)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 4	Propeller fan × 1
Motor		W	**20 × 2**	**86 × 1**
Starting method			Direct line start	
Air flow		**CMM**	**Hi:18 Me:14 Lo:12**	**Cooling:60 Heating:50**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

Model FDEN100VNV

Item		Model	FDEN100VNV	
			FDEN100V	FDC100VN
Nominal cooling capacity(1)		kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW	**11.2 [4.0~12.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**2.85/2.85**	
	Running current (Cooling)	A	**12.5/13.1**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**2.97/2.97**	
	Running current (Heating)	A	**13.0/13.6**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:44 Me:41 Lo:39	49
Exterior dimensions Height × Width × Depth		**mm**	**250 × 1620 × 690**	**845 × 970 × 370**
Net weight		**kg**	**46**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 4	Propeller fan × 1
Motor		W	**30 × 2**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:26 Me:23 Lo:21**	**Cooling: 75, Heating: 73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDEN100VSV

Item		Model	FDEN100VSV	
			FDEN100V	FDC100VS
Nominal cooling capacity(1)		kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW	**11.2 [4.0~12.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**2.85/2.85**	
	Running current (Cooling)	A	**4.2/4.4**	
	Power factor (Cooling)	%	**98/98**	
	Heating power consumption	kW	**2.97/2.97**	
	Running current (Heating)	A	**4.3/4.6**	
	Power factor (Heating)	%	**99/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:44 Me:41 Lo:39	49
Exterior dimensions Height × Width × Depth		**mm**	**250 × 1620 × 690**	**845 × 970 × 370**
Net weight		**kg**	**46**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 4	Propeller fan × 1
Motor		W	**32 × 2**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:26 Me:23 Lo:21**	**Cooling: 75, Heating: 73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDEN125VNV

Item			Model	FDEN125VNV	
				FDEN125V	FDC125VN
Nominal cooling capacity(1)		kW		**12.5 [5.0~14.0]**	
Nominal heating capacity(1)		kW		**14.0 [4.0~16.0]**	
Power source				**1 Phase 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW		**4.10/4.10**	
	Running current (Cooling)	A		**18.0/18.8**	
	Power factor (Cooling)	%		**99/99**	
	Heating power consumption	kW		**3.65/3.65**	
	Running current (Heating)	A		**16.0/16.8**	
	Power factor (Heating)	%		**99/99**	
	Inrush current (L.R.A) <Max. running current>	A		**5 <24>**	
	Noise level	dB(A)		Hi:46 Me:44 Lo:43	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth		**mm**		**250 × 1620 × 690**	**845 × 970 × 370**
Net weight		**kg**		**46**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity		**kg**		**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ		–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 4	Propeller fan × 1
Motor		W		**40 × 2**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow		**CMM**		**Hi:29 Me:26 Lo:23**	**Cooling: 75, Heating: 73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W		–	20 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**		**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDEN125VSV

Item			Model	FDEN125VSV	
				FDEN125V	FDC125VS
Nominal cooling capacity(1)		kW		**12.5 [5.0~14.0]**	
Nominal heating capacity(1)		kW		**14.0 [4.0~16.0]**	
Power source				**3 Phase 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW		**4.10/4.10**	
	Running current (Cooling)	A		**6.1/6.3**	
	Power factor (Cooling)	%		**97/99**	
	Heating power consumption	kW		**3.65/3.65**	
	Running current (Heating)	A		**5.4/5.6**	
	Power factor (Heating)	%		**98/99**	
	Inrush current (L.R.A) <Max. running current>	A		**5 <15>**	
	Noise level	dB(A)		Hi:46 Me:44 Lo:43	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth		**mm**		**250 × 1620 × 690**	**845 × 970 × 370**
Net weight		**kg**		**46**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity		**kg**		**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ		–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 4	Propeller fan × 1
Motor		W		**40 × 2**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow		**CMM**		**Hi:29 Me:26 Lo:23**	**Cooling: 75, Heating: 73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W		–	20 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**		**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDEN140VNV

Item		Model	FDEN140VNV	
			FDEN140V	FDC140VN
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.98/4.98**	
	Running current (Cooling)	A	**22.0/23.0**	
	Power factor (Cooling)	%	**98/98**	
	Heating power consumption	kW	**4.69/4.69**	
	Running current (Heating)	A	**20.5/21.5**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:46 Me:44 Lo:43	51
Exterior dimensions Height × Width × Depth		**mm**	**250 × 1620 × 690**	**845 × 970 × 370**
Net weight		**kg**	**46**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 4	Propeller fan × 1
Motor		W	**40 × 2**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:29 Me:26 Lo:23**	**Cooling: 75, Heating: 73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDEN140VSV

Item			Model	FDEN140VSV	
				FDEN140V	FDC140VS
Nominal cooling capacity(1)		kW		**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW		**16.0 [4.0~16.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW		**4.98/4.98**	
	Running current (Cooling)	A		**7.4/7.8**	
	Power factor (Cooling)	%		**97/97**	
	Heating power consumption	kW		**4.69/4.69**	
	Running current (Heating)	A		**6.8/7.2**	
	Power factor (Heating)	%		**99/99**	
	Inrush current (L.R.A) <Max. running current>	A		**5 <15>**	
	Noise level	dB(A)		Hi:46 Me:44 Lo:43	51
Exterior dimensions Height × Width × Depth		**mm**		**250 × 1620 × 690**	**845 × 970 × 370**
Net weight		**kg**		**46**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity		**kg**		**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ		–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 4	Propeller fan × 1
Motor		W		**40 × 2**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow		**CMM**		**Hi:29 Me:26 Lo:23**	**Cooling: 75, Heating: 73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W		–	20 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**		**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(b) Twin type

Model FDEN71VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDEN71VNPV	
			FDEN40V	FDC71VN
Nominal cooling capacity(1)		kW	**7.1[3.2~8.0]**	
Nominal heating capacity(1)		kW	**8.0[3.6~9.0]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.74/1.74**	
	Running current (Cooling)	A	**7.6/8.0**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**1.84/1.84**	
	Running current (Heating)	A	**8.0/8.5**	
	Power factor (Heating)	%	**99/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <17>**	
	Noise level	dB(A)	Hi:39 Me:38 Lo:37	48
Exterior dimensions Height × Width × Depth		**mm**	**210 × 1070 × 690**	**750 × 968 × 340**
Net weight		**kg**	**30**	**60**
Refrigerant equipment Compressor type & Q'ty			–	**2YC45DXD × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**2.95 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.65 (FVC50K)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**25 × 1**	**86 × 1**
Starting method			Direct line start	
Air flow		**CMM**	**Hi:11 Me:9 Lo:7**	**Cooling:60 Heating:50**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe,Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe:ϕ15.88(5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics value are shown for the case where two indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

Model FDEN100VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDEN100VNPV	
				FDEN50V	FDC100VN
Nominal cooling capacity(1)			kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)			kW	**11.2 [4.0~12.5]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**2.78/2.78**	
	Running current (Cooling)		A	**12.2/12.8**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**2.94/2.94**	
	Running current (Heating)		A	**12.9/13.5**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:39 Me:38 Lo:37	49
Exterior dimensions Height × Width × Depth			**mm**	**210 × 1070 × 690**	**845 × 970 × 370**
Net weight			**kg**	**30**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**25 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:11 Me:9 Lo:7**	**Cooling: 75, Heating: 73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

Model FDEN100VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDEN100VSPV	
				FDEN50V	FDC100VS
Nominal cooling capacity(1)			kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)			kW	**11.2 [4.0~12.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**2.78/2.78**	
	Running current (Cooling)		A	**4.1/4.3**	
	Power factor (Cooling)		%	**98/98**	
	Heating power consumption		kW	**2.94/2.94**	
	Running current (Heating)		A	**4.3/4.5**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:39 Me:38 Lo:37	49
Exterior dimensions Height × Width × Depth			**mm**	**210 × 1070 × 690**	**845 × 970 × 370**
Net weight			**kg**	**30**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**25 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:11 Me:9 Lo:7**	**Cooling: 75, Heating: 73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D.20mm, O.D.26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

Model FDEN125VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDEN125VNPV	
				FDEN60V	FDC125VN
Nominal cooling capacity(1)			kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)			kW	**14.0 [4.0~16.0]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.23/4.23**	
	Running current (Cooling)		A	**18.5/19.4**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**3.83/3.83**	
	Running current (Heating)		A	**16.8/17.6**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:41 Me:39 Lo:38	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth			**mm**	**210 × 1320 × 690**	**845 × 970 × 370**
Net weight			**kg**	**36**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 4	Propeller fan × 1
Motor			W	**20 × 2**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:18 Me:14 Lo:12**	**Cooling:75, Heating:73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional : RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

Model FDEN125VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDEN125VSPV	
			FDEN60V	FDC125VS
Nominal cooling capacity(1)		kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)		kW	**14.0 [4.0~16.0]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.23/4.23**	
	Running current (Cooling)	A	**6.2/6.5**	
	Power factor (Cooling)	%	**98/99**	
	Heating power consumption	kW	**3.83/3.83**	
	Running current (Heating)	A	**5.6/5.9**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:41 Me:39 Lo:38	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth		**mm**	**210 × 1320 × 690**	**845 × 970 × 370**
Net weight		**kg**	**36**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 4	Propeller fan × 1
Motor		W	**20 × 2**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:18 Me:14 Lo:12**	**Cooling:75, Heating:73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wireless remote control switch (Optional : RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

Model FDEN140VNPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDEN140VNPV	
				FDEN71V	FDC140VN
Nominal cooling capacity(1)			kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)			kW	**16.0 [4.0~16.5]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.87/4.87**	
	Running current (Cooling)		A	**21.6/22.6**	
	Power factor (Cooling)		%	**98/98**	
	Heating power consumption		kW	**4.59/4.59**	
	Running current (Heating)		A	**20.1/21.0**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:41 Me:39 Lo:38	51
Exterior dimensions Height × Width × Depth			**mm**	**210 × 1320 × 690**	**845 × 970 × 370**
Net weight			**kg**	**36**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 4	Propeller fan × 1
Motor			W	**20 × 2**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:18 Me:14 Lo:12**	**Cooling:75, Heating:73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional : RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

Model FDEN140VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item		Model	FDEN140VSPV	
			FDEN71V	FDC140VS
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.87/4.87**	
	Running current (Cooling)	A	**7.2/7.6**	
	Power factor (Cooling)	%	**98/98**	
	Heating power consumption	kW	**4.59/4.59**	
	Running current (Heating)	A	**6.7/7.1**	
	Power factor (Heating)	%	**99/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:41 Me:39 Lo:38	51
Exterior dimensions Height × Width × Depth		**mm**	**210 × 1320 × 690**	**845 × 970 × 370**
Net weight		**kg**	**36**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 4	Propeller fan × 1
Motor		W	**20 × 2**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:18 Me:14 Lo:12**	**Cooling:75, Heating:73**
Outside air intake			Not possible	–
Air filter, Q'ty			Pocket plastic net × 2 (washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wireless remote control switch (Optional : RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

Model FDEN200VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDEN200VSPV	
				FDEN100V	FDC200VS
Nominal cooling capacity(1)			kW	**20.0 [7.0~22.4]**	
Nominal heating capacity(1)			kW	**22.4 [7.6~25.0]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**6.47/6.47**	
	Running current (Cooling)		A	**9.7/10.1**	
	Power factor (Cooling)		%	**96/97**	
	Heating power consumption		kW	**5.97/5.97**	
	Running current (Heating)		A	**9.1/9.5**	
	Power factor (Heating)		%	**95/95**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:44 Me:41 Lo:39	57
Exterior dimensions Height × Width × Depth			**mm**	**250 × 1620 × 690**	**1300 × 970 × 370**
Net weight			**kg**	**46**	**122**
Refrigerant equipment Compressor type & Q'ty				–	**GTC5150ND70K × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**5.4 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**1.45 (M-MA32R)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 4	Propeller fan × 2
Motor			W	**40 × 2**	**86 × 2**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:26 Me:23 Lo:21**	**Cooling: 150, Heating: 145**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	33 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line(7)			**Indoor branch pipe:ϕ15.88 (5/8″), Outdoor main pipe: ϕ22.22 (7/8″)**	
Connecting method				**Flare piping (Outdoor gas piping: Brazing)**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose, Reducer kit (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

(7) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

Model FDEN250VSPV (Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDEN250VSPV	
				FDEN125V	FDC250VS
Nominal cooling capacity(1)			kW	**25.0 [10.0~28.0]**	
Nominal heating capacity(1)			kW	**28.0 [9.5~31.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**9.01/9.01**	
	Running current (Cooling)		A	**13.5/14.1**	
	Power factor (Cooling)		%	**96/97**	
	Heating power consumption		kW	**8.05/8.05**	
	Running current (Heating)		A	**12.2/12.8**	
	Power factor (Heating)		%	**95/96**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <27>**	
	Noise level		dB(A)	Hi:46 Me:44 Lo:43	Cooling:57, Heating:58
Exterior dimensions Height × Width × Depth			**mm**	**250 × 1620 × 690**	**1505 × 970 × 370**
Net weight			**kg**	**46**	**140**
Refrigerant equipment Compressor type & Q'ty				–	**GTC5150ND70K × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**7.2 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**1.45 (M-MA32R)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 4	Propeller fan × 2
Motor			W	**45 × 2**	**86 × 2**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:29 Me:26 Lo:23**	**Cooling: 150, Heating: 145**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	33 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe: ϕ9.52 (3/8″), Outdoor main pipe: ϕ12.7 (1/2″)**	
	Gas line(7)			**Indoor branch pipe:ϕ15.88 (5/8″), Outdoor main pipe: ϕ22.22 (7/8″)**	
Connecting method				**Flare piping (Outdoor gas piping: Brazing)**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose, Reducer kit (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

(7) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

(c) Triple type

Model FDEN140VNTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item			Model	FDEN140VNTV	
				FDEN50V	FDC140VN
Nominal cooling capacity(1)			kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)			kW	**16.0 [4.0~16.5]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.88/4.88**	
	Running current (Cooling)		A	**21.7/22.6**	
	Power factor (Cooling)		%	**98/98**	
	Heating power consumption		kW	**4.58/4.58**	
	Running current (Heating)		A	**20.2/21.1**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:39 Me:38 Lo:37	51
Exterior dimensions Height × Width × Depth			**mm**	**210 × 1070 × 690**	**845 × 970 × 370**
Net weight			**kg**	**30**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**30 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:11 Me:9 Lo:7**	**Cooling: 75, Heating: 73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52(3/8″)**	
	Gas line			**Indoor branch pipe:ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

Model FDEN140VSTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item			Model	FDEN140VSTV	
				FDEN50V	FDC140VS
Nominal cooling capacity(1)			kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)			kW	**16.0 [4.0~16.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.88/4.88**	
	Running current (Cooling)		A	**7.2/7.6**	
	Power factor (Cooling)		%	**98/98**	
	Heating power consumption		kW	**4.58/4.58**	
	Running current (Heating)		A	**6.7/7.0**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:39 Me:38 Lo:37	51
Exterior dimensions Height × Width × Depth			**mm**	**210 × 1070 × 690**	**845 × 970 × 370**
Net weight			**kg**	**30**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**30 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:11 Me:9 Lo:7**	**Cooling: 75, Heating: 73**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52(3/8″)**	
	Gas line			**Indoor branch pipe:ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

(c) Triple type

Model FDEN200VSTV (Indoor unit: 3 units, Outdoor unit: 1 unit)

Item			Model	FDEN200VSTV	
				FDEN71V	FDC200VS
Nominal cooling capacity(1)			kW	**20.0 [7.0~22.4]**	
Nominal heating capacity(1)			kW	**22.4 [7.6~25.0]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**6.40/6.40**	
	Running current (Cooling)		A	**9.6/10.0**	
	Power factor (Cooling)		%	**96/97**	
	Heating power consumption		kW	**5.90/5.90**	
	Running current (Heating)		A	**9.0/9.4**	
	Power factor (Heating)		%	**95/95**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:41 Me:39 Lo:38	57
Exterior dimensions Height × Width × Depth			**mm**	**210 × 1320 × 690**	**1300 × 970 × 370**
Net weight			**kg**	**36**	**122**
Refrigerant equipment Compressor type & Q'ty				–	**GTC5150ND70K × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**5.4 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**1.45 (M-MA32R)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 4	Propeller fan ×2
Motor			W	**20 × 2**	**86 × 2**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:18 Me:14 Lo:12**	**Cooling: 150, Heating: 145**
Outside air intake				Not possible	–
Air filter, Q'ty				Pocket plastic net × 2 (washable)	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	33 (Crank case heater)
Operation control Operation switch				Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52(3/8″)**	
	Gas line(7)			**Indoor branch pipe:ϕ15.88 (5/8″), Outdoor main pipe: ϕ22.22(7/8″)**	
Connecting method				**Flare piping (Outdoor gas piping: Brazing)**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	–
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Mounting kit. Drain hose, Reducer kit, (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(6) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

(7) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

(4) Duct connected-Middle static pressure type (FDUM)

(a) single type

Model FDUM50ZHXV

Item		Model	FDUM50ZHXV	
			FDUM50V	SRC50ZHX-S
Nominal cooling capacity(1)		kW	**5.0 [2.2~5.6]**	
Nominal heating capacity(1)		kW	**5.4 [2.5~6.3]**	
Power source			**1 Phase, 220-240V, 50Hz/220V, 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.52/1.52**	
	Running current (Cooling)	A	**6.7/7.1**	
	Power factor (Cooling)	%	**98/98**	
	Heating power consumption	kW	**1.41/1.41**	
	Running current (Heating)	A	**6.3/6.5**	
	Power factor (Heating)	%	**98/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <14>**	
	Noise level	dB(A)	Hi:34 Me:31 Lo:28	47
Exterior dimensions Height × Width × Depth		**mm**	**299 × 750 × 635**	**640 × 800 × 290**
Net weight		**kg**	**34**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan ×1
Motor		W	**60 × 1**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow (Standard)		**CMM**	**Hi:14 Me:12 Lo:11**	**40**
Available static pressure		Pa	**Standard: 50/40, Max: 85/90**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	–
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ12.7 (1/2″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			Filter kit (UM-FL1E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDUM60ZHXV

Item		Model	FDUM60ZHXV	
			FDUM60V	SRC60ZHX-S
Nominal cooling capacity(1)		kW	**5.6 [2.8~6.3]**	
Nominal heating capacity(1)		kW	**6.7 [3.1~7.1]**	
Power source			**1 Phase, 220-240V, 50Hz/220V, 60Hz**	
Operation data(3)	Cooling power consumption	kW	**1.86/1.86**	
	Running current (Cooling)	A	**8.2/8.5**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**1.96/1.96**	
	Running current (Heating)	A	**9.0/9.4**	
	Power factor (Heating)	%	**95/95**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <14>**	
	Noise level	dB(A)	Hi:34 Me:31 Lo:28	48
Exterior dimensions Height × Width × Depth		**mm**	**299 × 950 × 635**	**640 × 800 × 290**
Net weight		**kg**	**40**	**43**
Refrigerant equipment Compressor type & Q'ty			–	**5CS130XG04 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 15m]**
Refrigerant oil		ℓ	–	**0.48 (RB68A)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan ×1
Motor		W	**100 × 1**	**45 × 1**
Starting method			Direct line start	Direct line start
Air flow (Standard)		**CMM**	**Hi:18 Me:16 Lo:14**	**40**
Available static pressure		Pa	**Standard: 50/40, Max: 85/100**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	–
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ6.35 (1/4″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 5 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			Filter kit (UM-FL2E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDUM71VNV

Item			Model	FDUM71VNV	
				FDUM71V	FDCV71VN
Nominal cooling capacity(1)		kW		**7.1 [3.2~8.0]**	
Nominal heating capacity(1)		kW		**8.0 [3.6~9.0]**	
Power source				**1 Phase, 220-240V, 50Hz/220V, 60Hz**	
Operation data(3)	Cooling power consumption	kW		**2.08/2.08**	
	Running current (Cooling)	A		**9.2/9.6**	
	Power factor (Cooling)	%		**98/98**	
	Heating power consumption	kW		**2.21/2.21**	
	Running current (Heating)	A		**10.2/10.7**	
	Power factor (Heating)	%		**94/94**	
	Inrush current (L.R.A) <Max. running current>	A		**5 <17>**	
	Noise level	dB(A)		Hi:35 Me:32 Lo:29	48
Exterior dimensions Height × Width × Depth		**mm**		**299 × 950 × 635**	**750 × 968 × 340**
Net weight		**kg**		**40**	**60**
Refrigerant equipment Compressor type & Q'ty				–	**2YC45DXD × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity		**kg**		**–**	**2.95 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ		–	**0.65 (FVC50K)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan ×1
Motor		W		**100 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow (Standard)		**CMM**		**Hi:20 Me:18 Lo:15**	**Cooling type:60, Heating type:50**
Available static pressure		Pa		**Standard: 50/40, Max: 85/100**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W		–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**		**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				Filter kit (UM-FL2E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDUM100VNV

Item		Model	FDUMV100VNV	
			FDUM100V	FDC100VN
Nominal cooling capacity(1)		kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW	**11.2 [4.0~12.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**2.80/2.80**	
	Running current (Cooling)	A	**12.5/13.1**	
	Power factor (Cooling)	%	**97/97**	
	Heating power consumption	kW	**2.77/2.80**	
	Running current (Heating)	A	**12.4/13.0**	
	Power factor (Heating)	%	**97/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:37 Me:35 Lo:32	49
Exterior dimensions Height × Width × Depth		**mm**	**350 × 1370 × 635**	**845 × 970 × 370**
Net weight		**kg**	**59**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 3	Propeller fan ×1
Motor		W	**50 × 1, 100 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow (Standard)		**CMM**	**Hi: 28 Me: 25 Lo: 22**	**Cooling type: 75, Heating type: 73**
Available static pressure		Pa	**Standard: 60/60, Max: 90/100**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDUM100VSV

Item		Model	FDUM100VSV	
			FDUM100V	FDC100VS
Nominal cooling capacity(1)		kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW	**11.2 [4.0~12.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**2.80/2.80**	
	Running current (Cooling)	A	**4.2/4.4**	
	Power factor (Cooling)	%	**96/97**	
	Heating power consumption	kW	**2.77/2.80**	
	Running current (Heating)	A	**4.1/4.3**	
	Power factor (Heating)	%	**98/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:37 Me:35 Lo:32	49
Exterior dimensions Height × Width × Depth		**mm**	**350 × 1370 × 635**	**845 × 970 × 370**
Net weight		**kg**	**59**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 3	Propeller fan ×1
Motor		W	**50 × 1, 100 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow (Standard)		**CMM**	**Hi: 28 Me: 25 Lo: 22**	**Cooling type: 75, Heating type: 73**
Available static pressure		Pa	**Standard: 60/60, Max: 90/100**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDUM125VNV

Item		Model	FDUM125VNV	
			FDUM125V	FDC125VN
Nominal cooling capacity(1)		kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)		kW	**14.0 [4.0~16.0]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.03/4.03**	
	Running current (Cooling)	A	**18.3/19.1**	
	Power factor (Cooling)	%	**96/96**	
	Heating power consumption	kW	**3.80/3.85**	
	Running current (Heating)	A	**17.0/18.1**	
	Power factor (Heating)	%	**97/97**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:38 Me:36 Lo:33	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth		**mm**	**350 × 1370 × 635**	**845 × 970 × 370**
Net weight		**kg**	**59**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 3	Propeller fan ×1
Motor		W	**50 × 1, 100 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow (Standard)		**CMM**	**Hi: 34 Me: 31 Lo: 27**	**Cooling: 75, Heating: 73**
Available static pressure		Pa	**Standard: 60/55, Max 85/100**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDUM125VSV

Item		Model	FDUM125VSV	
			FDUM125V	FDC125VS
Nominal cooling capacity(1)		kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)		kW	**14.0 [4.0~16.0]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.03/4.03**	
	Running current (Cooling)	A	**6.1/6.4**	
	Power factor (Cooling)	%	**95/96**	
	Heating power consumption	kW	**3.80/3.85**	
	Running current (Heating)	A	**5.7/6.0**	
	Power factor (Heating)	%	**96/97**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:38 Me:36 Lo:33	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth		**mm**	**350 × 1370 × 635**	**845 × 970 × 370**
Net weight		**kg**	**59**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 3	Propeller fan ×1
Motor		W	**50 × 1, 100 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow (Standard)		**CMM**	**Hi: 34 Me: 31 Lo: 27**	**Cooling: 75, Heating: 73**
Available static pressure		Pa	**Standard: 60/55, Max 85/100**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDUM140VNV

Item			Model	FDUM140VNV	
				FDUM140V	FDC140VN
Nominal cooling capacity(1)		kW		**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW		**16.0 [4.0~16.5]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW		**4.95/4.95**	
	Running current (Cooling)	A		**22.3/23.3**	
	Power factor (Cooling)	%		**97/97**	
	Heating power consumption	kW		**4.89/4.91**	
	Running current (Heating)	A		**22.3/22.5**	
	Power factor (Heating)	%		**95/99**	
	Inrush current (L.R.A) <Max. running current>	A		**5 <24>**	
	Noise level	dB(A)		Hi:38 Me:36 Lo:33	51
Exterior dimensions Height × Width × Depth		**mm**		**350 × 1370 × 635**	**845 × 970 × 370**
Net weight		**kg**		**59**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity		**kg**		**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ		–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 3	Propeller fan ×1
Motor		W		**50 × 1, 100 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow (Standard)		**CMM**		**Hi: 34 Me: 31 Lo: 27**	**Cooling: 75, Heating: 73**
Available static pressure		Pa		**Standard: 60/55, Max 85/100**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W		–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**		**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

Model FDUM140VSV

Item		Model	FDUM140VSV	
			FDUM140V	FDC140VS
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**4.95/4.95**	
	Running current (Cooling)	A	**7.4/7.7**	
	Power factor (Cooling)	%	**97/98**	
	Heating power consumption	kW	**4.89/4.91**	
	Running current (Heating)	A	**7.4/7.6**	
	Power factor (Heating)	%	**95/98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:38 Me:36 Lo:33	51
Exterior dimensions Height × Width × Depth		**mm**	**350 × 1370 × 635**	**845 × 970 × 370**
Net weight		**kg**	**59**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 3	Propeller fan ×1
Motor		W	**50 × 1, 100 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow (Standard)		**CMM**	**Hi: 34 Me: 31 Lo: 27**	**Cooling: 75, Heating: 73**
Available static pressure		Pa	**Standard: 60/55, Max 85/100**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(b)Twin type

Model FDUM100VNPV(Indoor unit: 2 units, Outdoor unit: 7 units)

Item			Model	FDUM100VNPV	
				FDUM50V	FDC100VN
Nominal cooling capacity(1)			kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)			kW	**11.2 [4.0~12.5]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**3.12/3.12**	
	Running current (Cooling)		A	**13.6/14.3**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**3.27/3.27**	
	Running current (Heating)		A	**14.3/15.0**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:34 Me:31 Lo:28	49
Exterior dimensions Height × Width × Depth			**mm**	**299 × 750 × 635**	**845 × 970 × 370**
Net weight			**kg**	**34**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**60 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow (Standard)			**CMM**	**Hi: 14 Me: 12 Lo: 11**	**Cooling type: 75, Heating type: 73**
Available static pressure			Pa	**Standard: 50/40, Max 85/90**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52(3/8″)**	
	Gas line			**Indoor branch pipe:ϕ12.7(1/2″), Outdoor main pipe:ϕ15.88(5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDUM100VSPV(Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDUM100VSPV	
				FDUM50V	FDC100VS
Nominal cooling capacity(1)			kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)			kW	**11.2 [4.0~12.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**3.12/3.12**	
	Running current (Cooling)		A	**4.6/4.8**	
	Power factor (Cooling)		%	**98/99**	
	Heating power consumption		kW	**3.27/3.27**	
	Running current (Heating)		A	**4.8/5.0**	
	Power factor (Heating)		%	**98/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:34 Me:31 Lo:28	49
Exterior dimensions Height × Width × Depth			**mm**	**299 × 750 × 635**	**845 × 970 × 370**
Net weight			**kg**	**34**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**60 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow (Standard)			**CMM**	**Hi: 14 Me: 12 Lo: 11**	**Cooling type: 75, Heating type: 73**
Available static pressure			Pa	**Standard: 50/40, Max 85/90**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52(3/8″)**	
	Gas line			**Indoor branch pipe:ϕ12.7(1/2″), Outdoor main pipe:ϕ15.88(5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDUM125VNPV(Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDUM125VNPV	
				FDUM60V	FDC125VN
Nominal cooling capacity(1)			kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)			kW	**14.0 [4.0~16.0]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.47/4.47**	
	Running current (Cooling)		A	**19.7/20.6**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**4.51/4.51**	
	Running current (Heating)		A	**19.8/20.7**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:34 Me:31 Lo:28	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth			**mm**	**299 × 950 × 635**	**845 × 970 × 370**
Net weight			**kg**	**40**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	–	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**100 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow (Standard)			**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling:75, Heating:73**
Available static pressure			Pa	**Standard:50/40, Max 85/100**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDUM125VSPV(Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDUM125VSPV	
				FDUM60V	FDC125VS
Nominal cooling capacity(1)			kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)			kW	**14.0 [4.0~16.0]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**4.47/4.47**	
	Running current (Cooling)		A	**6.6/6.9**	
	Power factor (Cooling)		%	**98/98**	
	Heating power consumption		kW	**4.51/4.51**	
	Running current (Heating)		A	**6.6/6.9**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:34 Me:31 Lo:28	Cooling: 50, Heating: 51
Exterior dimensions Height × Width × Depth			**mm**	**299 × 950 × 635**	**845 × 970 × 370**
Net weight			**kg**	**40**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	–	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**100 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow (Standard)			**CMM**	**Hi:18 Me:16 Lo:14**	**Cooling:75, Heating:73**
Available static pressure			Pa	**Standard:50/40, Max 85/100**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDUM140VNPV(Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDUM140VNPV	
				FDUM71V	FDC140VN
Nominal cooling capacity(1)			kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)			kW	**16.0 [4.0~16.5]**	
Power source				**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**5.00/5.00**	
	Running current (Cooling)		A	**22.0/23.0**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**4.94/4.80**	
	Running current (Heating)		A	**22.4/22.1**	
	Power factor (Heating)		%	**96/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:35 Me:32 Lo:29	53
Exterior dimensions Height × Width × Depth			**mm**	**299 × 950 × 635**	**845 × 970 × 370**
Net weight			**kg**	**40**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	–	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**100 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow (Standard)			**CMM**	**Hi:20 Me:18 Lo:15**	**Cooling:75, Heating:73**
Available static pressure			Pa	**Standard:50/40, Max 85/100**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDUM140VSPV(Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDUM140VSPV	
				FDUM71V	FDC140VS
Nominal cooling capacity(1)			kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)			kW	**16.0 [4.0~16.5]**	
Power source				**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**5.00/5.00**	
	Running current (Cooling)		A	**7.3/7.7**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**4.94/4.80**	
	Running current (Heating)		A	**7.4/7.4**	
	Power factor (Heating)		%	**96/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <15>**	
	Noise level		dB(A)	Hi:35 Me:32 Lo:29	51
Exterior dimensions Height × Width × Depth			**mm**	**299 × 950 × 635**	**845 × 970 × 370**
Net weight			**kg**	**40**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	–	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor			W	**100 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow (Standard)			**CMM**	**Hi:20 Me:18 Lo:15**	**Cooling:75, Heating:73**
Available static pressure			Pa	**Standard:50/40, Max 85/100**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line			**Indoor branch pipe, Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

Model FDUM200VSPV(Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDUM200VSPV	
				FDUM100V	FDC200VS
Nominal cooling capacity(1)			kW	**20.0 [7.0~22.4]**	
Nominal heating capacity(1)			kW	**22.4 [7.6~25.0]**	
Power source				**3 Phase, 380−415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**6.86/6.86**	
	Running current (Cooling)		A	**9.9/10.5**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**6.72/6.72**	
	Running current (Heating)		A	**9.8/10.3**	
	Power factor (Heating)		%	**99/99**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <24>**	
	Noise level		dB(A)	Hi:37 Me:35 Lo:32	57
Exterior dimensions Height × Width × Depth			**mm**	**350 × 1370 × 635**	**1300 × 970 × 370**
Net weight			**kg**	**59**	**122**
Refrigerant equipment Compressor type & Q'ty				–	**GTC5150ND70K × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**5.4 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**1.45 (M-MA32R)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 3	Propeller fan × 2
Motor			W	**45 × 1,90 × 1**	**86 × 2**
Starting method				Direct line start	Direct line start
Air flow (Standard)			**CMM**	**Hi:28 Me:25 Lo:22**	**Cooling:150, Heating:145**
Available static pressure			Pa	**Standard:60/60, Max:90/100**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	33 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line(6)			**Indoor branch pipe: ϕ15.88 (5/8″), Outdoor main pipe: ϕ22.22 (7/8″)**	
Connecting method				**Flare piping(Outdoor gas piping: Brazing)**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	–
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose, Reducer kit, (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts				Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

Model FDUM250VSPV(Indoor unit: 2 units, Outdoor unit: 1 unit)

Item			Model	FDUM250VSPV	
				FDUM125V	FDC250VS
Nominal cooling capacity(1)			kW	**25.0 [10.0~28.0]**	
Nominal heating capacity(1)			kW	**28.0 [9.5~31.5]**	
Power source				**3 Phase, 380−415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption		kW	**9.31/9.31**	
	Running current (Cooling)		A	**13.6/14.3**	
	Power factor (Cooling)		%	**99/99**	
	Heating power consumption		kW	**8.35/8.35**	
	Running current (Heating)		A	**12.3/12.9**	
	Power factor (Heating)		%	**98/98**	
	Inrush current (L.R.A) <Max. running current>		A	**5 <27>**	
	Noise level		dB(A)	Hi:38 Me:36 Lo:33	Cooling:57, Heating:58
Exterior dimensions Height × Width × Depth			**mm**	**350 × 1370 × 635**	**1505 × 970 × 370**
Net weight			**kg**	**59**	**140**
Refrigerant equipment Compressor type & Q'ty				–	**GTC5150ND70K × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity			**kg**	**–**	**7.2 [Pre-charged up to the piping length of 30m]**
Refrigerant oil			ℓ	–	**1.45 (M-MA32R)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 3	Propeller fan × 2
Motor			W	**50 × 1,100 × 1**	**86 × 2**
Starting method				Direct line start	Direct line start
Air flow			**CMM**	**Hi:34 Me:31 Lo:27**	**Cooling:150, Heating:145**
Available static pressure			Pa	**Standard:60/55, Max:85/100**	–
Outside air intake				Possible	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	–	33 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**		**mm (in)**	**Indoor branch pipe: ϕ9.52 (3/8″), Outdoor main pipe: ϕ12.7 (1/2″)**	
	Gas line(6)			**Indoor branch pipe: ϕ15.88 (5/8″), Outdoor main pipe: ϕ25.4 (1″)**	
Connecting method				**Flare piping(Outdoor gas piping: Brazing)**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose, Reducer kit, (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts				Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where two indoor units are combined and run together.

(6) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

(c) Triple type

Model FDUM140VNTV(Indoor unit: 3 units, Outdoor unit: 1 unit)

Item		Model	FDUM140VNTV	
			FDUM50V	FDC140VN
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**1 Phase, 220-240V 50Hz/220V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**5.09/5.09**	
	Running current (Cooling)	A	**22.4/23.4**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**5.03/4.89**	
	Running current (Heating)	A	**22.8/22.5**	
	Power factor (Heating)	%	**96/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:34 Me:31 Lo:28	53
Exterior dimensions Height × Width × Depth		**mm**	**299 × 750 × 635**	**845 × 970 × 370**
Net weight		**kg**	**34**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	–	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**55 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow (Standard)		**CMM**	**Hi:14 Me:12 Lo:11**	**Cooling:75, Heating:73**
Available static pressure		Pa	**Standard:50/40, Max:85/90**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

Model FDUM140VSTV(Indoor unit: 3 units, Outdoor unit: 1 unit)

Item		Model	FDUM140VSTV	
			FDUM50V	FDC140VS
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**3 Phase, 380-415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**5.09/5.09**	
	Running current (Cooling)	A	**7.4/7.8**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**5.03/4.89**	
	Running current (Heating)	A	**7.6/7.5**	
	Power factor (Heating)	%	**96/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <15>**	
	Noise level	dB(A)	Hi:34 Me:31 Lo:28	51
Exterior dimensions Height × Width × Depth		**mm**	**299 × 750 × 635**	**845 × 970 × 370**
Net weight		**kg**	**34**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	–	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**55 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow (Standard)		**CMM**	**Hi:14 Me:12 Lo:11**	**Cooling:75, Heating:73**
Available static pressure		Pa	**Standard:50/40, Max:85/90**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line		**Indoor branch pipe: ϕ12.7 (1/2″), Outdoor main pipe: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(c) Triple type

Model FDUM200VSTV(Indoor unit: 3 units, Outdoor unit: 1 unit)

Item		Model	FDUM200VSTV	
			FDUM71V	FDC200VS
Nominal cooling capacity(1)		kW	**20.0 [7.0~22.4]**	
Nominal heating capacity(1)		kW	**22.4 [7.6~25.0]**	
Power source			**3 Phase, 380–415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**6.88/6.88**	
	Running current (Cooling)	A	**9.9/10.6**	
	Power factor (Cooling)	%	**99/99**	
	Heating power consumption	kW	**6.74/6.74**	
	Running current (Heating)	A	**9.8/10.3**	
	Power factor (Heating)	%	**99/99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <24>**	
	Noise level	dB(A)	Hi:35 Me:32 Lo:29	57
Exterior dimensions Height × Width × Depth		**mm**	**299 × 950 × 635**	**1300 × 970 × 370**
Net weight		**kg**	**40**	**122**
Refrigerant equipment Compressor type & Q'ty			–	**GTC5150ND70K × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**5.4 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**1.45 (M-MA32R)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 2
Motor		W	**100 × 1**	**86 × 2**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:20 Me:18 Lo:15**	**Cooling:150, Heating:145**
Available static pressure		Pa	**Standard:50/40, Max:85/100**	–
Outside air intake			Possible	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**Liquid line**	**mm (in)**	**Indoor branch pipe, Outdoor main pipe: ϕ9.52 (3/8″)**	
	Gas line(6)		**Indoor branch pipe: ϕ15.88 (5/8″), Outdoor main pipe: ϕ22.22 (7/8″)**	
Connecting method			**Flare piping (Outdoor gas piping: Brazing)**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose, Reducer kit, (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts			Filter kit (UM-FL3E)	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Indoor unit specifications show the specifications for one unit. Capacity and running characteristics values are shown for the case where three indoor units are combined and run together.

(6) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

(5) Duct connected-High static pressure type (FDU)

(a) Single type

Model FDU71VNV

Item		Model	FDU71VNV(5)	
			FDU71V	FDC71VN
Nominal cooling capacity(1)		kW	**7.1 [3.2~8.0]**	
Nominal heating capacity(1)		kW	**8.0 [3.6~9.0]**	
Power source			**1 Phase, 220–240V 50Hz**	
Operation data(3)	Cooling power consumption	kW	**2.08**	
	Running current (Cooling)	A	**9.2**	
	Power factor (Cooling)	%	**98**	
	Heating power consumption	kW	**2.21**	
	Running current (Heating)	A	**10.2**	
	Power factor (Heating)	%	**94**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <17>**	
	Noise level	dB(A)	Hi: 41, Lo: 37	48
Exterior dimensions Height × Width × Depth		**mm**	**295 × 850 × 650**	**750 × 968 × 340**
Net weight		**kg**	**40**	**60**
Refrigerant equipment Compressor type & Q'ty			–	**2YC45DXD × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**2.95 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.65 (FVC50K)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**230 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:25, Lo:20**	**Cooling:60, Heating:50**
Available static pressure		Pa	**Standard:50, Max:130**	–
Outside air intake			Possible (on return duct)	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52(3/8″) Gas line: ϕ15.88(5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Not available in 60Hz.

Model FDU100VNV

Item			Model	FDU100VNV(5)	
				FDU100V	FDC100VN
Nominal cooling capacity(1)		kW		**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW		**11.2 [4.0~12.5]**	
Power source				**1 Phase, 220–240V 50Hz**	
Operation data(3)	Cooling power consumption	kW		**2.88**	
	Running current (Cooling)	A		**12.7**	
	Power factor (Cooling)	%		**99**	
	Heating power consumption	kW		**2.99**	
	Running current (Heating)	A		**13.1**	
	Power factor (Heating)	%		**99**	
	Inrush current (L.R.A) <Max. running current>	A		**5 <25>**	
	Noise level	dB(A)		Hi: 42, Lo: 37	49
Exterior dimensions Height × Width × Depth		**mm**		**350 × 1370 × 650**	**845 × 970 × 340**
Net weight		**kg**		**63**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE2 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity		**kg**		**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ		–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor		W		**280 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow		**CMM**		**Hi:34, Lo:27**	**Cooling:75, Heating:73**
Available static pressure		Pa		**Standard:50, Max:130**	–
Outside air intake				Possible (on return duct)	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W		–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**		**Liquid line: ϕ9.52(3/8″) Gas line: ϕ15.88(5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Not available in 60Hz.

Model FDU100VSV

Item		Model	FDU100VSV(5)	
			FDU100V	FDC100VS
Nominal cooling capacity(1)		kW	**10.0 [4.0~11.2]**	
Nominal heating capacity(1)		kW	**11.2 [4.0~12.5]**	
Power source			**3 Phase, 380–415V 50Hz**	
Operation data(3)	Cooling power consumption	kW	**2.88**	
	Running current (Cooling)	A	**4.3**	
	Power factor (Cooling)	%	**97**	
	Heating power consumption	kW	**2.99**	
	Running current (Heating)	A	**4.4**	
	Power factor (Heating)	%	**99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <16>**	
	Noise level	dB(A)	Hi: 42, Lo: 37	49
Exterior dimensions Height × Width × Depth		**mm**	**350 × 1370 × 650**	**845 × 970 × 340**
Net weight		**kg**	**63**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**280 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:34, Lo:27**	**Cooling:75, Heating:73**
Available static pressure		Pa	**Standard:50, Max:130**	–
Outside air intake			Possible (on return duct)	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52(3/8″) Gas line: ϕ15.88(5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Not available in 60Hz.

Model FDU125VNV

Item		Model	FDU125VNV(5)	
			FDU125V	FDC125VN
Nominal cooling capacity(1)		kW	**12.5 [5.0~14.0]**	
Nominal heating capacity(1)		kW	**14.0 [4.0~16.0]**	
Power source			**1 Phase, 220–240V 50Hz**	
Operation data(3)	Cooling power consumption	kW	**4.04**	
	Running current (Cooling)	A	**17.8**	
	Power factor (Cooling)	%	**99**	
	Heating power consumption	kW	**3.79**	
	Running current (Heating)	A	**16.6**	
	Power factor (Heating)	%	**99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <27>**	
	Noise level	dB(A)	Hi: 43, Lo: 38	Cooling:50, Heating:51
Exterior dimensions Height × Width × Depth		**mm**	**350 × 1370 × 650**	**845 × 970 × 370**
Net weight		**kg**	**63**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**370 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:42, Lo:33.5**	**Cooling:75, Heating:73**
Available static pressure		Pa	**Standard:50, Max:130**	–
Outside air intake			Possible (on return duct)	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52(3/8″) Gas line: ϕ15.88(5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Not available in 60Hz.

Model FDU125VSV

Item		Model	FDU125VSV[5]	
			FDU125V	FDC125VS
Nominal cooling capacity[1]		kW	**12.5 [5.0~14.0]**	
Nominal heating capacity[1]		kW	**14.0 [4.0~16.0]**	
Power source			**3 Phase, 380–415V 50Hz**	
Operation data[3]	Cooling power consumption	kW	**4.04**	
	Running current (Cooling)	A	**6.0**	
	Power factor (Cooling)	%	**97**	
	Heating power consumption	kW	**3.79**	
	Running current (Heating)	A	**5.6**	
	Power factor (Heating)	%	**98**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <18>**	
	Noise level	dB(A)	Hi: 42, Lo: 38	Cooling:50, Heating:51
Exterior dimensions Height × Width × Depth		**mm**	**350 × 1370 × 650**	**845 × 970 × 370**
Net weight		**kg**	**63**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE3 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**370 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:42, Lo:33.5**	**Cooling:75, Heating:73**
Available static pressure		Pa	**Standard:50, Max:130**	–
Outside air intake			Possible (on return duct)	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52(3/8″) Gas line: ϕ15.88(5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Not available in 60Hz.

Model FDU140VNV

Item		Model	FDU140VNV(5)	
			FDU140V	FDC140VN
Nominal cooling capacity(1)		kW	**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW	**16.0 [4.0~16.5]**	
Power source			**1 Phase, 220–240V 50Hz**	
Operation data(3)	Cooling power consumption	kW	**4.95**	
	Running current (Cooling)	A	**21.7**	
	Power factor (Cooling)	%	**99**	
	Heating power consumption	kW	**4.43**	
	Running current (Heating)	A	**19.5**	
	Power factor (Heating)	%	**99**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <28>**	
	Noise level	dB(A)	Hi: 43, Lo: 38	51
Exterior dimensions Height × Width × Depth		**mm**	**350 × 1370 × 650**	**845 × 970 × 370**
Net weight		**kg**	**63**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**RMT5126MDE2 × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**0.9 (M-MA68)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 2	Propeller fan × 1
Motor		W	**370 × 1**	**86 × 1**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi:42, Lo:33.5**	**Cooling:75, Heating:73**
Available static pressure		Pa	**Standard:50, Max:130**	–
Outside air intake			Possible (on return duct)	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	20 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52(3/8″) Gas line: ϕ15.88(5/8″)**	
Connecting method			**Flare piping**	
Drain hose			Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Drain hose	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Not available in 60Hz.

Model FDU140VSV

Item			Model	FDU140VSV(5)	
				FDU140V	FDC140VS
Nominal cooling capacity(1)		kW		**14.0 [5.0~14.5]**	
Nominal heating capacity(1)		kW		**16.0 [4.0~16.5]**	
Power source				**3 Phase, 380–415V 50Hz**	
Operation data(3)	Cooling power consumption	kW		**4.95**	
	Running current (Cooling)	A		**7.4**	
	Power factor (Cooling)	%		**97**	
	Heating power consumption	kW		**4.43**	
	Running current (Heating)	A		**6.6**	
	Power factor (Heating)	%		**97**	
	Inrush current (L.R.A) <Max. running current>	A		**5 <19>**	
	Noise level	dB(A)		Hi: 43, Lo: 38	51
Exterior dimensions Height × Width × Depth		**mm**		**350 × 1370 × 650**	**845 × 970 × 370**
Net weight		**kg**		**63**	**74**
Refrigerant equipment Compressor type & Q'ty				–	**RMT5126MDE3 × 1**
Starting method				–	Direct line start
Heat exchanger				Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				–	Electronic expansion valve
Refrigerant				**R410A**	
Quantity		**kg**		**–**	**3.8 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ		–	**0.9 (M-MA68)**
Defrost control				Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty				Centrifugal fan × 2	Propeller fan × 1
Motor		W		**370 × 1**	**86 × 1**
Starting method				Direct line start	Direct line start
Air flow		**CMM**		**Hi:42, Lo:33.5**	**Cooling:75, Heating:73**
Available static pressure		Pa		**Standard:50, Max:130**	–
Outside air intake				Possible (on return duct)	–
Air filter, Q'ty				Installed on site	–
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W		–	20 (Crank case heater)
Operation control Operation switch				Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control				Thermostat by electronics	–
Safety equipment				Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**		**Liquid line: ϕ9.52(3/8″) Gas line: ϕ15.88(5/8″)**	
Connecting method				**Flare piping**	
Drain hose				Connectable with VP20 (I.D. 20mm, O.D. 26mm)	Holes size ϕ20 × 3 pcs
Insulation for piping				Necessary (both Liquid & Gas lines)	
Accessories				Drain hose	
Optional parts				–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Not available in 60Hz.

Model FDU200VSV

Item		Model	FDU200VSV	
			FDU200V	FDC200VS
Nominal cooling capacity(1)		kW	**20.0 [7.0~22.4]**	
Nominal heating capacity(1)		kW	**22.4 [7.6~25.0]**	
Power source			**3 Phase, 380–415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**6.59/6.58**	
	Running current (Cooling)	A	**10.8/11.4**	
	Power factor (Cooling)	%	**88/88**	
	Heating power consumption	kW	**6.08/5.84**	
	Running current (Heating)	A	**10.2/10.3**	
	Power factor (Heating)	%	**86/86**	
	Inrush current (L.R.A) <Max. running current>	A	**5<24>**	
	Noise level	dB(A)	Hi: 51	57
Exterior dimensions Height × Width × Depth		**mm**	**360 × 1570 × 830**	**1300 × 970 × 370**
Net weight		**kg**	**92**	**122**
Refrigerant equipment Compressor type & Q'ty			–	**GTC5150ND70K × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**5.4 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**1.45 (M-MA32R)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 4	Propeller fan × 2
Motor		W	**270 × 2**	**86 × 2**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi: 51/60**	**Cooling:150, Heating:145**
Available static pressure		Pa	**Standard:100, Max:200**	–
Outside air intake			Possible (on return duct)	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52(3/8″) Gas line: ϕ22.22(7/8″)(6)**	
Connecting method			**Brazing piping (Outdoor Liquid piping: Flare)**	
Drain hose			Connectable with VP25 (I.D. 25mm, O.D. 32mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Reducer kit (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

Model FDU250VSV

Item		Model	FDU250VSV	
			FDU250V	FDC250VS
Nominal cooling capacity(1)		kW	**25.0 [10.0~28.0]**	
Nominal heating capacity(1)		kW	**28.0 [9.5~31.5]**	
Power source			**3 Phase, 380–415V 50Hz/380V 60Hz**	
Operation data(3)	Cooling power consumption	kW	**9.91/10.21**	
	Running current (Cooling)	A	**15.7/17.0**	
	Power factor (Cooling)	%	**91/91**	
	Heating power consumption	kW	**8.50/8.22**	
	Running current (Heating)	A	**14.4/14.7**	
	Power factor (Heating)	%	**85/85**	
	Inrush current (L.R.A) <Max. running current>	A	**5 <27>**	
	Noise level	dB(A)	Hi: 51	Cooling:57, Heating:58
Exterior dimensions Height × Width × Depth		**mm**	**360 × 1570 × 830**	**1505 × 970 × 370**
Net weight		**kg**	**92**	**140**
Refrigerant equipment Compressor type & Q'ty			–	**GTC5150ND70K × 1**
Starting method			–	Direct line start
Heat exchanger			Louver fin & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control			–	Electronic expansion valve
Refrigerant			**R410A**	
Quantity		**kg**	**–**	**7.2 [Pre-charged up to the piping length of 30m]**
Refrigerant oil		ℓ	–	**1.45 (M-MA32R)**
Defrost control			Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty			Centrifugal fan × 4	Propeller fan × 2
Motor		W	**270 × 2**	**86 × 2**
Starting method			Direct line start	Direct line start
Air flow		**CMM**	**Hi: 68/80**	**Cooling:150, Heating:145**
Available static pressure		Pa	**Standard:100, Max:200**	–
Outside air intake			Possible (on return duct)	–
Air filter, Q'ty			Installed on site	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RC-E3) Wireless kit (Optional : RCN-KIT3-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ12.7 (1/2″) Gas line: ϕ22.22 (7/8″)(6)**	
Connecting method			**Brazing piping (Outdoor liquid piping: Flare)**	
Drain hose			Connectable with VP25 (I.D. 25mm, O.D. 32mm)	Holes size ϕ20 × 3 pcs
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Reducer kit (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	
Optional parts			–	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27°C	19°C	35°C	24°C	ISO-T1
Heating	20°C		7°C	6°C	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard. ISO-T1 "UNITARY AIR-CONDITIONERS"

(3) The operation data indicate when the air-conditioner is operated at 400V 50Hz.

(4) Values in [~] show the minimum to maximum range.

(5) Be sure to use the accessory pipe to connect service valve on the gas side with the field pipe.(Refer to the 1.5.3).

1.2.2 Range of usage & limitations

Item \ Models		40, 50, 60	71~140	200, 250
Indoor return air temperature (Upper, lower limits)		Refer to the selection chart	Please see the next page.	
Outdoor air temperature (Upper, lower limits)				
Operating temperature		When used under -5˚C, install a snow hood (option). (71~250 only)		
Indoor unit atmosphere (behind ceiling) temperature and humidity		Dew point temperature: 28˚C or less, relative humidity: 80% or less		
Airflow volume/static pressure		Use ducts and blow outlets of better heat insulation within the characteristics of blower. (FDUM, FDU)		
Air filter		Always install air filter (procured at site) at a place convenient for maintenance. (FDU)		
Heat insulation of refrigerant pipes		Heat insulation of 20 mm or more in thickness is necessary in the ceiling, etc, where the relative humidity exceeds 70%.		
Heat insulation of drain pipes		Heat insulation of 10 mm or more in thickness is necessary in the ceiling, etc, where the relative humidity exceeds 70%.		
Refrigerant line (one way) length		Max. 30m	Max. 50m	Max. 70m*
Vertical height difference between outdoor unit and indoor unit		Max. 20m (Outdoor unit is higher) Max. 20m (Outdoor unit is lower)	Max. 30m (Outdoor unit is higher) Max. 15m (Outdoor unit is lower)	
Installation site		The outline drawing contains restrictions concerning the installation space. Install the indoor unit 2.5m or above higher than the floor surface.		
Power source voltage		Rating ± 10%		
Voltage at starting		Min. 85% of rating		
Compressor ON-OFF Frequency	Cycle Time	7 minutes or more (from OFF to OFF) or (from ON to ON)		
	Stop Time	3 minutes or more		

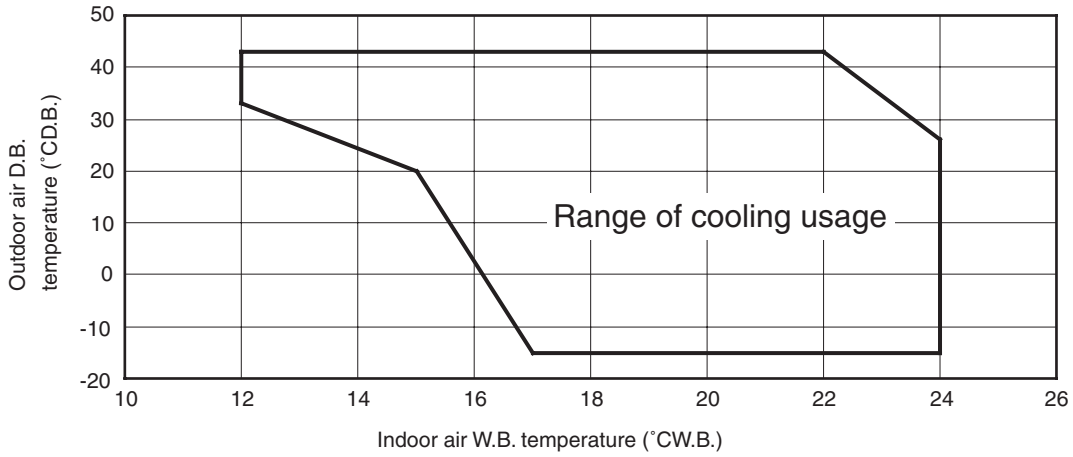
Note (1) Do not install the unit at the following places.
- Places exposed to oil splashes or steam (e.g. kitchens and machine plants).
- Places where inflammable gas may leak.
- Places containing a great amount of sulfide gases (e.g. hot spring area).
- Places directly exposed to sea breeze (e.g. coastal area).
- Places containing acid or alkaline air.
- Places adjacent to equipment generating electromagnetic waves or high-frequency waves.
- Places sucking the exhaust gas from heat exchanger.
- Do not install the unit on an object moistened with water.
- Places where carbon fiber and metal particles, powder, etc. are floating.
- Places where chimney smoke is hanging.
- Places at an elevation of 1000m and above.
- Places splashed with water (laundry room, etc.).
- The indoor unit is not protected against water penetration.
- Do not install indoor units of twin, triple and double-twin specifications separately in a room with partition.
- Where matters affecting devices, such as sulfuric gas, chlorine gas, acid, alkali, etc, may generate or accumulate.
- Where cosmetics or special sprays are used frequently.
- Installation on mobile thing such as vehicle, ship, etc.
- Where snow falls heavily. (Including where snow melting agent is spreaded)
- Where light beams that affect the receiving device fly arond, in case of the wireless specification.

(2) If ambient temperature and humidity exceed the above values, please add polyurethane foam insulation to the outer plate (t10 and above).
(3) Please set the lower limit of one-way piping length to 5m and above.
(4) When ϕ22.22 gas pipe is used for piping lengths with the ∗ mark, let the maximum one-way length be 30m.
(5) For details of the pipe length of twin, triple or double-twin specification, refer to next page.

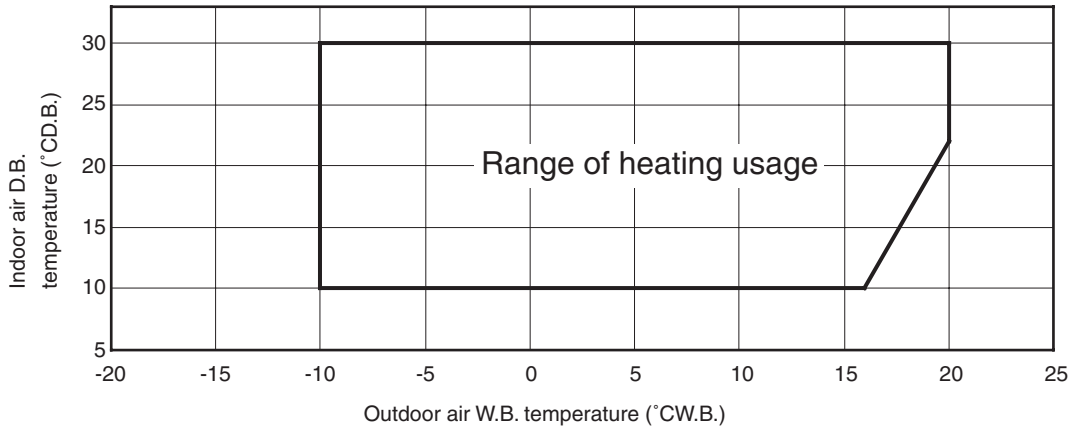
Operating temperature range

Models 71~250 only

Cooling



Heating



"CAUTION" Cooling operation under low ambient air temperature conditions

PAC models can be operated in cooling mode at low ambient air temperature condition within above temperature range. However in case of severely low temperature conditions if the following precaution is not observed, it may not be operated in spite of operable temperature range mentioned above and cooling capacity may not be established under certain conditions.
Regarding the decrease of cooling capacity, refer to 1.2.6 capacity compensation coefficient graph.

[Precaution]

In case of severely low temperature condition

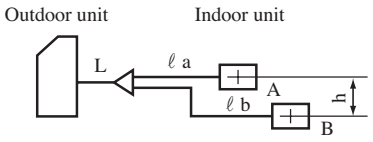
1) Install the outdoor unit at the place where strong wind cannot blow directly into the outdoor unit.
2) If there is no installation place where can prevent strong wind from directly blowing into the outdoor unit, mount the flex flow adapter (prepared as optional part) or like such devices onto the outdoor unit in order to divert the strong wind.

[Reason]

Under the low ambient air temperature conditions of -5°C or lower, the outdoor fan is controlled at lower or lowest speed by outdoor fan control, but if strong wind directly blow into the outdoor unit, the outdoor heat exchanger temperature will drop more. This makes high and low pressures to drop as well. This low pressure drop makes the indoor heat exchanger temperature to drop and will activate anti-frost control at indoor heat exchanger at frequent intervals, that cooling operation may not be established for any given time.

Height and length restrictions for refrigerant piping

Twin type



Models 71~140

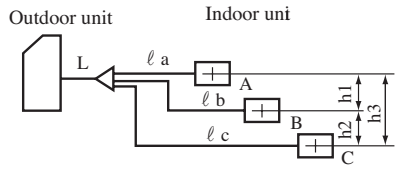
One-way pipe length (m) $L + \ell a + \ell b \leqq 50$
Branch pipe length (m) $|\ell a - \ell b| \leqq 10,\ \ell a \leqq 30,\ \ell b \leqq 30$
Difference in height between indoor units (m) h=0.5 or less

Models 200, 250

One-way pipe length (m) $L + \ell a \leqq 70,\ L + \ell b \leqq 70$
Branch pipe length (m) $|\ell a - \ell b| \leqq 10,\ \ell a \leqq 30,\ \ell b \leqq 30$
Difference in height between indoor units (m) h=0.5 or less

Triple type

■ **The Indoor_outdoor piping length differences among indoor units are less than 3m.**



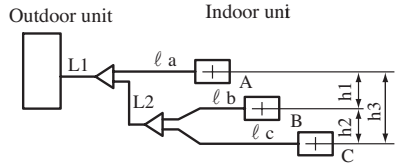
Model 140

One-way pipe length (m) $L + \ell a + \ell b + \ell c \leqq 50$
Branch pipe length (m) $|\ell a - \ell b| < 3, |\ell a - \ell c| < 3, |\ell b - \ell c| < 3$
$\ell a \leqq 30,\ \ell b \leqq 30,\ \ell c \leqq 30$
Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less, h3=0.5 or less

Model 200

One-way pipe length (m) $L + \ell a \leqq 70, L + \ell b \leqq 70, L + \ell c \leqq 70$
Branch pipe length (m) $|\ell a - \ell b| < 3, |\ell a - \ell c| < 3, |\ell b - \ell c| < 3$
$\ell a \leqq 30,\ \ell b \leqq 30,\ \ell c \leqq 30$
Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less, h3=0.5 or less

■ **The Indoor_outdoor piping length differences among indoor units are 3m or more.**



Note(1) The unit that requires the longest one-way piping length should be connected to the ℓ a piping line.

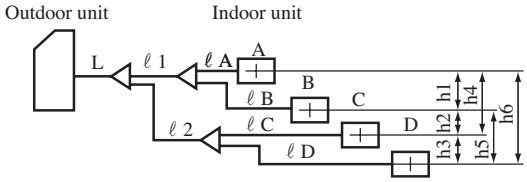
Model 140

One-way pipe length (m) $L1 + L2 + \ell a + \ell b + \ell c \leqq 50$
Branch pipe length (m) $3 \leqq \ell a - (L2 + \ell b) \leqq 10, 3 \leqq \ell a - (L2 + \ell c) \leqq 10, |\ell b - \ell c| \leqq 10$
$\ell a \leqq 30, L2 + \ell b \leqq 27, L2 + \ell c \leqq 27, L2 \leqq 5$
Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less, h3=0.5 or less

Model 200

One-way pipe length (m) $L1 + \ell a \leqq 70, L1 + L2 + \ell b \leqq 70, L1 + L2 + \ell c \leqq 70$
Branch pipe length (m) $3 \leqq \ell a - (L2 + \ell b) \leqq 10, 3 \leqq \ell a - (L2 + \ell c) \leqq 10, |\ell b - \ell c| \leqq 10$
$\ell a \leqq 30, L2 + \ell b \leqq 27, L2 + \ell c \leqq 27, L2 \leqq 5$
Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less, h3=0.5 or less

Double-twin type



Models 200, 250

One-way pipe length (m)
$L + \ell 1 + \ell A \leqq 70,\ L + \ell 1 + \ell B \leqq 70,\ L + \ell 2 + \ell C \leqq 70,$
$L + \ell 2 + \ell D \leqq 70$
Branch pipe length (m)
$\ell A - \ell B \leqq 10,\ \ell C - \ell D \leqq 10$
$(\ell 1 + \ell A) - (\ell 2 + \ell C) \leqq 10, (\ell 1 + \ell A) - (\ell 2 + \ell D) \leqq 10$
$(\ell 1 + \ell B) - (\ell 2 + \ell C) \leqq 10, (\ell 1 + \ell B) - (\ell 2 + \ell D) \leqq 10$
$\ell 1 + \ell A \leqq 30,\ \ell 1 + \ell B \leqq 30,\ \ell 2 + \ell C \leqq 30,\ \ell 2 + \ell D \leqq 30$
$\ell A + \ell B \leqq 15,\ \ell C + \ell D \leqq 15$
Difference in height between indoor units (m)
h1=0.5 or less, h2=0.5 or less
h3=0.5 or less, h4=0.5 or less
h5=0.5 or less, h6=0.5 or less

In the illustration the L is main piping and ℓ 1, ℓ 2, ℓ A, ℓ B, ℓ C and ℓ D are branch piping.

Request

(1) When the capacity of the indoor unit to be connected is 40, 50 and 60 or less, be sure to use a pipe diameter of ø9.52 for the size of the liquid piping of branch piping (between branch and indoor units). (for double-twin only) For connections to indoor units (liquid piping side dia. ø6.35) use the different diameter adapter coupling that is included in the branch piping kit.

(2) For the branch be sure to select the specified branch pipe set (sold separately) and then to follow the directions of the instruction manual included in the branch pipe set when installing the piping. Be sure to install the branch piping so that the branch is level.

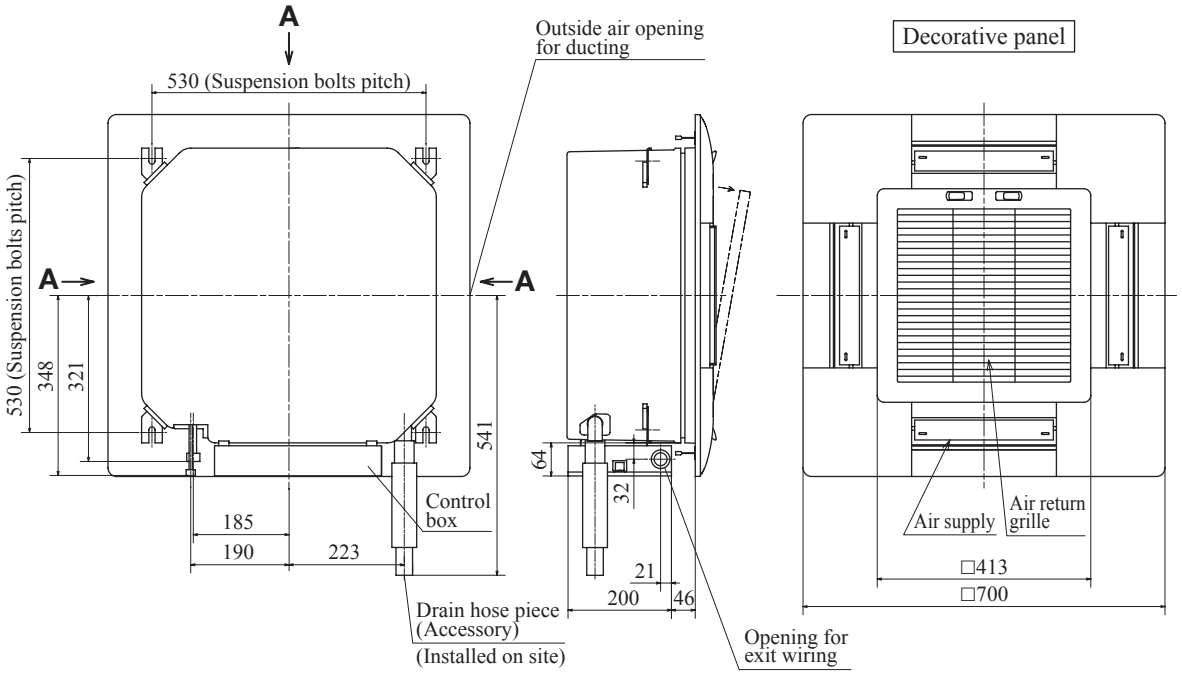
1.2.3 Exterior dimensions

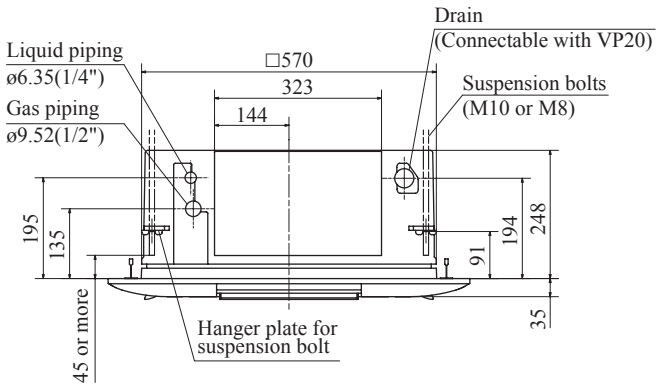
(1) Indoor unit

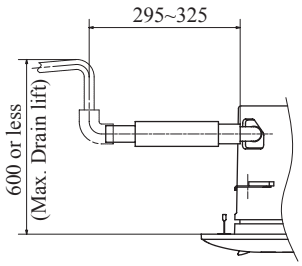
(a) Ceiling cassette-4 way Compact (600×600mm)-type (FDTC)

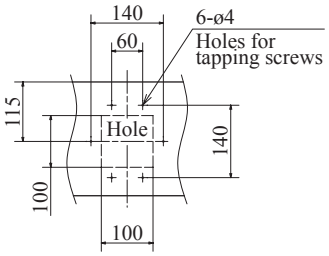
Models FDT40V, 50V

Unit:mm



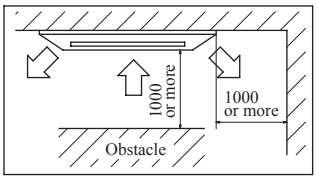






VIEW A

Space for installation and service



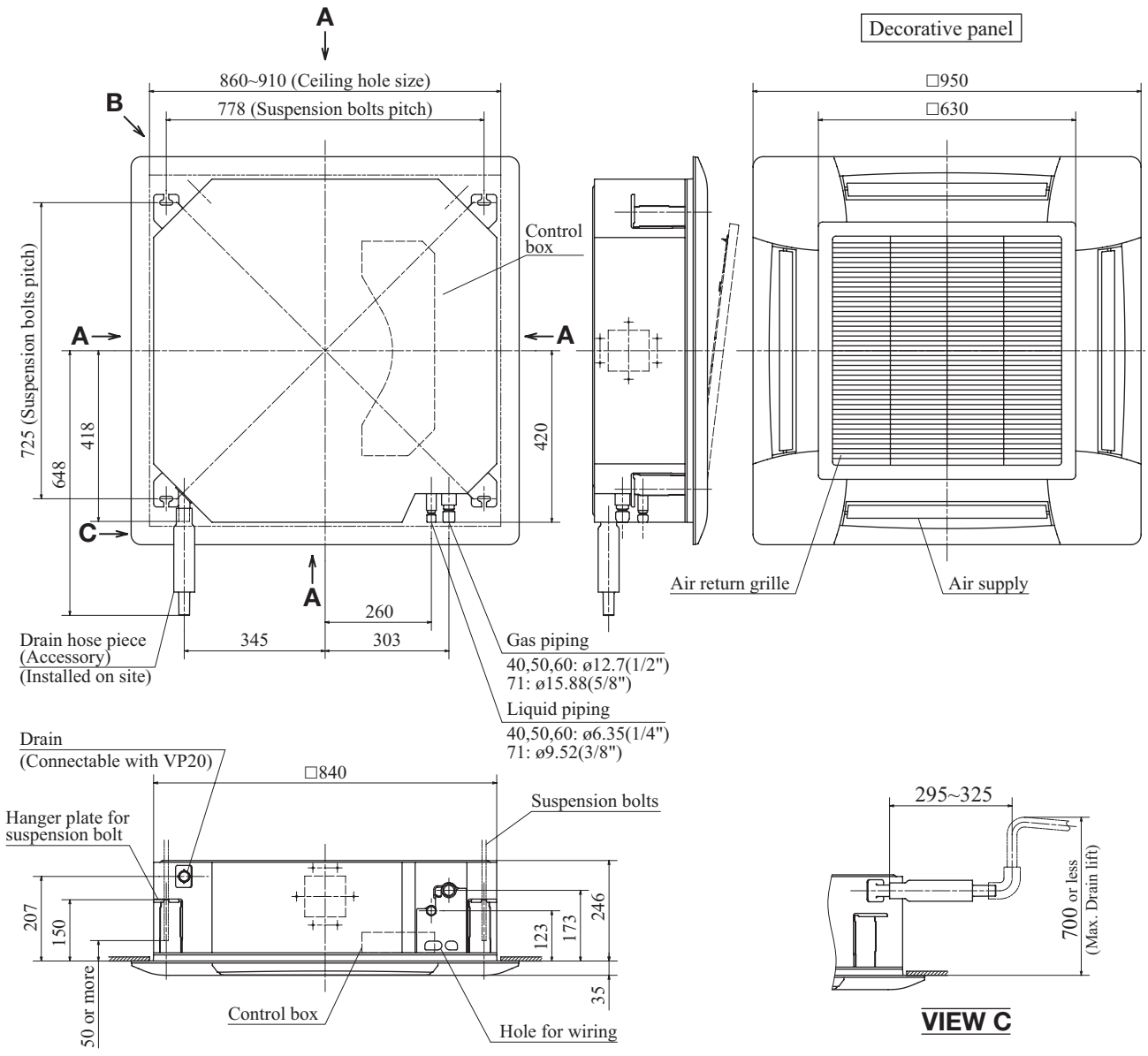
Make a space of 4000 or more between the units when installing more than one.

Notes (1) The model name label is attached on the control box lid inside the air return grille.
(2) Prepare the connecting socket (VP20) on site.
(3) This unit is designed for 2×2 grid ceiling.
If it is installed on a ceiling other than 2×2 grid ceiling, provide an inspection port on the control box side.

(b) Ceiling cassette-4 way-type (FDT)

Models FDT40V, 50V, 60V, 71V

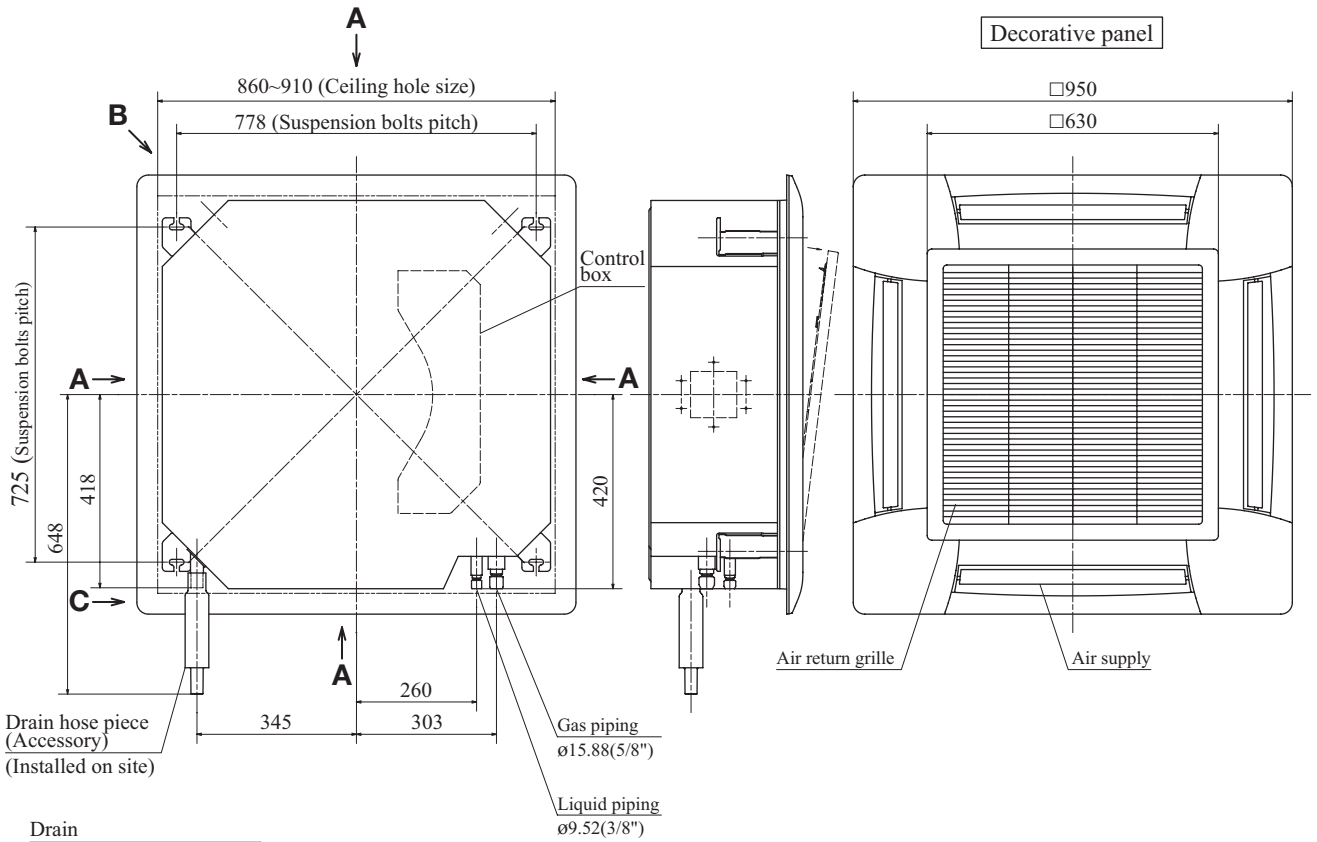
Unit : mm

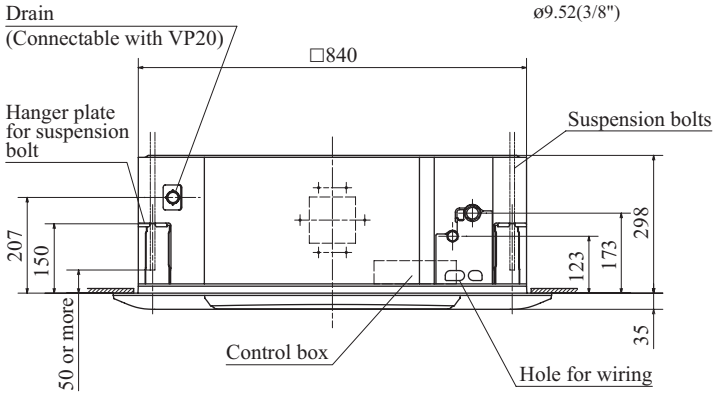


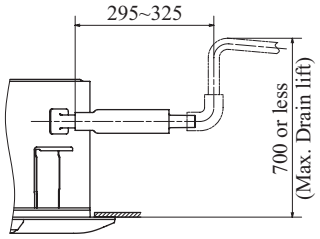
Notes (1) The model name label is attached inside the air return grille.
(2) Prepare the connecting socket (VP20) on site.

Model FDT100V, 125V, 140V

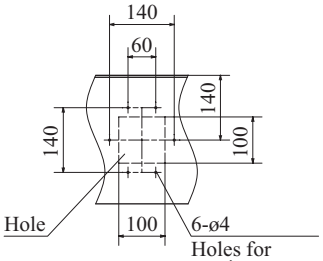
Unit : mm



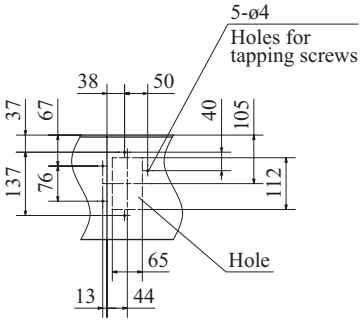




VIEW C

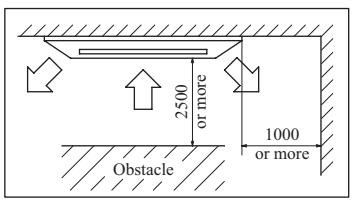


VIEW A



VIEW B

Space for installation and service



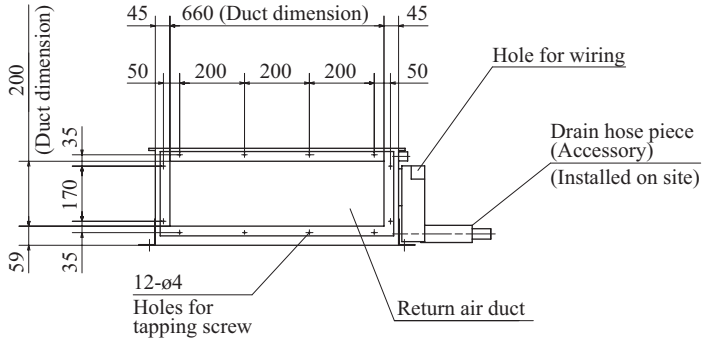
Make a space of 5000 or more between the units when installing more than one.

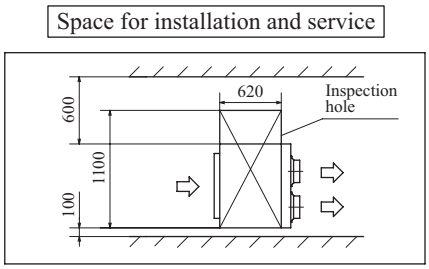
Notes (1) The model name label is attached inside the air return grille.
(2) Prepare the connecting socket (VP20) on site.

(c) Duct connected-Middle static pressure-type (FDUM)

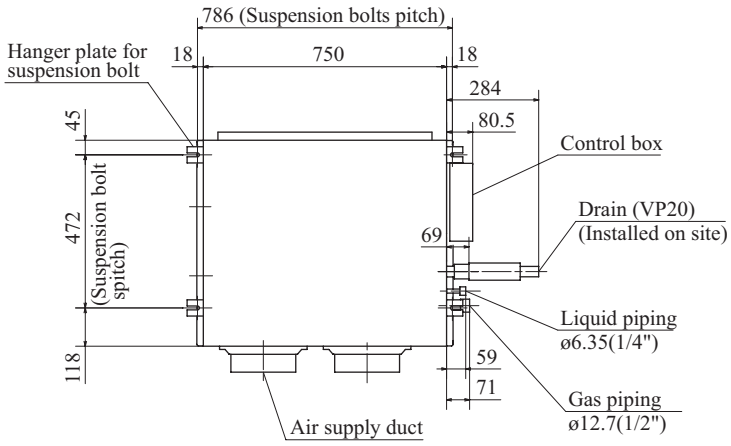
Model FDUM50V

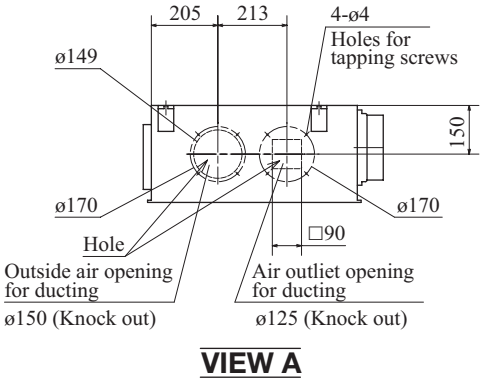
Unit : mm



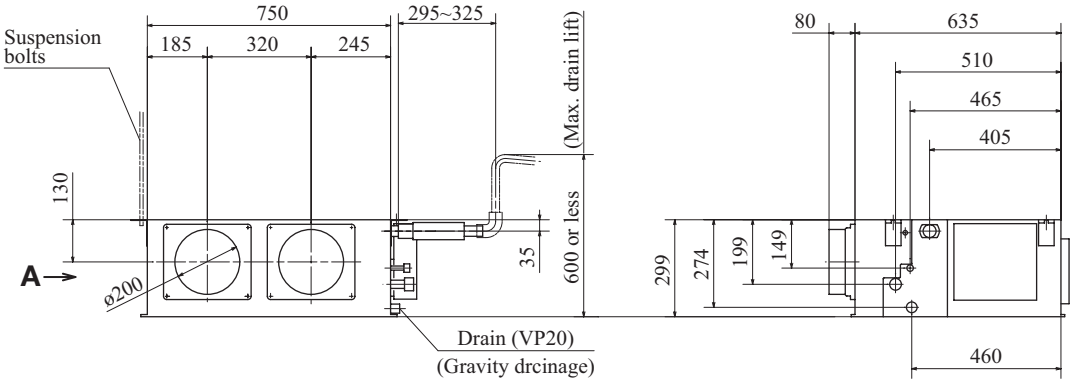


Notes (1) The model name label is attached on the lid of the control box.
(2) Prepare the connecting socket (VP20) on site.



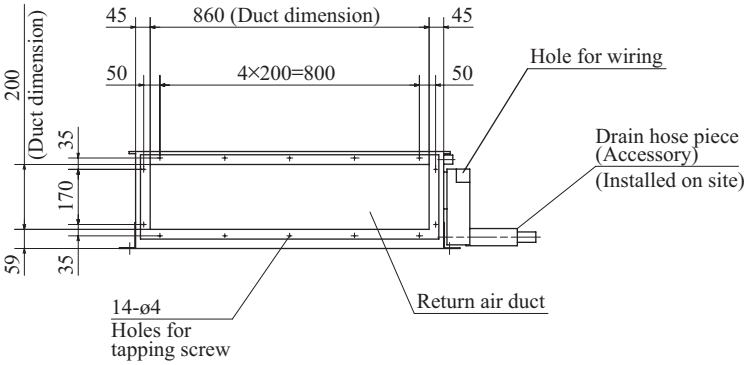


VIEW A

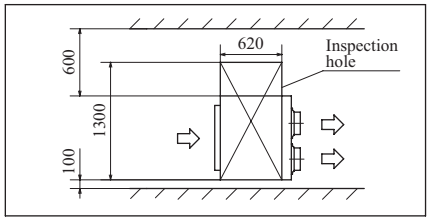


Models FDUM60V, 71V

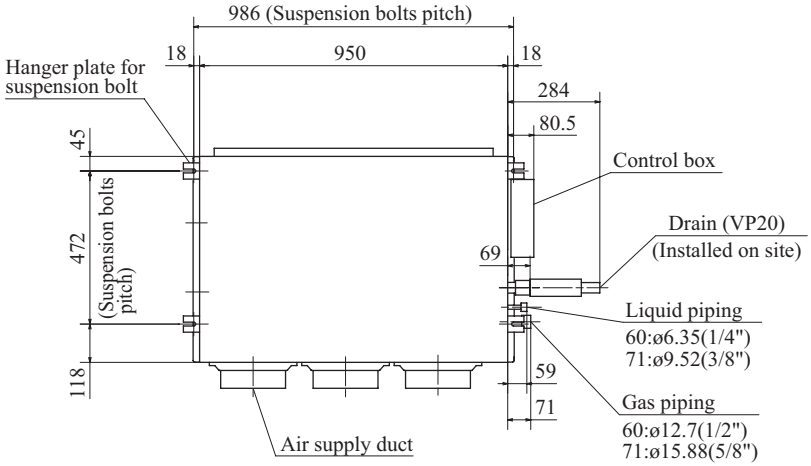
Unit : mm

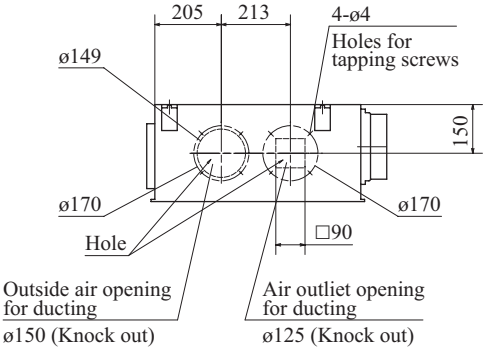


Space for installation and service

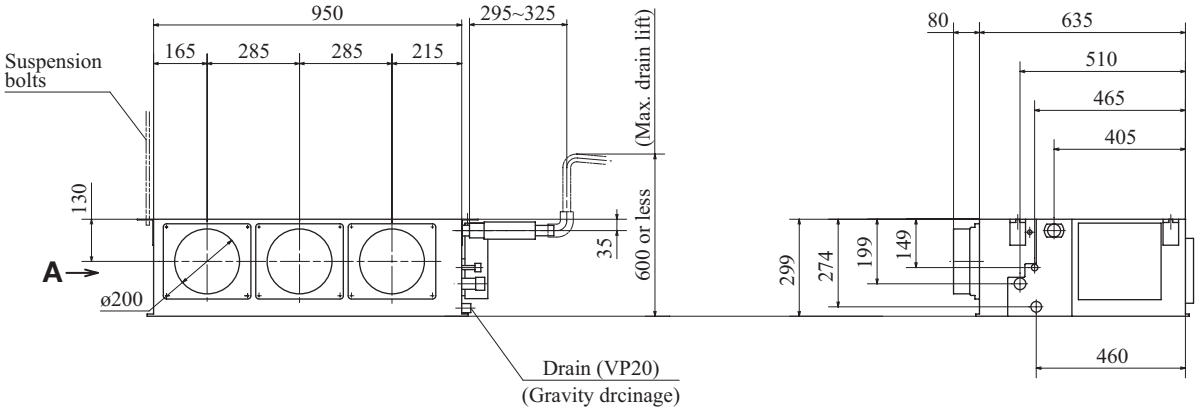


Notes (1) The model name label is attached on the lid on the lid of the control box.
(2) Prepare the connecting socket (VP20) on site.



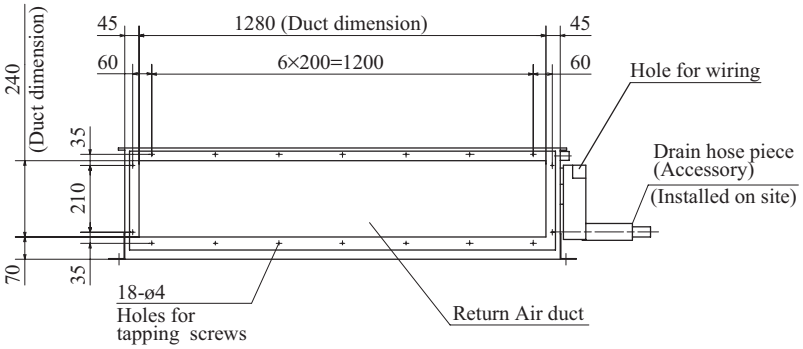


VIEW A

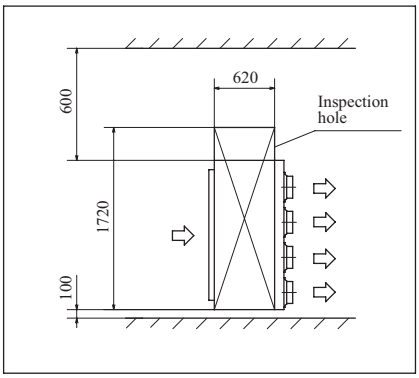


Models FDUM100V, 125V, 140V

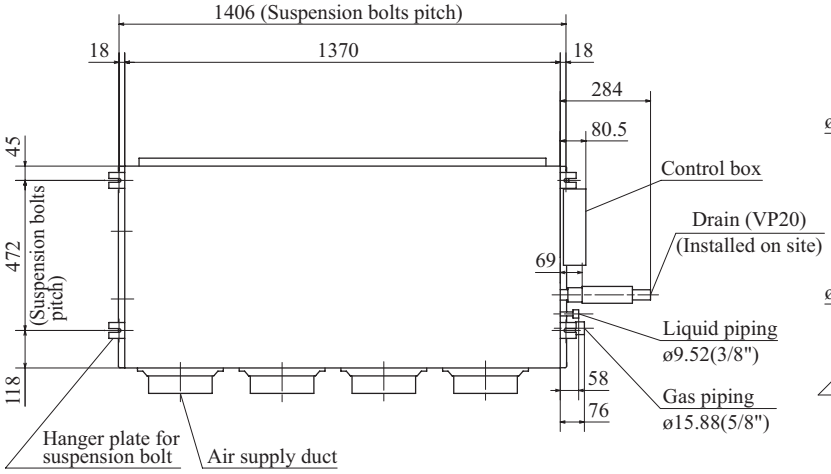
Unit : mm

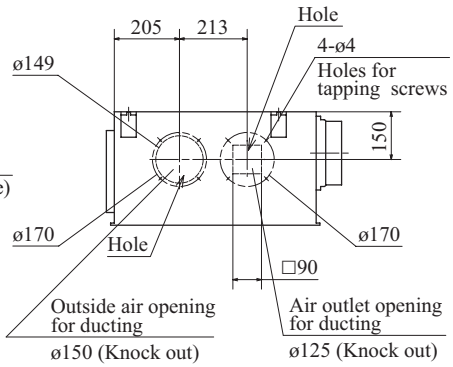


Space for installation and service

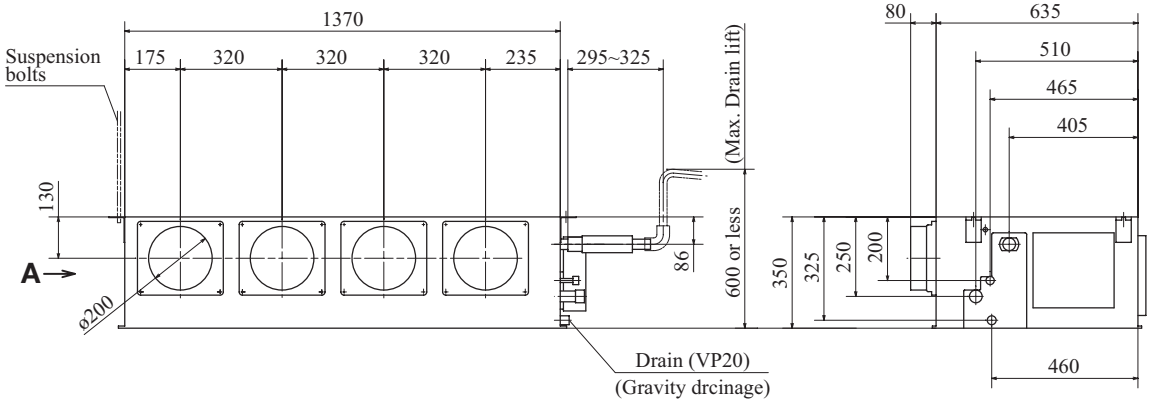


Notes (1) The model name label is attached on the lid of the control box.
(2) Prepare the connecting socket(VP20) on site.





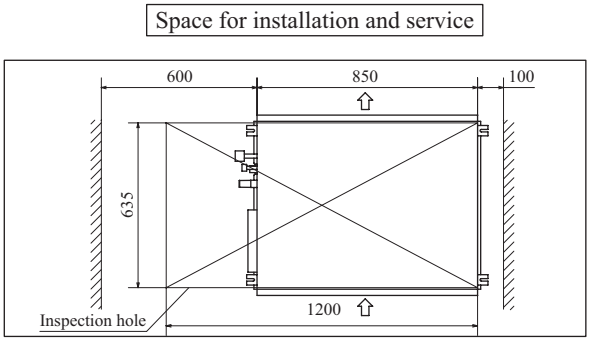
VIEW A



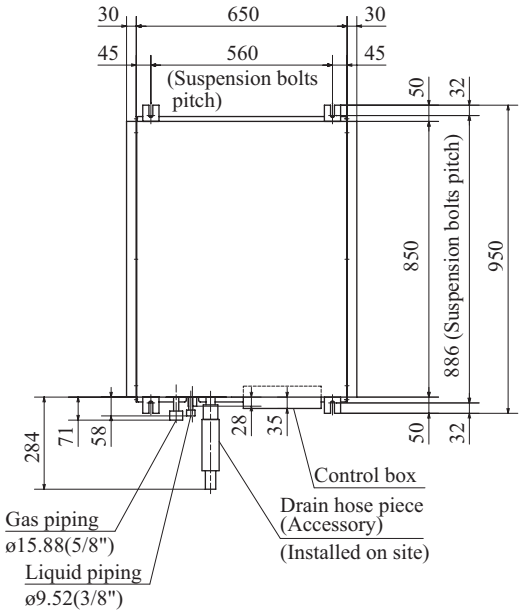
(d) Duct connected-High Static pressure-type (FDU)

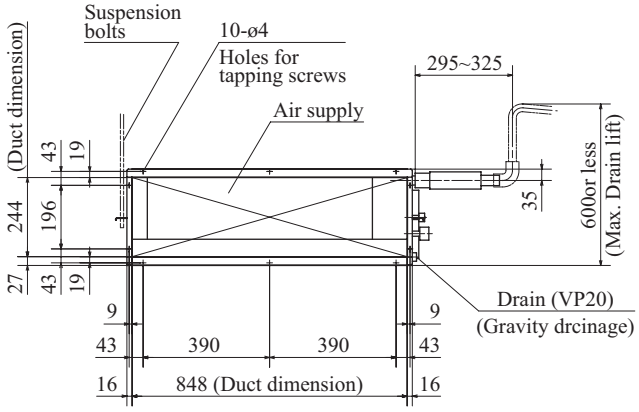
Model FDU71V

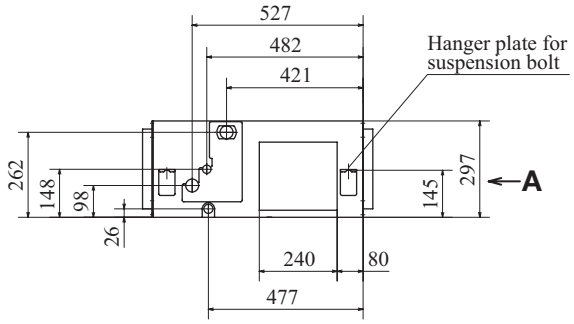
Unit : mm

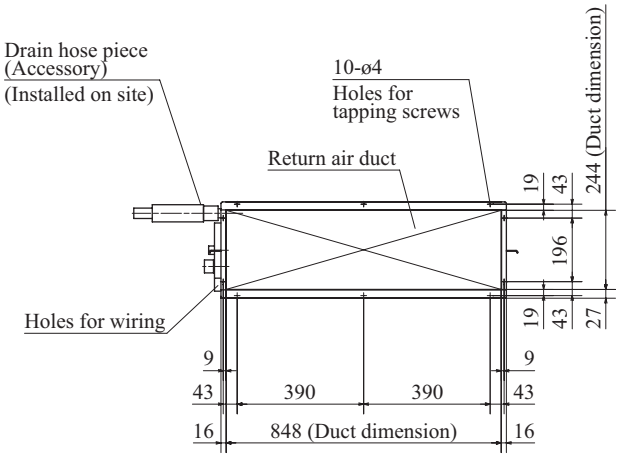


Notes (1) The model name label is attached on the lid of the control box.
(2) Prepare the connecting socket (VP20)on site.





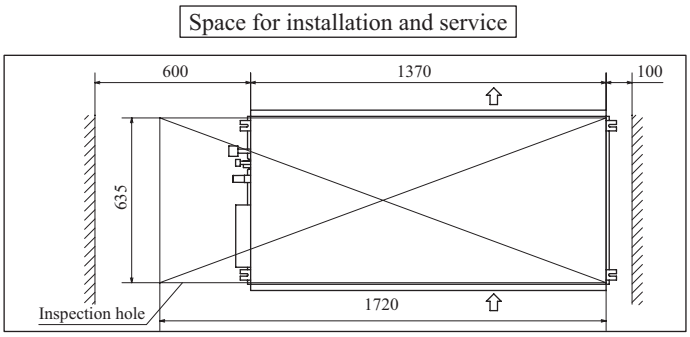




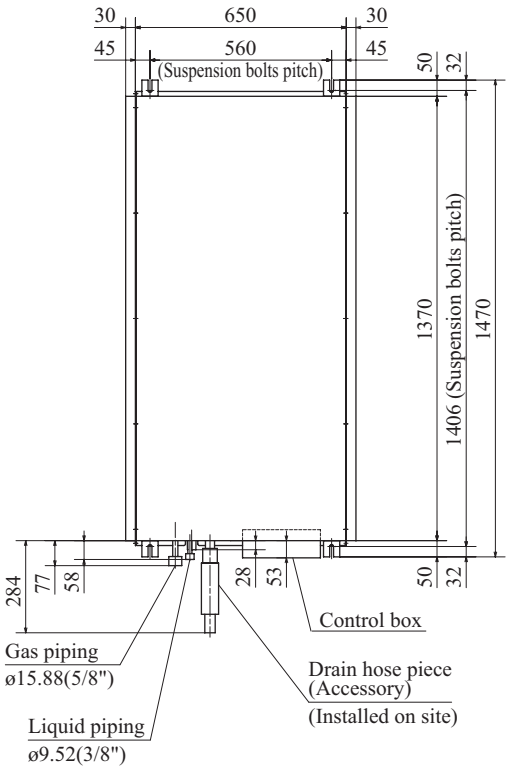
VIEW A

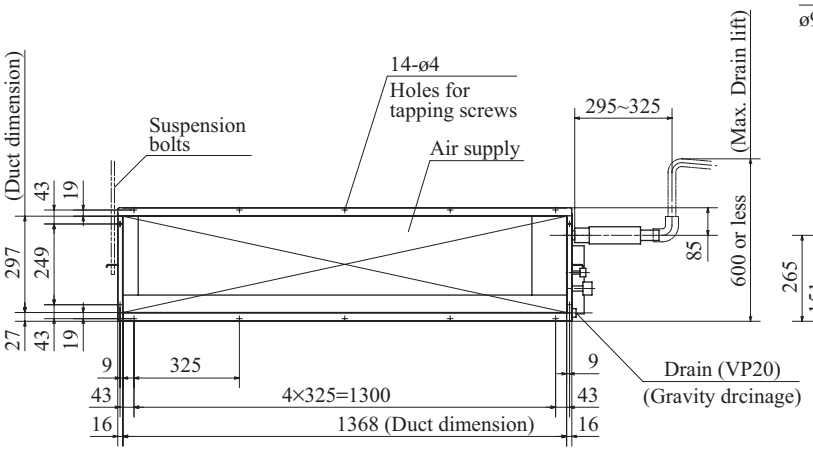
Models FDU100V, 125V, 140V

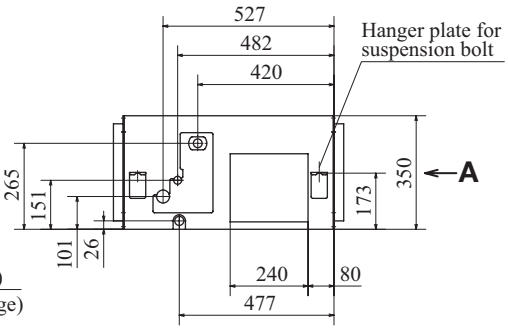
Unit : mm

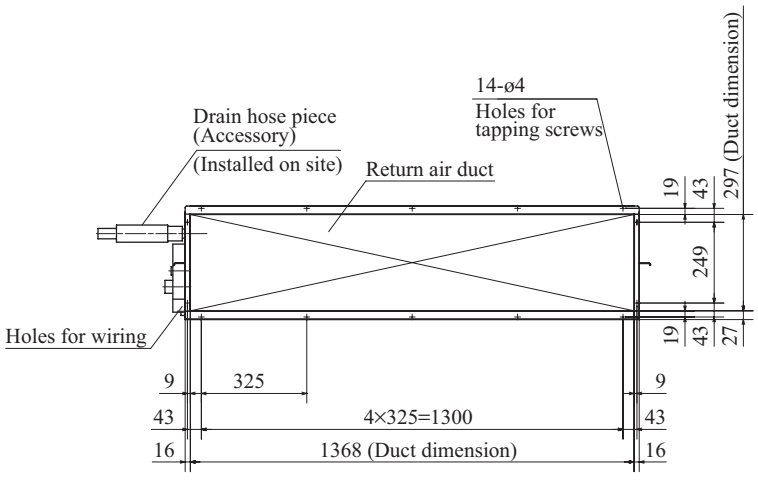


Notes (1) The model name label is attached on the lid of the control box.
(2) Prepare the connecting socket (VP20)on site.





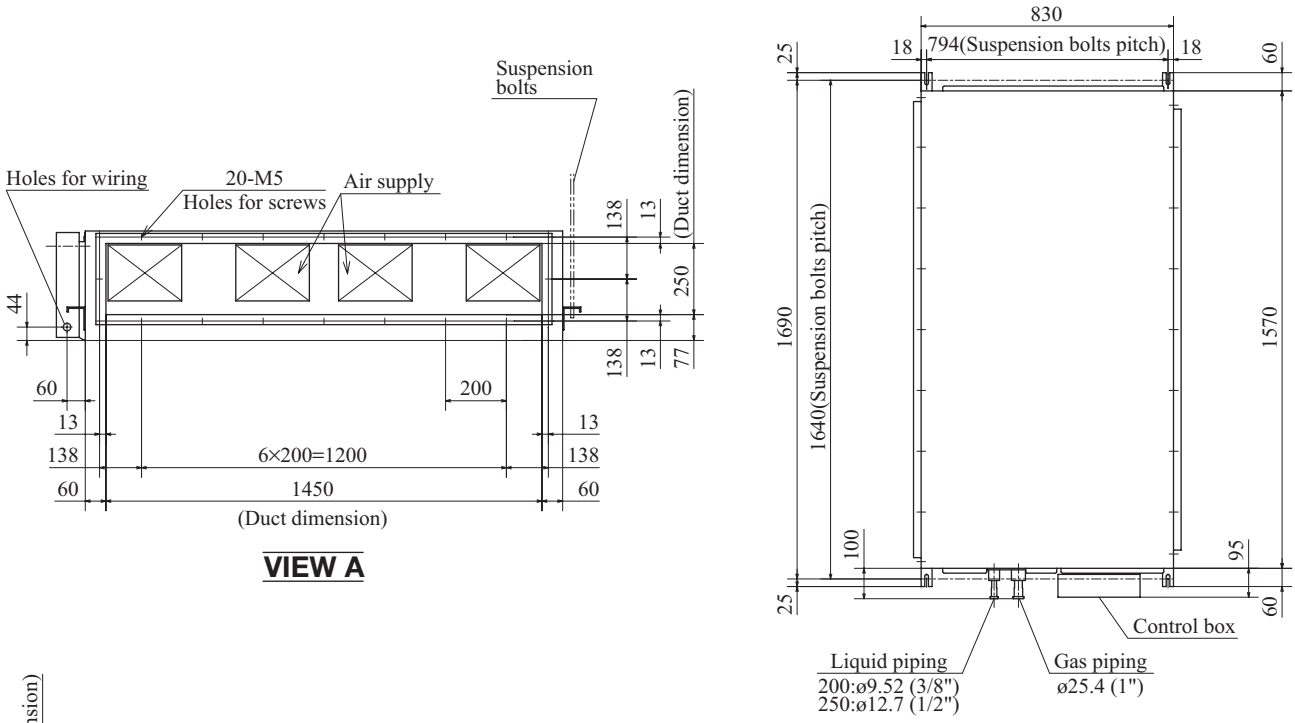


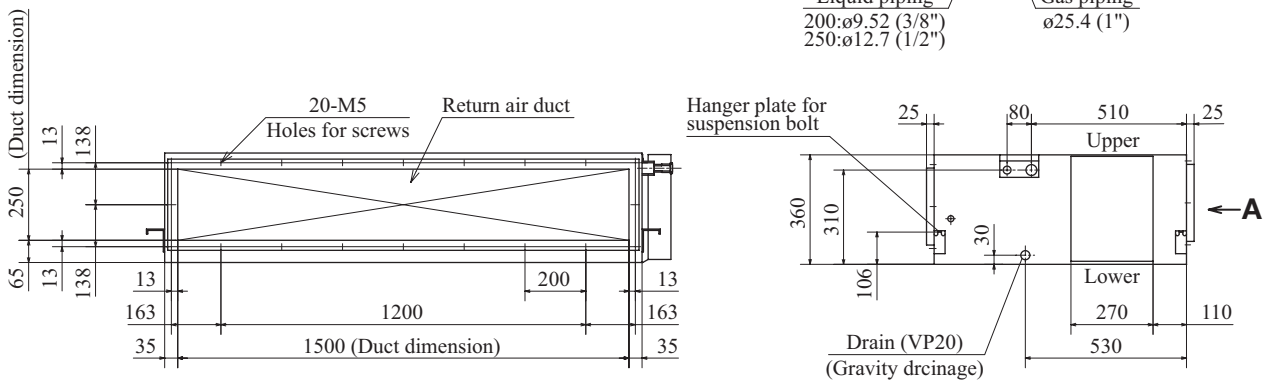


VIEW A

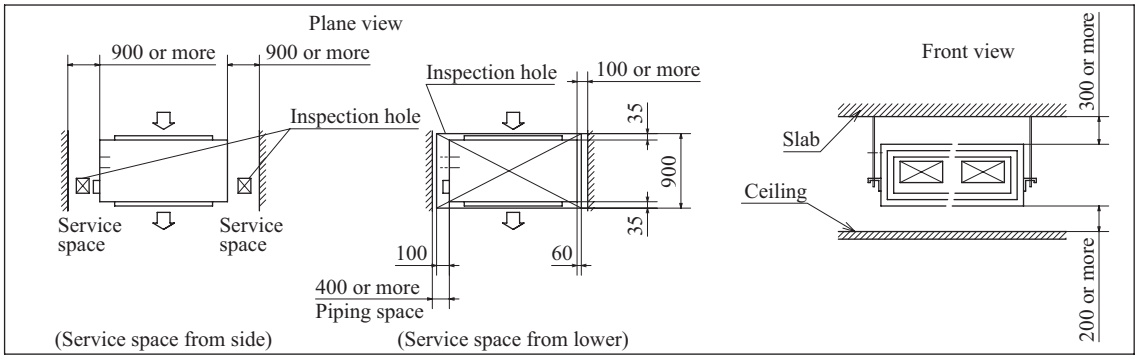
Models FDU200V, 250V

Unit : mm





Space for installation and service

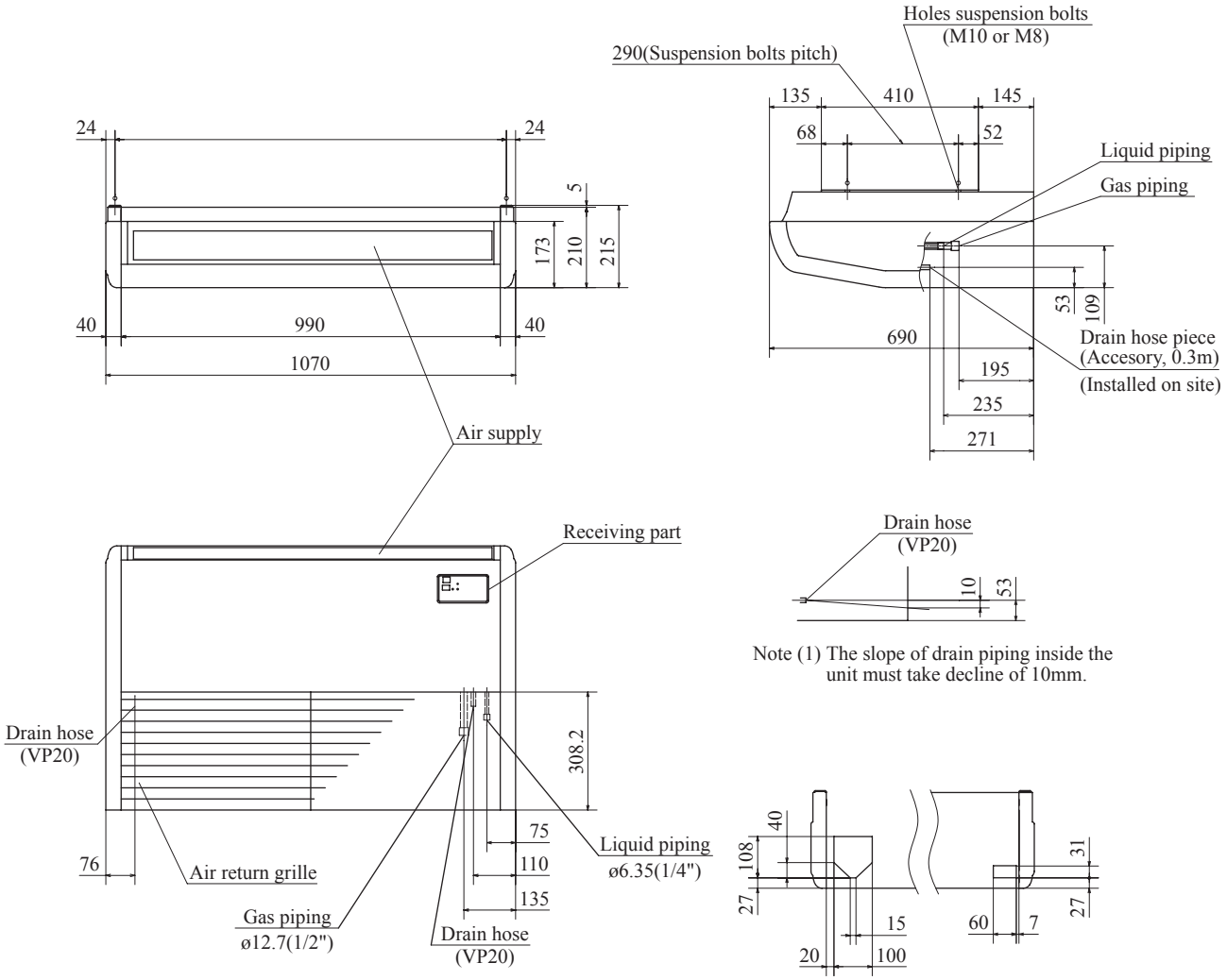


Note (1) The model name label is attached on the side plate of the control box.

(e) Ceiling suspended type (FDEN)

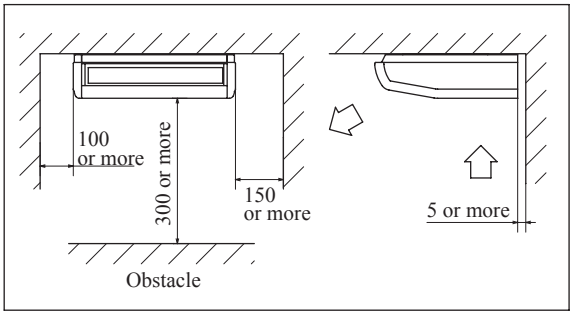
Models FDEN40V, 50V

Unit : mm



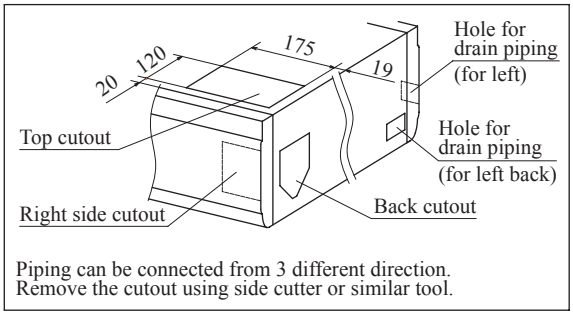
Note (1) The slope of drain piping inside the unit must take decline of 10mm.

Space for installation and service



Make a space of 4000 or more between the units when installing more than one.

Position of top cutout and back cutout

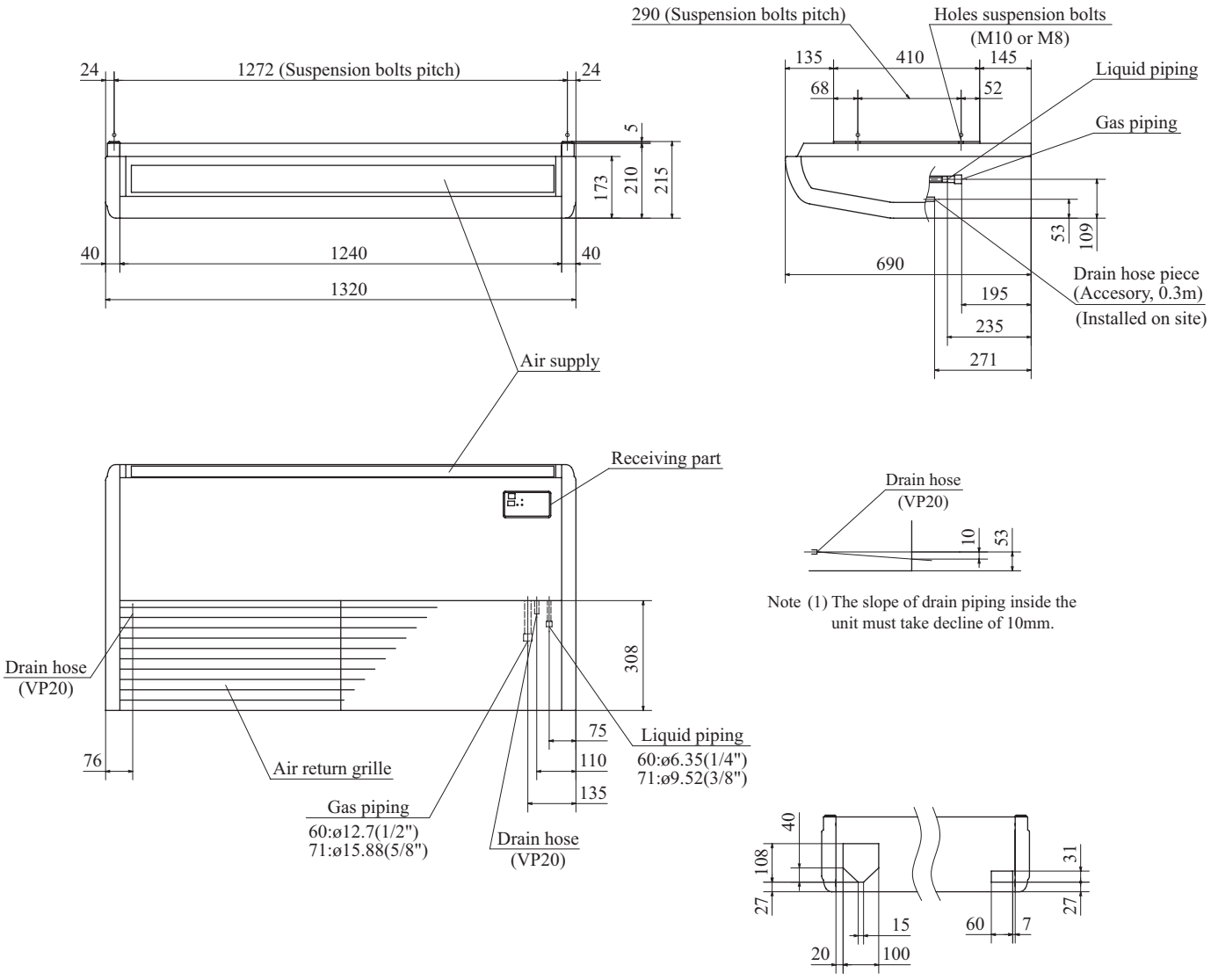


Piping can be connected from 3 different direction.
Remove the cutout using side cutter or similar tool.

Note (1) The model name label is attached on the fan casing inside the air return grille.

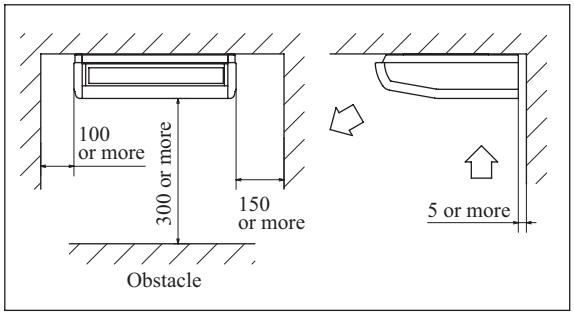
Models FDEN60V, 71V

Unit : mm



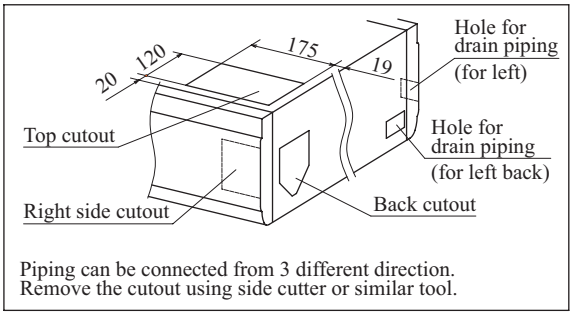
Note (1) The slope of drain piping inside the unit must take decline of 10mm.

Space for installation and service



Make a space of 4000 or more between the units when installing more than one.

Position of top cutout and back cutout

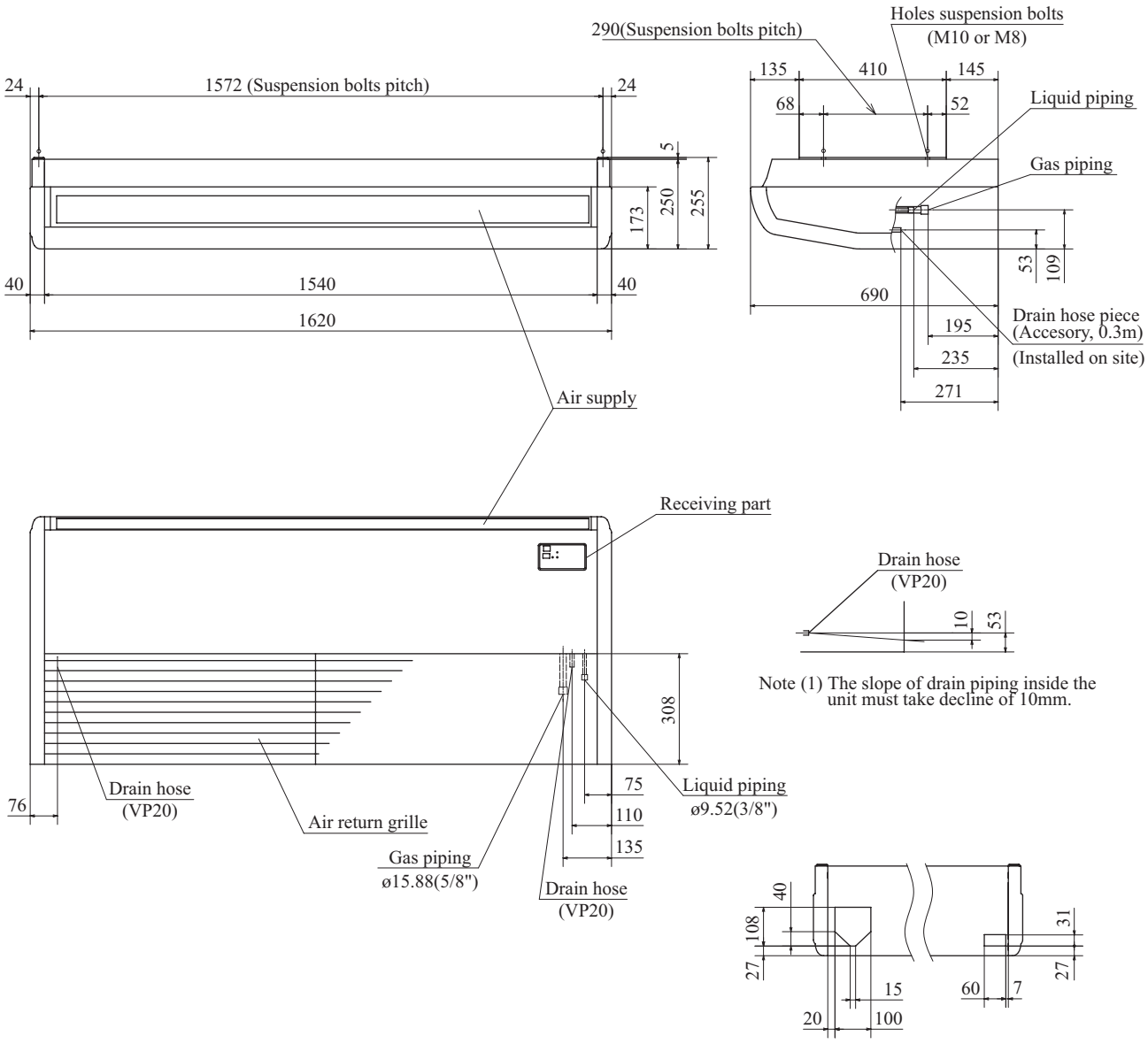


Piping can be connected from 3 different direction.
Remove the cutout using side cutter or similar tool.

Note (1) The model name label is attached on the fan casing inside the air return grille.

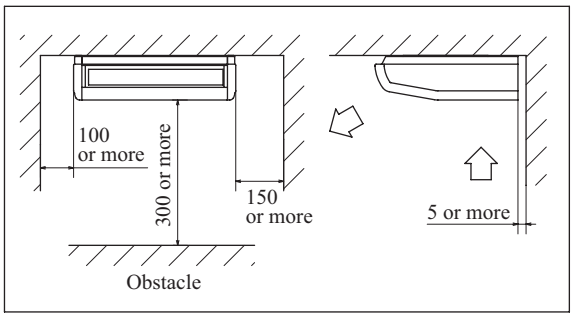
Models FDEN100V, 125V, 140V

Unit : mm



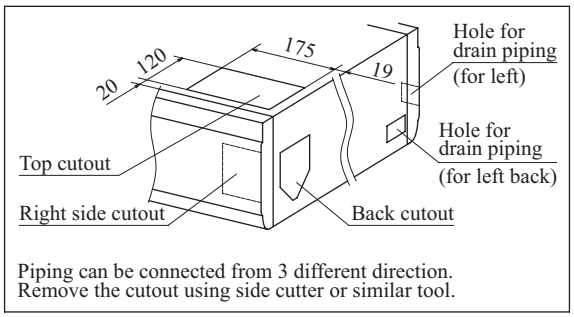
Note (1) The slope of drain piping inside the unit must take decline of 10mm.

Space for installation and service



Make a space of 4500 or more between the units when installing more than one.

Position of top cutout and back cutout



Piping can be connected from 3 different direction.
Remove the cutout using side cutter or similar tool.

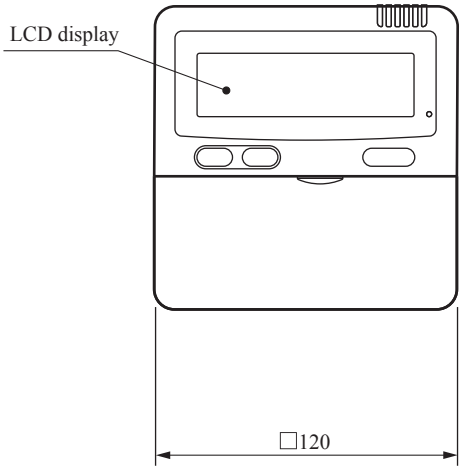
Note (1) The model name label is attached on the fan casing inside the air return grille.

(2) Remote controller (Optional parts)

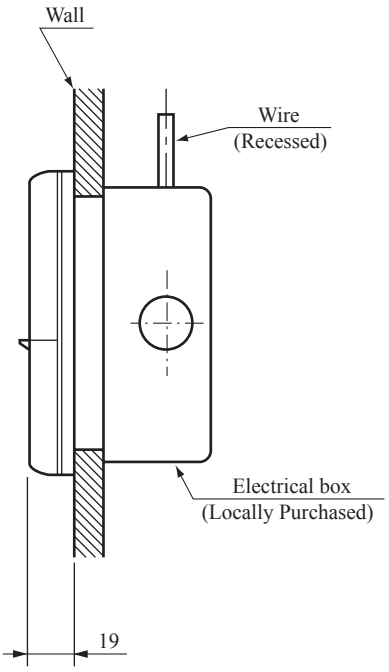
(a) Wired remote controller

Unit : mm

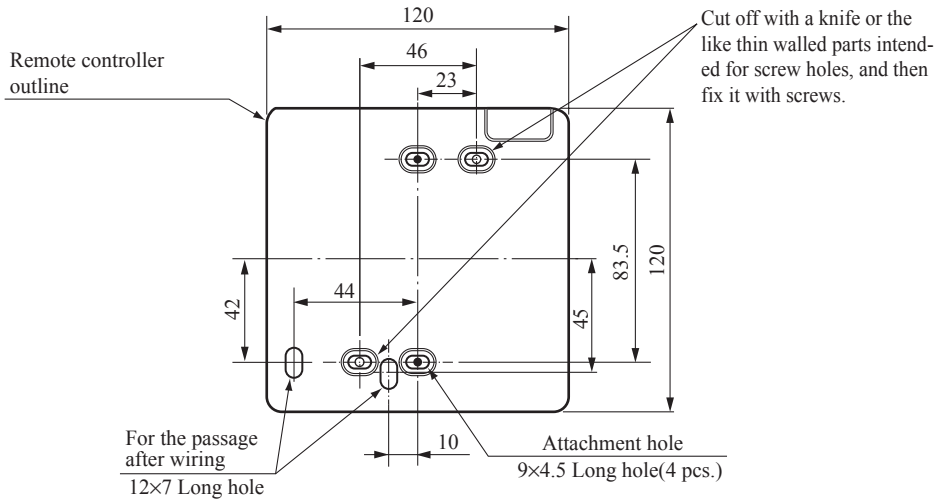
Installation with wiring exposed



Installation with wiring recessed



Remote controller mounting dimensions



Precaution in Extending the Remote control cord

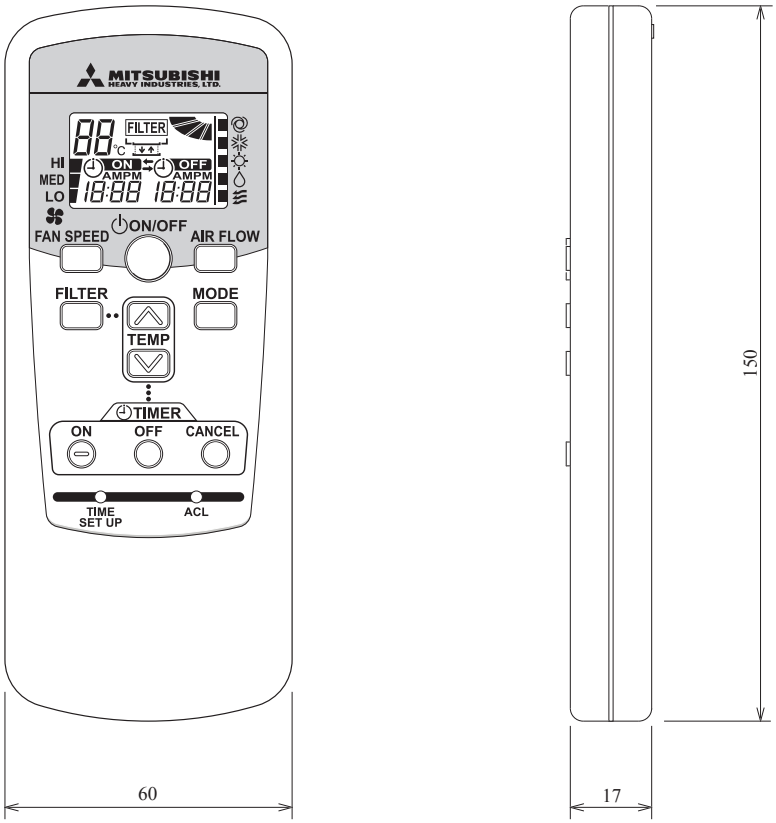
① Wiring of remote controller should use 0.3mm^2 × 2 core wires or cables (on-site configuration)

② Maximum prolongation of remote controller wiring is 600 m.
If the prolongation is over 100m, change to the size below.
But, wiring in the remote controller case should be under 0.5mm^2 . Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.

100-200m ····· 0.5 mm^2 × 2 cores
Under 300m ····· 0.75 mm^2 × 2 cores
Under 400m ····· 1.25 mm^2 × 2 cores
Under 500m ····· 2.0 mm^2 × 2 cores

(b) Wireless remote controller

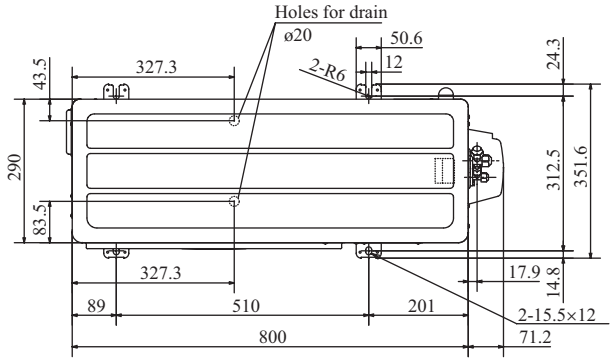
Unit: mm

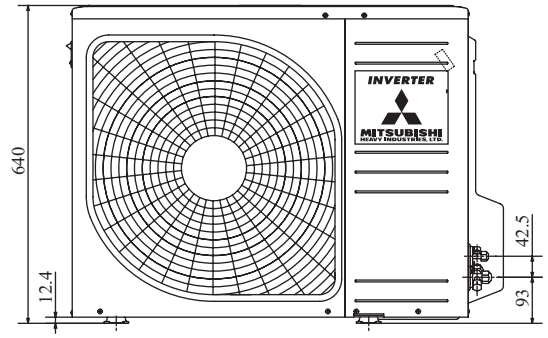


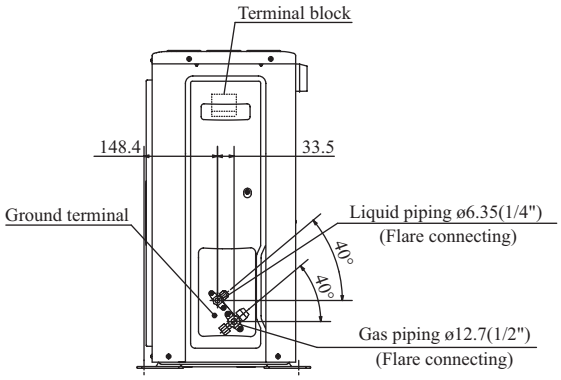
(3) Outdoor unit

Models SRC40ZHX-S, 50ZHX-S, 60ZHX-S

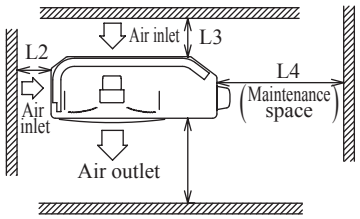
Unit: mm







Required space for maintenance and air flow



Minimum allowable space to the obstacles

Unit:mm

Mark \ Installation type	I	II	III
L1	Open	280	280
L2	100	75	Open
L3	100	80	80
L4	250	Open	250

Notes

(1) It is prohibited to install in a space enclosed with walls at four sides.

(2) Unit must be secured with anchor bolts.
Anchor bolt should not protrude more than 15 mm above the surface.

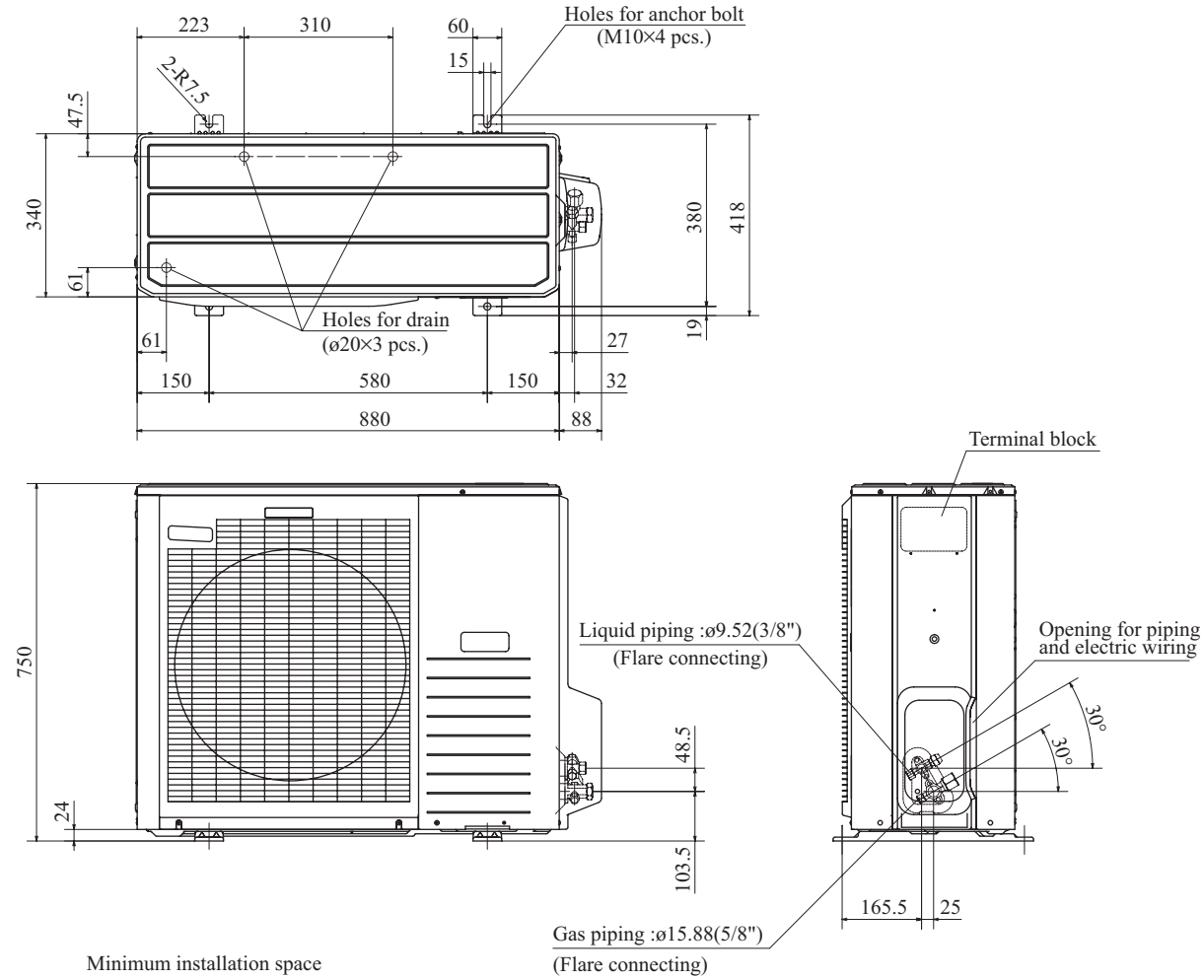
(3) Where strong winds blow, the blow outlet must be oriented at right angle against the wind direction.

(4) Secure a space of 1 m or more above the unit.

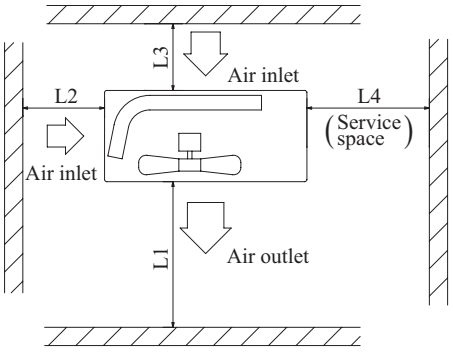
(5) Barrier standing in front of the blow outlet must be lower than the height of unit.

Model FDC71VN

Unit: mm



Minimum installation space



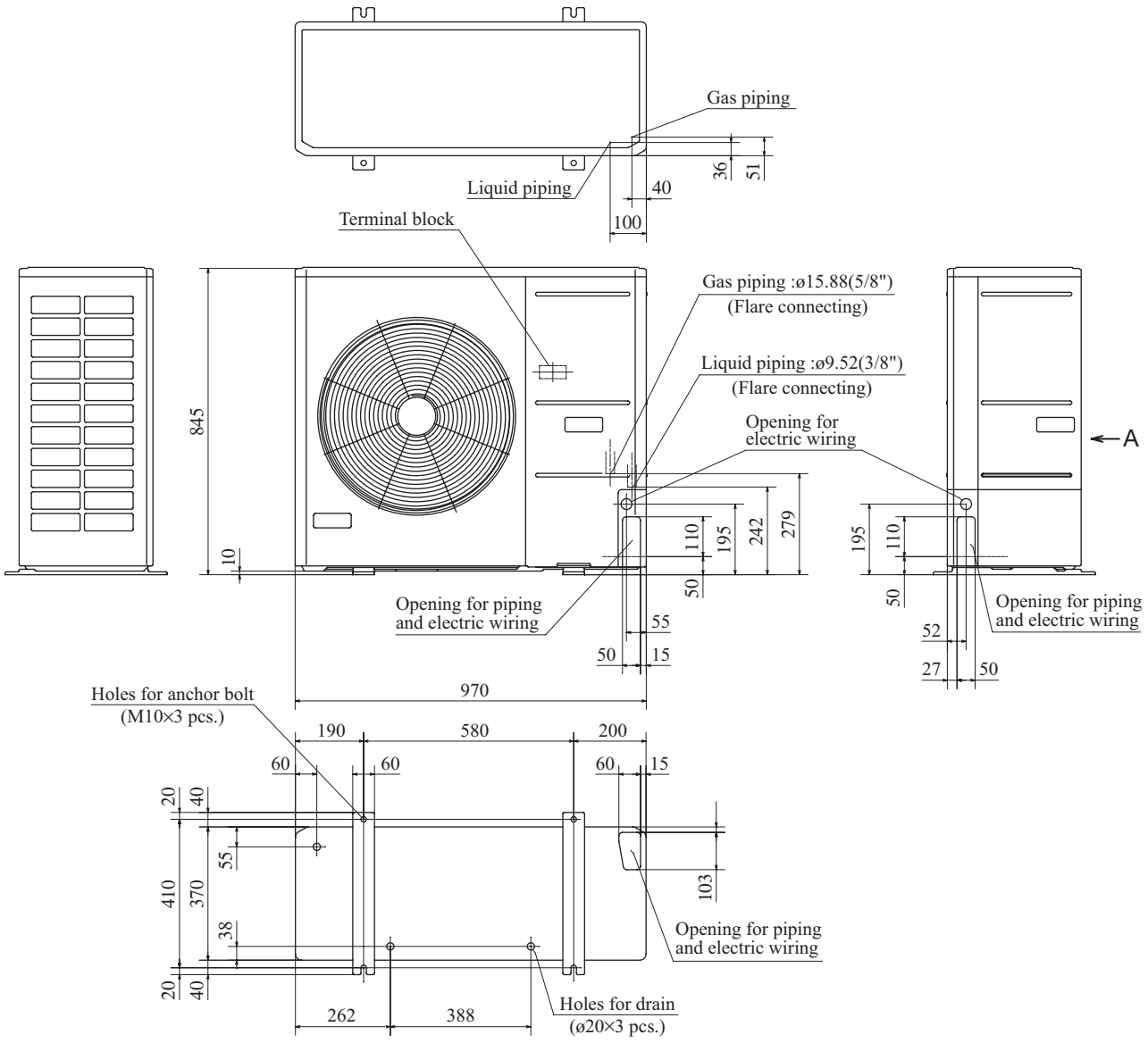
Insallation type / Mark	I	II	III
L1	Open	Open	500
L2	300	250	Open
L3	100	150	100
L4	250	250	250

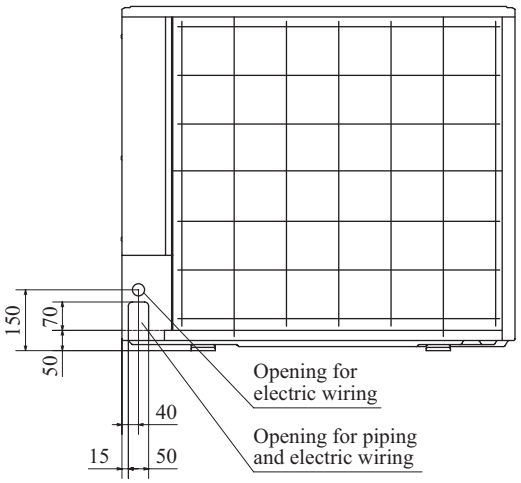
Notes

(1) It must not be surrounded by walls on the four sides.
(2) The unit must be fixed with anchor bolts. An anchor bolt must not protrude more the 15mm.
(3) Where the unit is subject to strong winds, lay it in sucha direction that the blower outlet faces perpendicularly to the dominant wind direction.
(4) Leave 1m or more space above the unit.
(5) A wall in front of the blower outlet must not exceed the units height.
(6) The model name label is attached on the lower right corner of the front.

Models FDC100VN, 125VN, 140VN
100VS, 125VS, 140VS

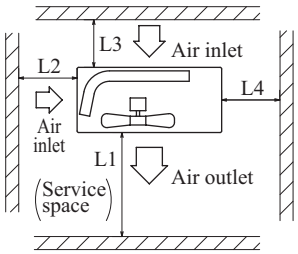
Unit: mm





VIEW A

Minimum installation space



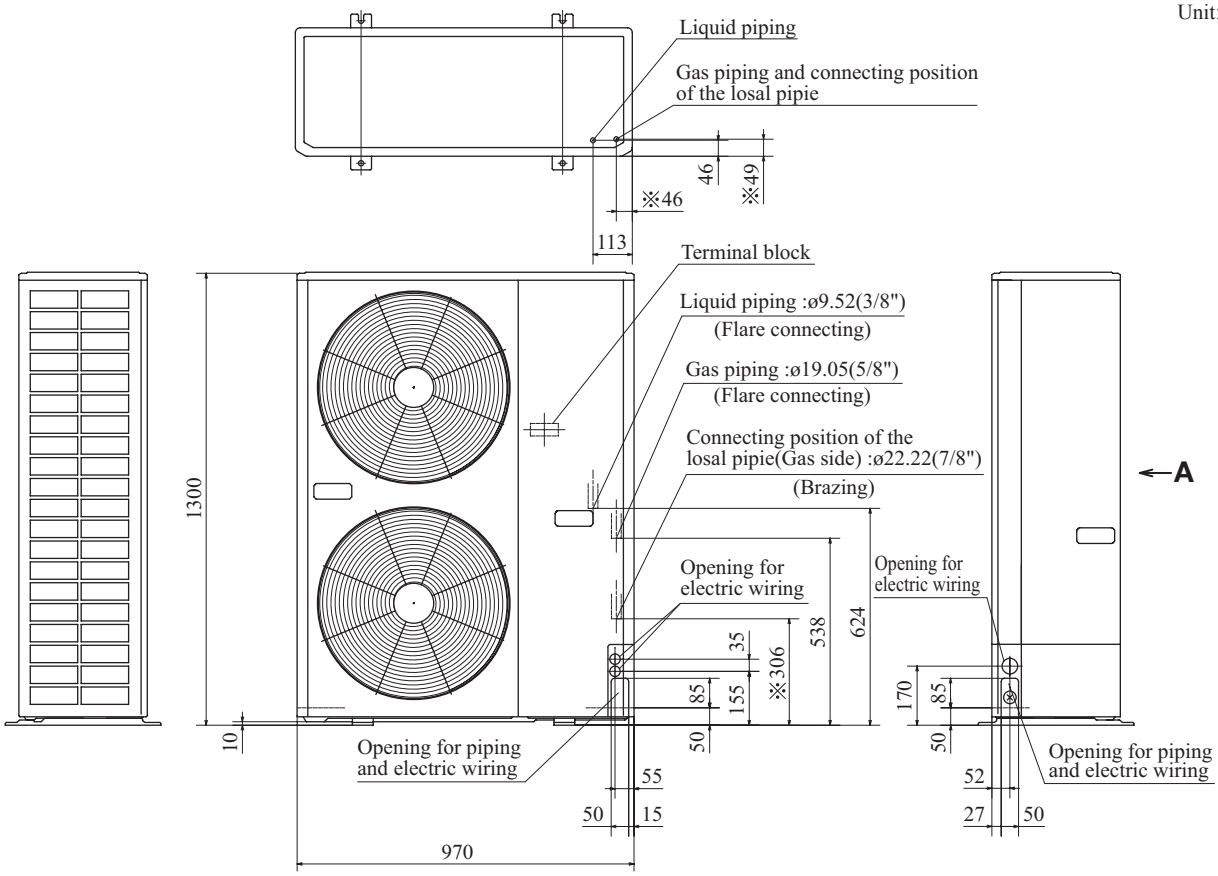
Insallation type / Mark	I	II	III
L1	Open	Open	500
L2	300	5	Open
L3	150	300	150
L4	5	5	5

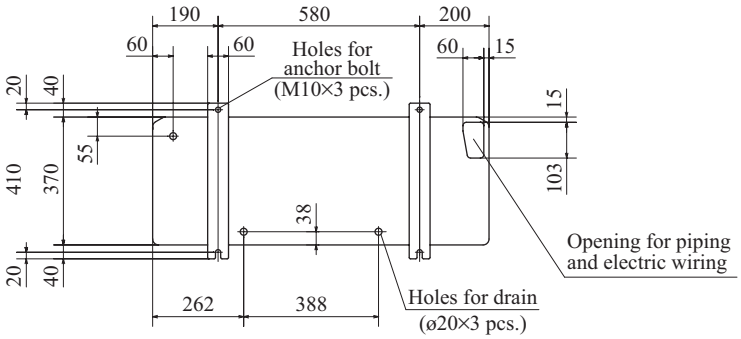
Notes

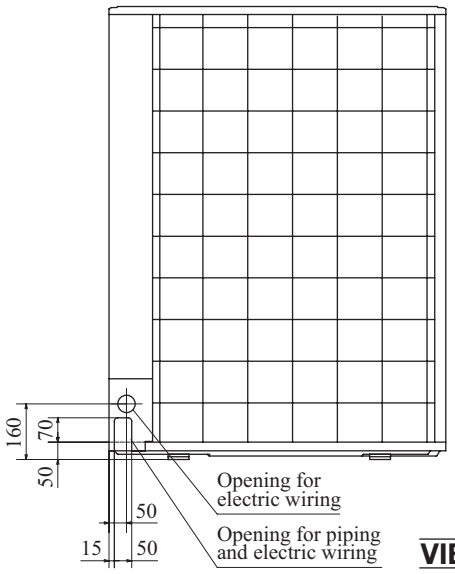
(1) It must not be surrounded by walls on the four sides.
(2) The unit must be fixed with anchor bolts. An anchor bolt must not protrude more the 15mm.
(3) Where the unit is subject to strong winds, lay it in sucha direction that the blower outlet faces perpendicularly to the dominant wind direction.
(4) Leave 1m or more space above the unit.
(5) A wall in front of the blower outlet must not exceed the units height.
(6) The model name label is attached on the lower right corner of the front.

Model FDC200VS

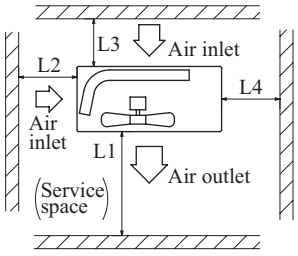
Unit: mm







Minimum installation space



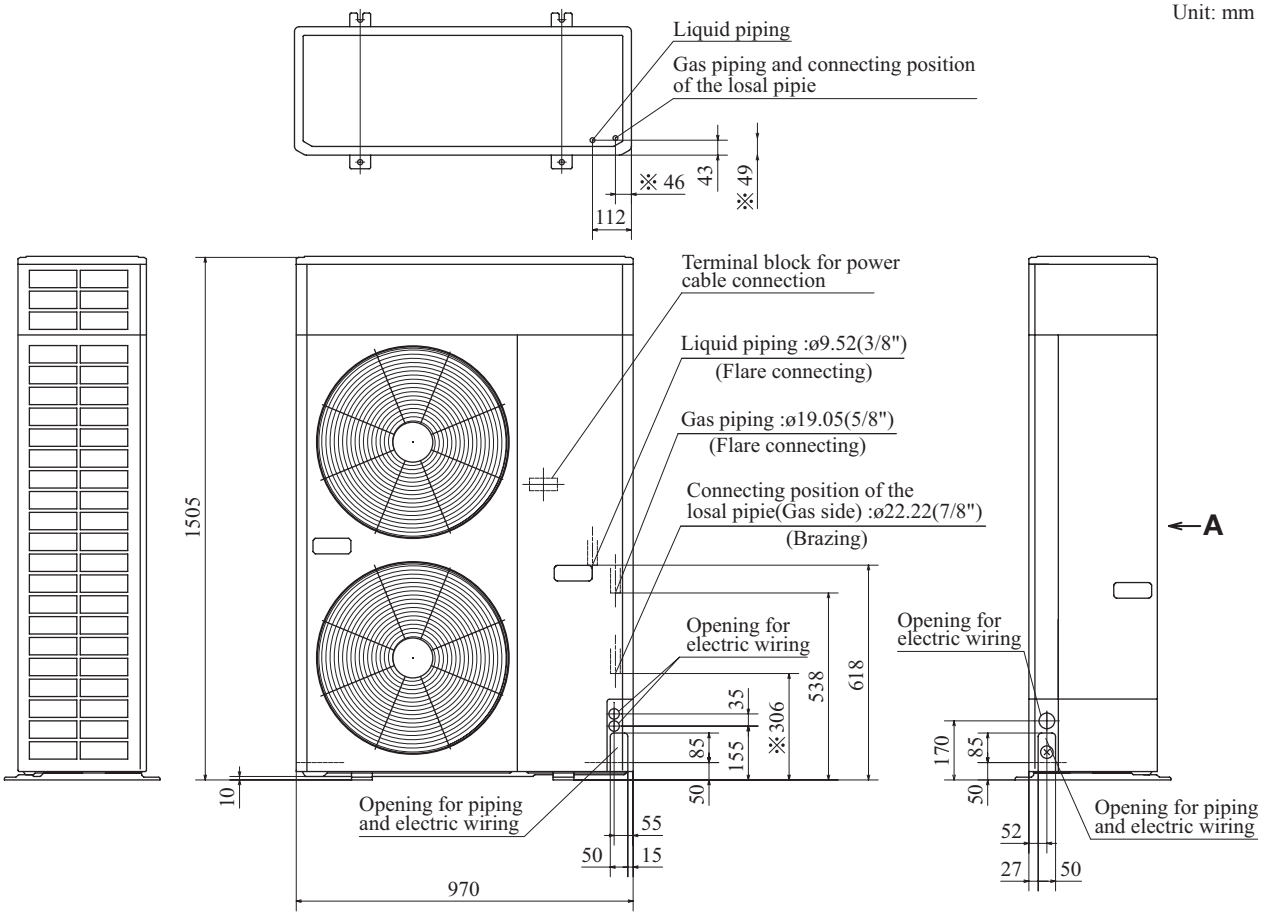
Insallation type / Mark	I	II	III
L1	Open	Open	500
L2	300	5	Open
L3	150	300	150
L4	5	5	5

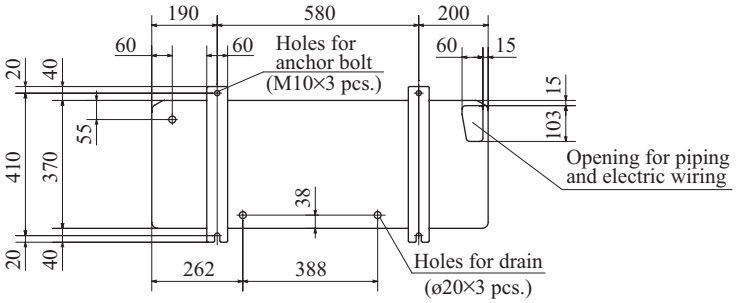
Notes

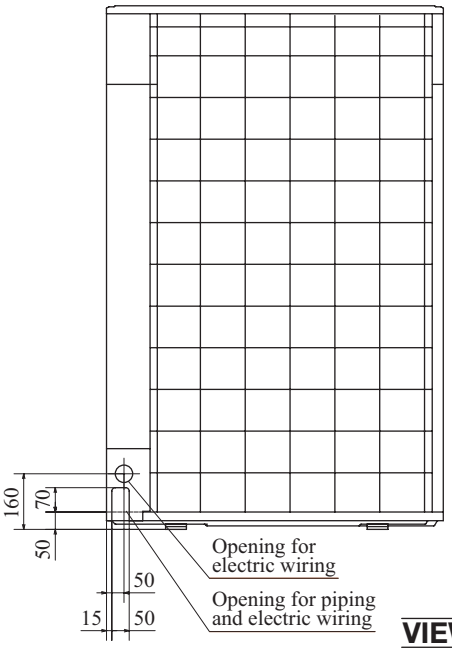
(1) It must not be surrounded by walls on the four sides.
(2) The unit must be fixed with anchor bolts. An anchor bolt must not protrude more the 15mm.
(3) Where the unit is subject to strong winds, lay it in such a direction that the blower outlet faces perpendicularly to the dominant wind direction.
(4) Leave 1m or more space above the unit.
(5) A wall in front of the blower outlet must not exceed the units height.
(6) The model name label is attached on the lower right corner of the front.
(7) Connect the Service valve with local pipe by using the pipe of the attachment. (Gas side only)
(8) Mark ※shows the connecting posotion of the local pipe.(Gas side only)

Model FDC250VS

Unit: mm

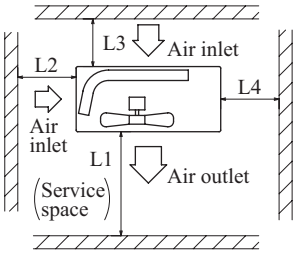






VIEW A

Minimum installation space



Insallation type / Mark	I	II	III
L1	Open	Open	500
L2	300	5	Open
L3	150	300	150
L4	5	5	5

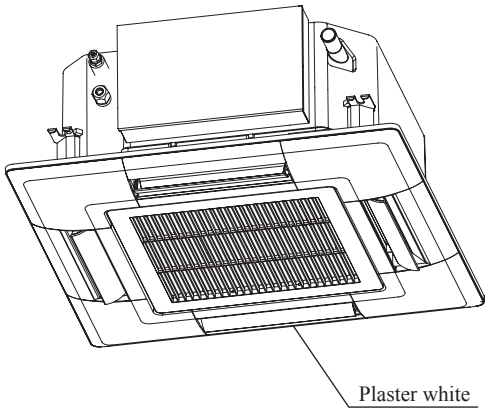
Notes

(1) It must not be surrounded by walls on the four sides.
(2) The unit must be fixed with anchor bolts. An anchor bolt must not protrude more the 15mm.
(3) Where the unit is subject to strong winds, lay it in such a direction that the blower outlet faces perpendicularly to the dominant wind direction.
(4) Leave 1m or more space above the unit.
(5) A wall in front of the blower outlet must not exceed the units height.
(6) The model name label is attached on the lower right corner of the front.
(7) Connect the Service valve with local pipe by using the pipe of the attachment. (Gas side only)
(8) Mark ※ shows the connecting posotion of the local pipe.(Gas side only)

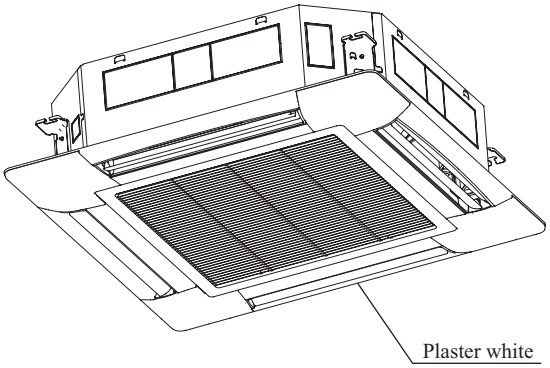
1.2.4 Exterior appearance

(1) Indoor unit

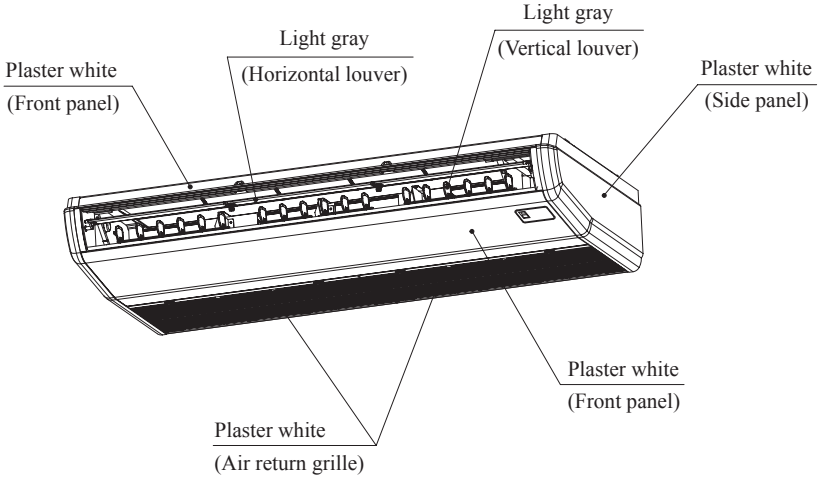
(a) Ceiling cassette-4 way Compact (600×600mm)-type (FDTC)



(b) Ceiling cassette-4 way-type (FDT)



(c) Ceiling suspended type (FDEN)

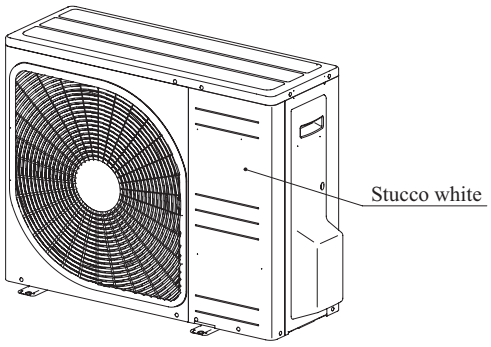


(d) Duct connected-Middle static pressure-type (FDUM) ·····Cromatofre steel plate

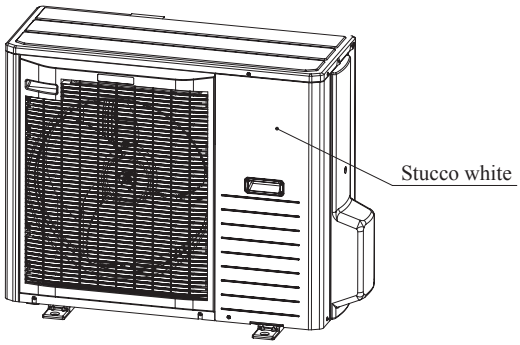
(e) Duct connected-High Static pressure-type (FDU)·····Cromatofre steel plate

(2) Outdoor unit

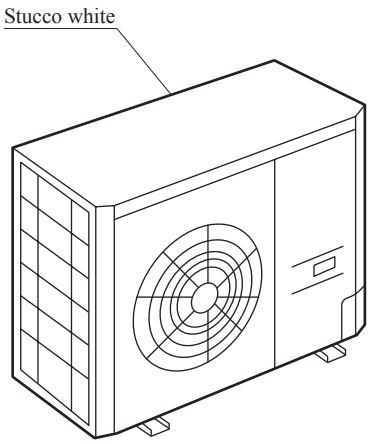
Models SRC40ZHX-S, 50ZHX-S, 60ZHX-S



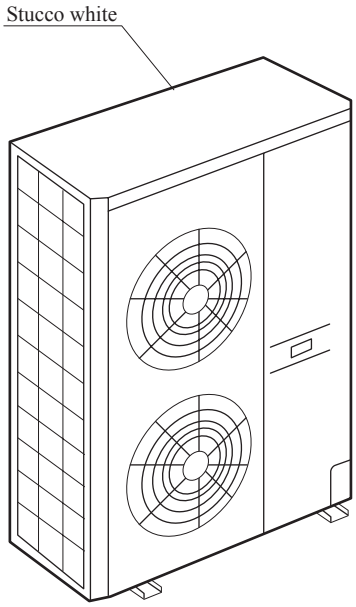
Model FDC71VN



Models FDC100VN, 125VN, 140VN
100VS, 125VS, 140VS



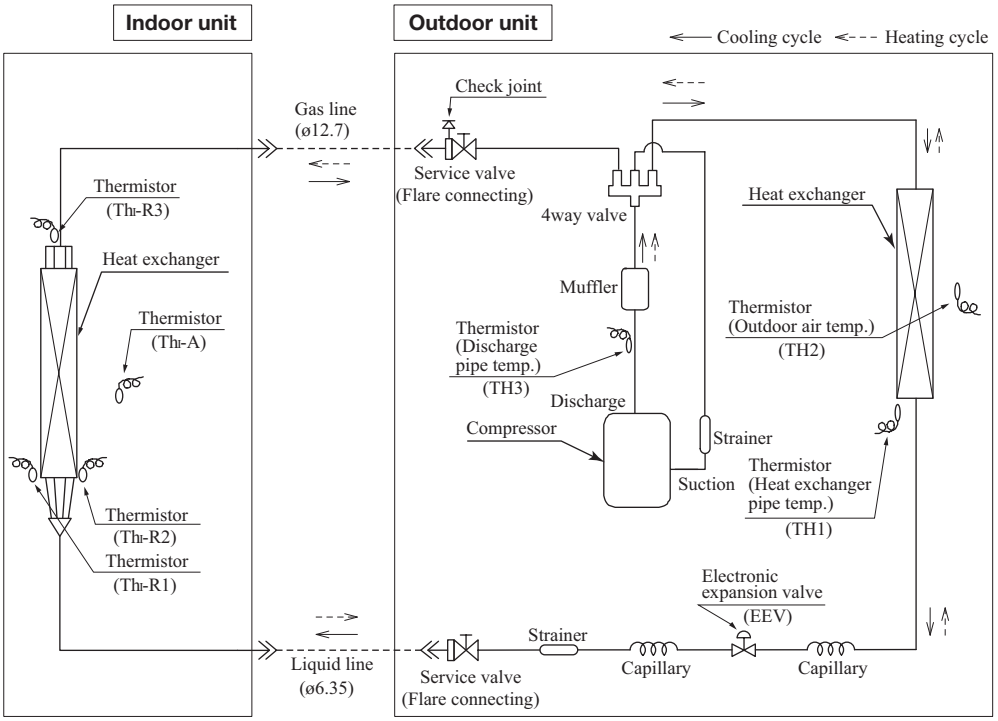
Models FDC200VS, 250VS



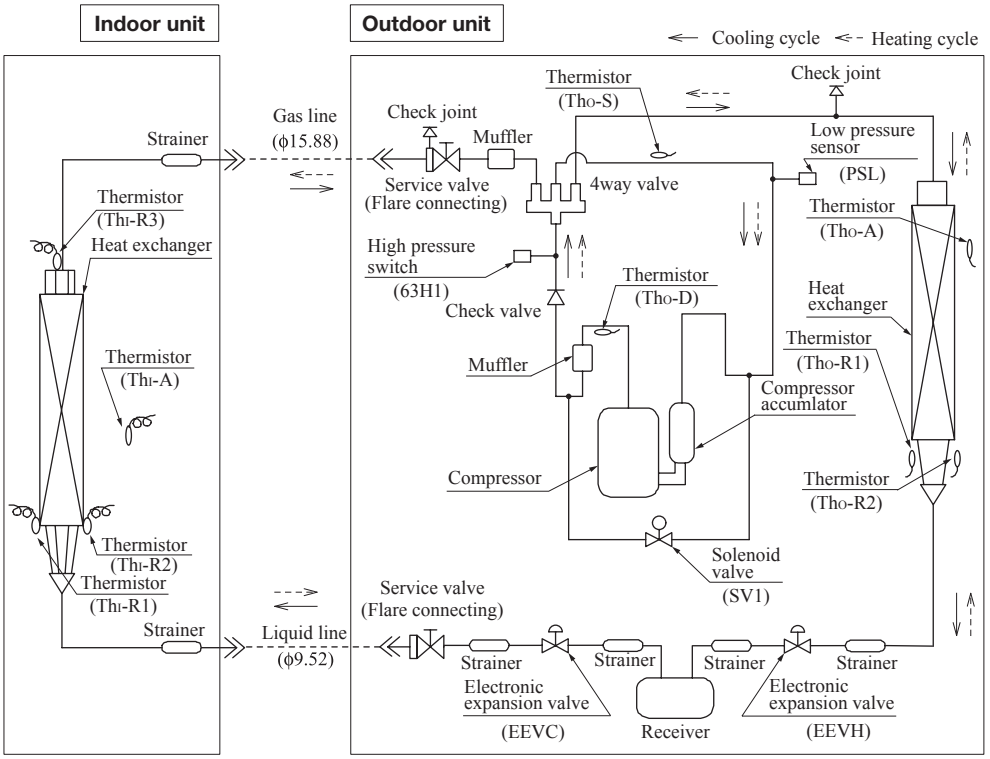
1.2.5 Piping system

(1) Single type

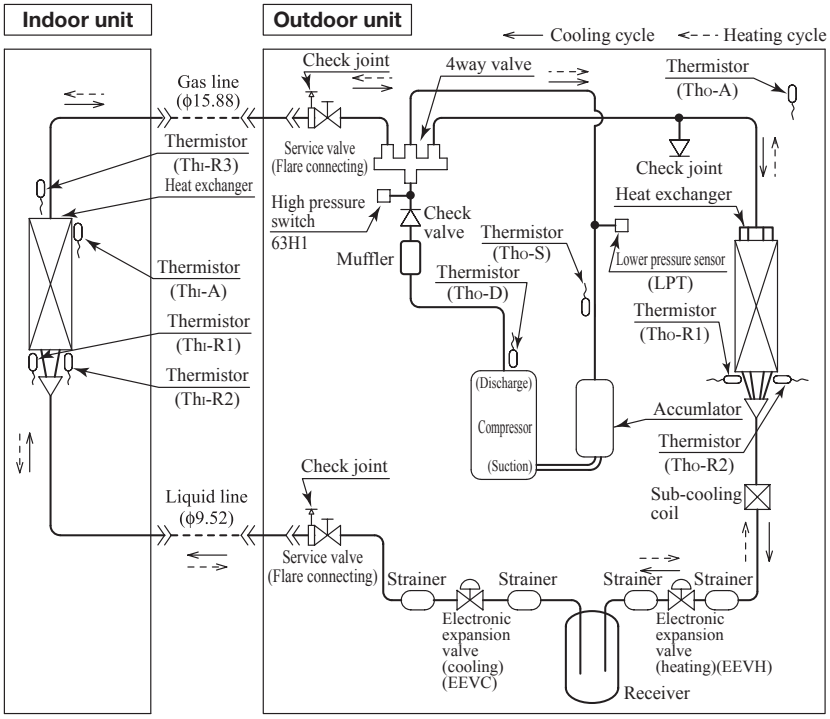
Models 40, 50, 60



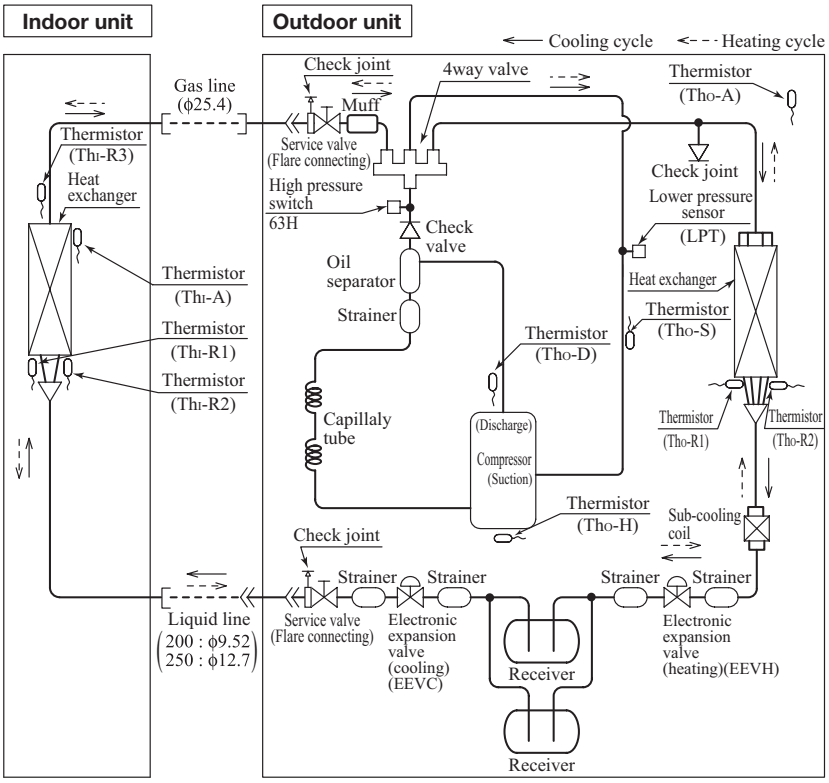
Model 71



Models 100, 125, 140

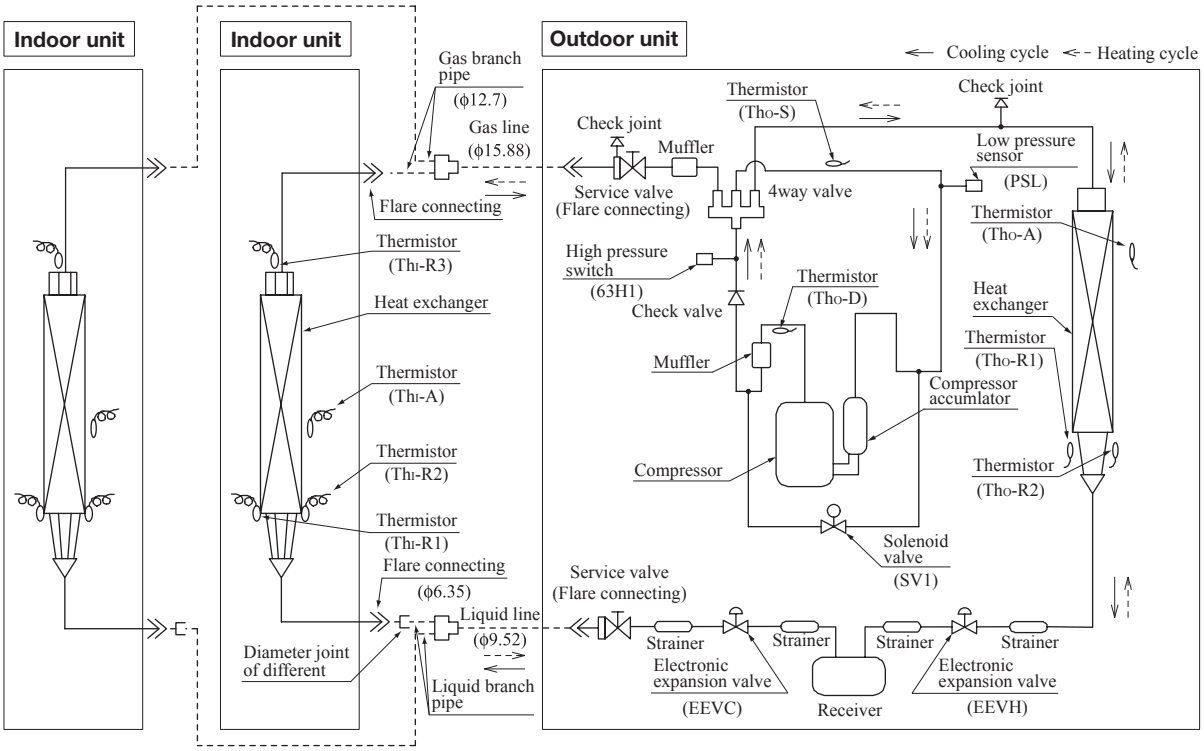


Models 120, 125

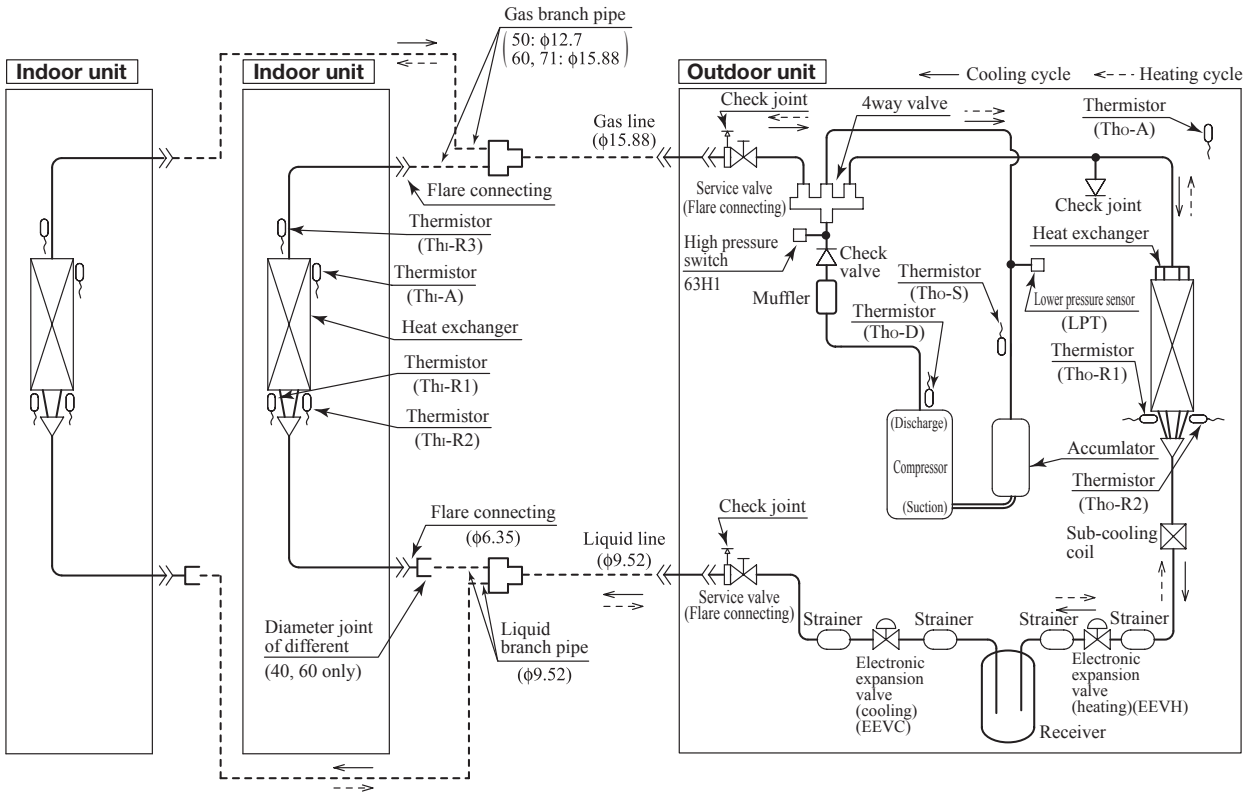


(2) Twin type

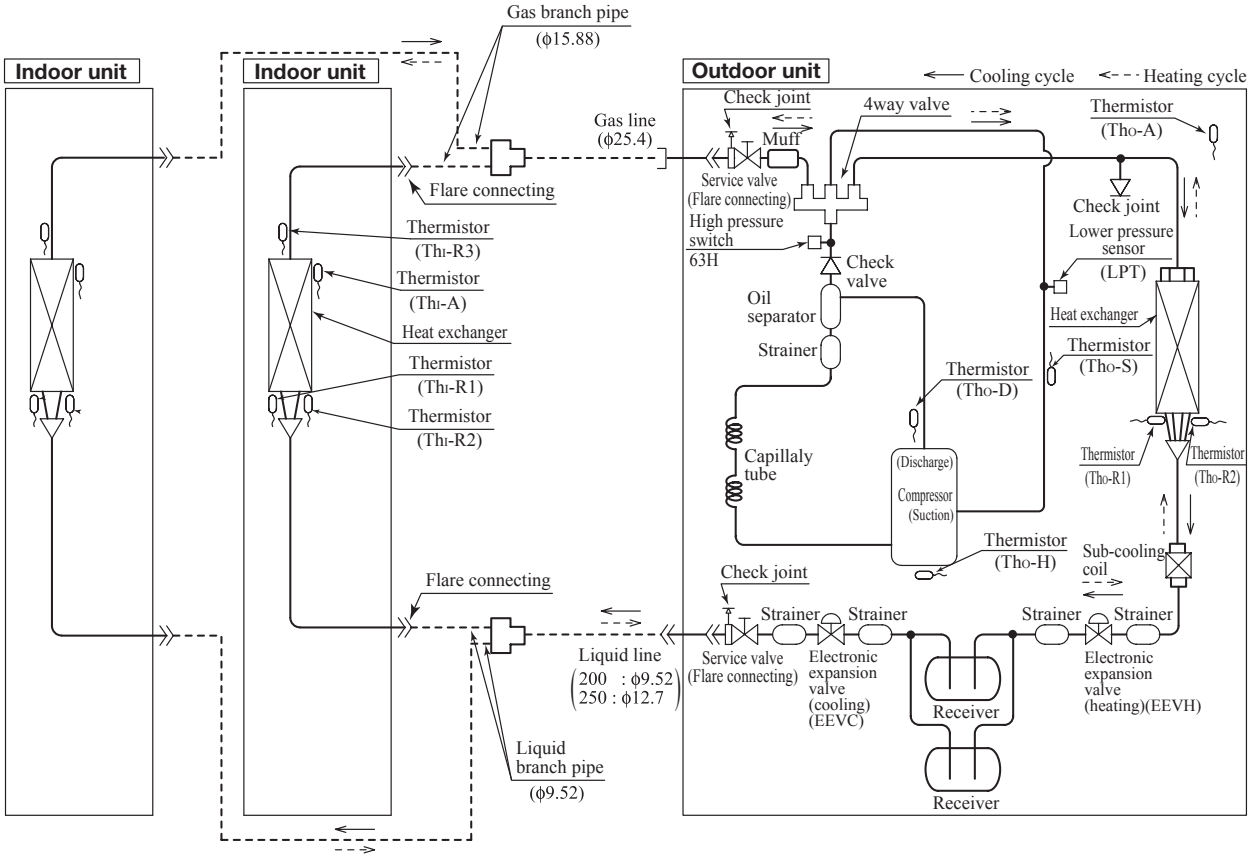
Model 71



Models 100, 125, 140

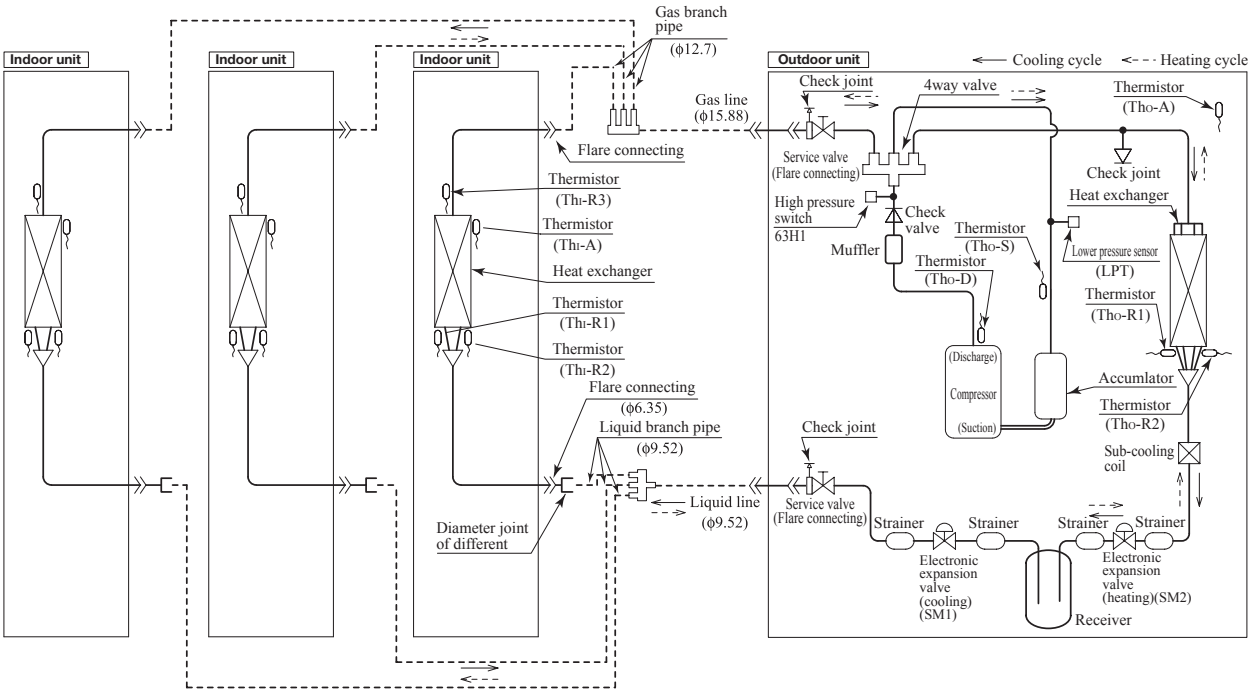


Models 200, 250

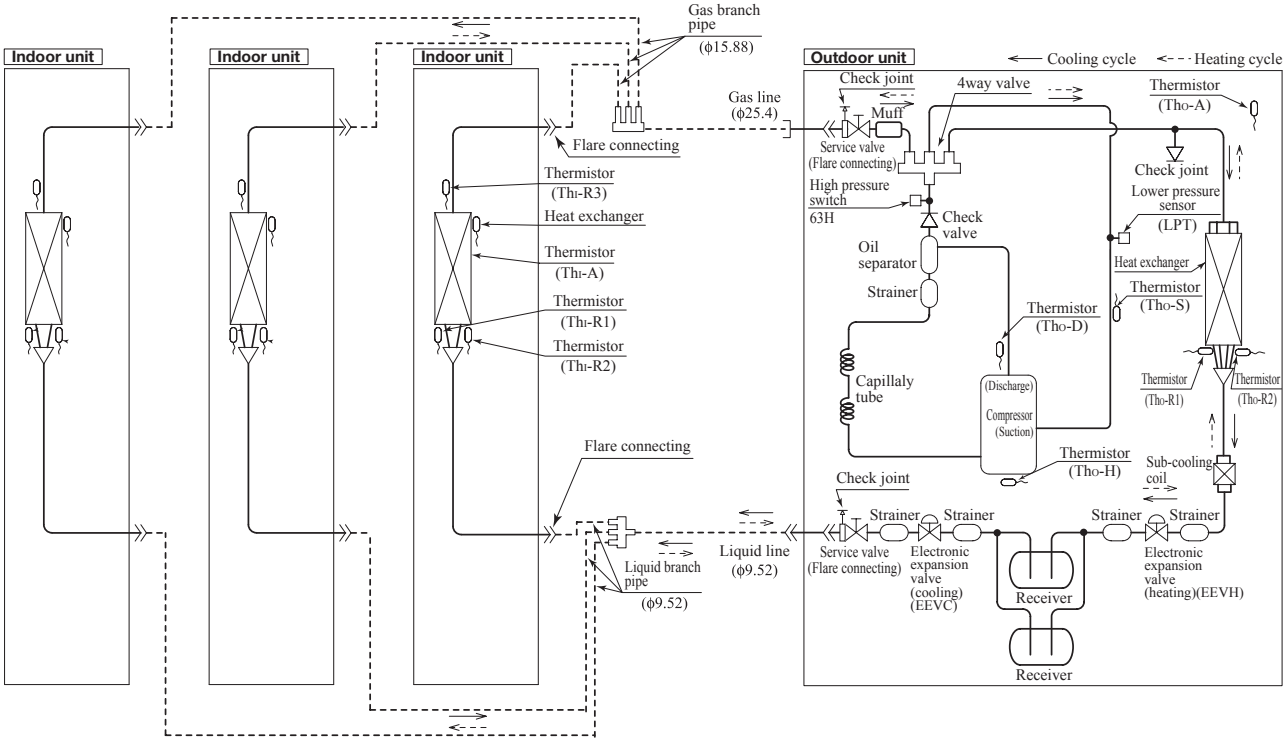


(3) Triple type

Model 140

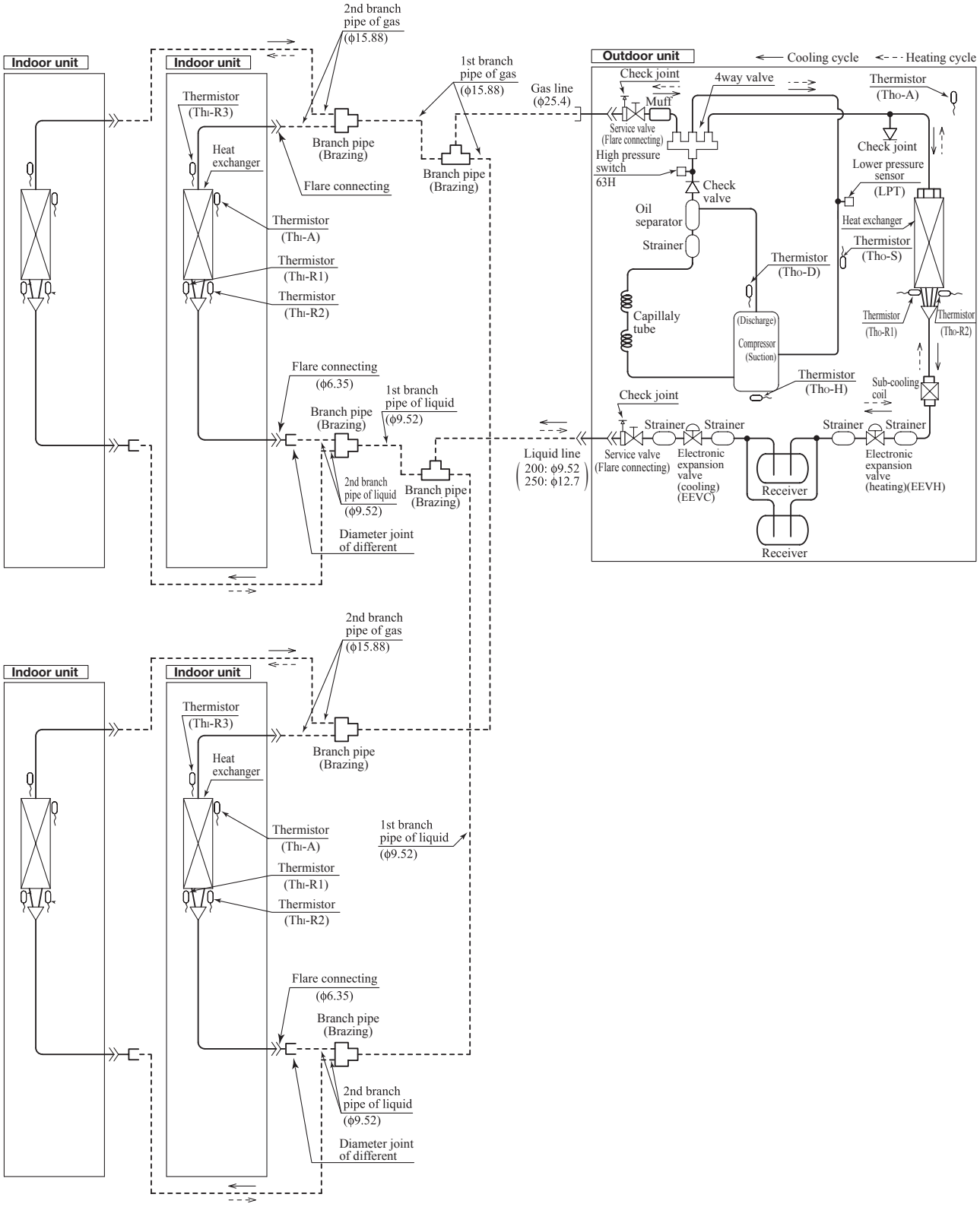


Model 200


Indoor unit
Indoor unit
Indoor unit
Gas branch pipe
(ϕ15.88)
Gas line
(ϕ25.4)
Flare connecting
Thermistor
(Thi-R3)
Heat exchanger
Thermistor
(Thi-A)
Thermistor
(Thi-R1)
Thermistor
(Thi-R2)
Flare connecting
Liquid branch pipe
(ϕ9.52)
Liquid line
(ϕ9.52)
Outdoor unit
Cooling cycle
Heating cycle
Check joint
Muff
Service valve
(Flare connecting)
4way valve
Thermistor
(Tho-A)
Check joint
High pressure switch
63H
Check valve
Lower pressure sensor
(LPT)
Oil separator
Strainer
Heat exchanger
Thermistor
(Tho-S)
Thermistor
(Tho-D)
Capillaly tube
(Discharge)
Compressor
(Suction)
Thermistor
(Tho-R1)
Thermistor
(Tho-R2)
Thermistor
(Tho-H)
Sub-cooling coil
Check joint
Strainer
Strainer
Strainer
Strainer
Service valve
(Flare connecting)
Electronic expansion valve (cooling) (EEVC)
Receiver
Electronic expansion valve (heating)(EEVH)
Receiver

(4) Double twin type

Models 200, 250



Preset point of the protective devices

Parts name	Mark	Equipped unit	40, 50, 60 model	71, 100, 125, 140 model	200, 250 model
Thermistor (for protection over-loading in heating)	**Thı-R**	Indoor unit	OFF 63˚C ON 56˚C		
Thermistor (for frost prevention)			OFF 1.0˚C ON 10˚C		
Thermistor (for protection high pressure in cooling.)	**Tho-R (TH1)**	Outdoor unit	OFF 53˚C ON 63˚C	OFF 51˚C ON 65˚C	
Thermistor (for detecting dis-charge pipe temp.)	**Tho-D (TH3)**	Outdoor unit	OFF 105˚C ON 95˚C	OFF 115˚C ON 85˚C	OFF 135˚C ON 90˚C
High pressure switch (for protection)	**63H1**	Outdoor unit	———	OFF 4.15MPa ON 3.15MPa	
Low pressure sensor (for protection)	**LPT**	Outdoor unit	———	OFF 0.227MPa ON 0.079MPa	

Note(1) Values in ( ) show in the case of the 40~60 models.

1.2.6 Selection chart

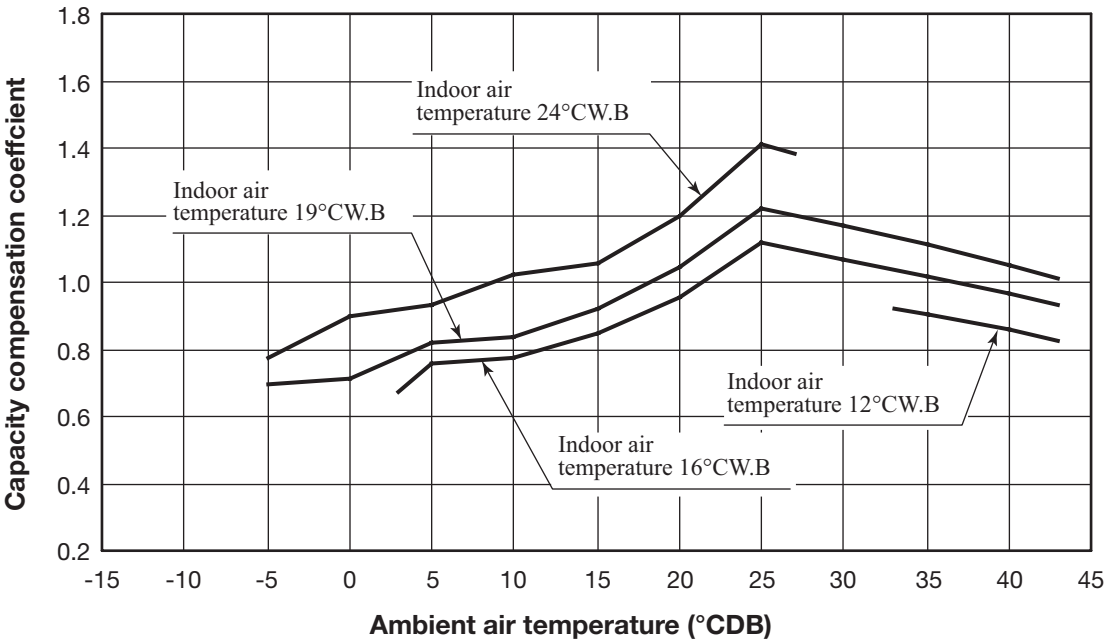
Correct the cooling and heating capacity in accordance with the conditions as follows. The net cooling and heating capacity can be obtained in the following way.

Net capacity = Capacity shown on specification × Correction factors as follows.

(1) Models 40~60

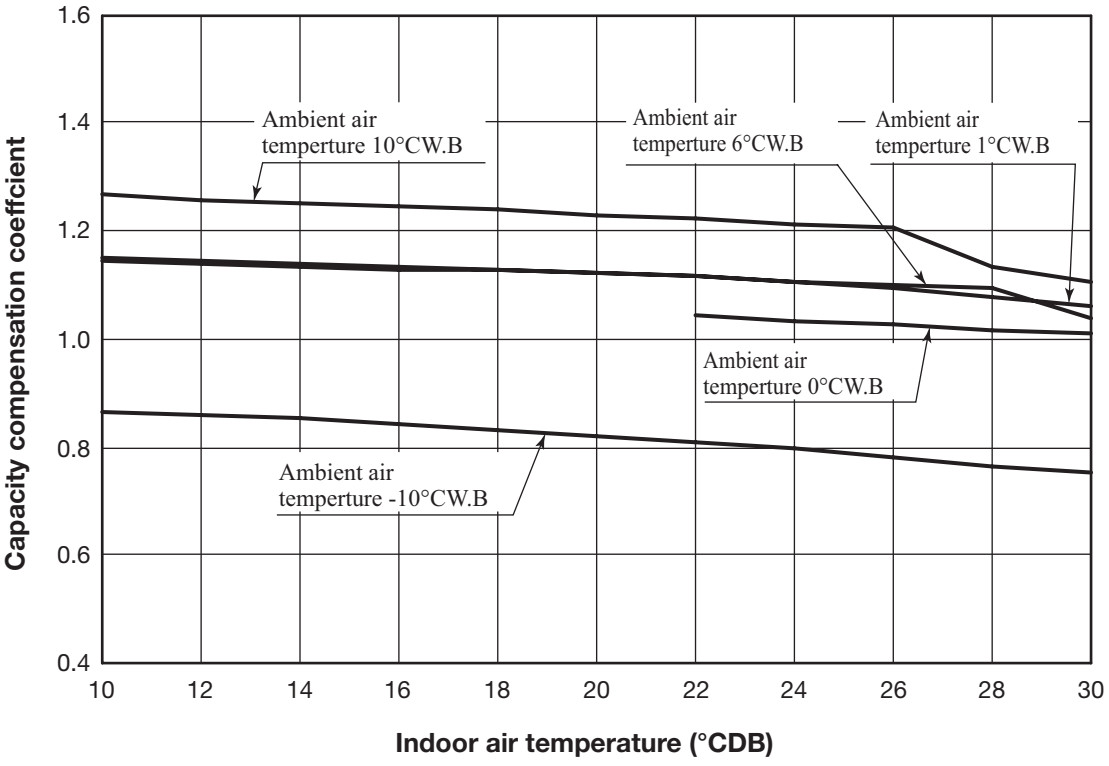
(a) Capacity compensation coeffcient

1) Cooling



Notes 1) Above figure shows the compensation coefficient for the rated capacity at the maximum capacity.

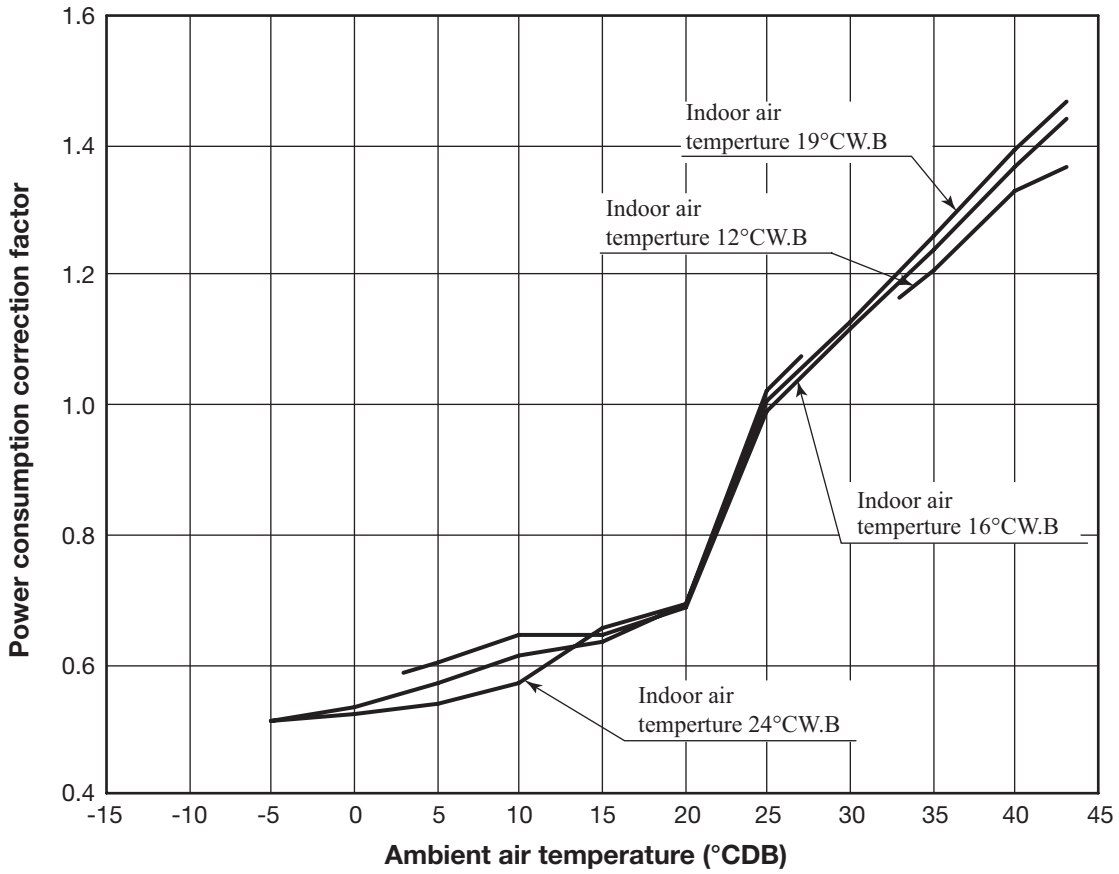
2) Heating



Notes 1) Above figure shows the compensation coefficient for the rated capacity at the maximum capacity.

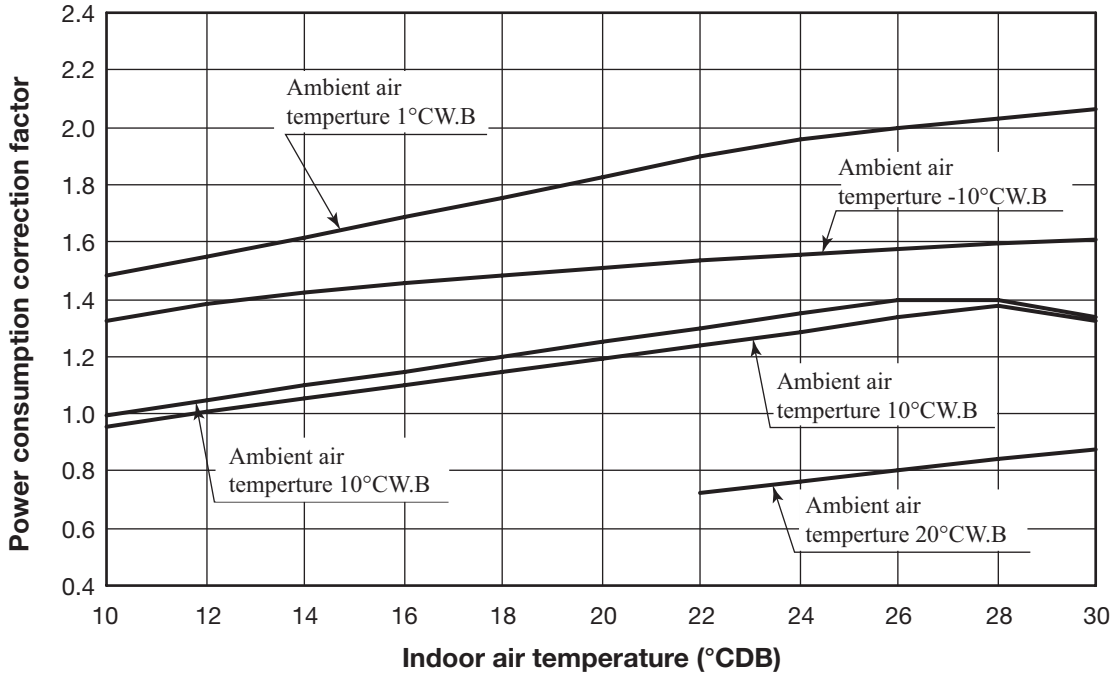
(b) Power consumption correction factor

1) Cooling



Notes 1) Above figure shows the compensation coefficient for the rated power consumption at the maximum power consumption.

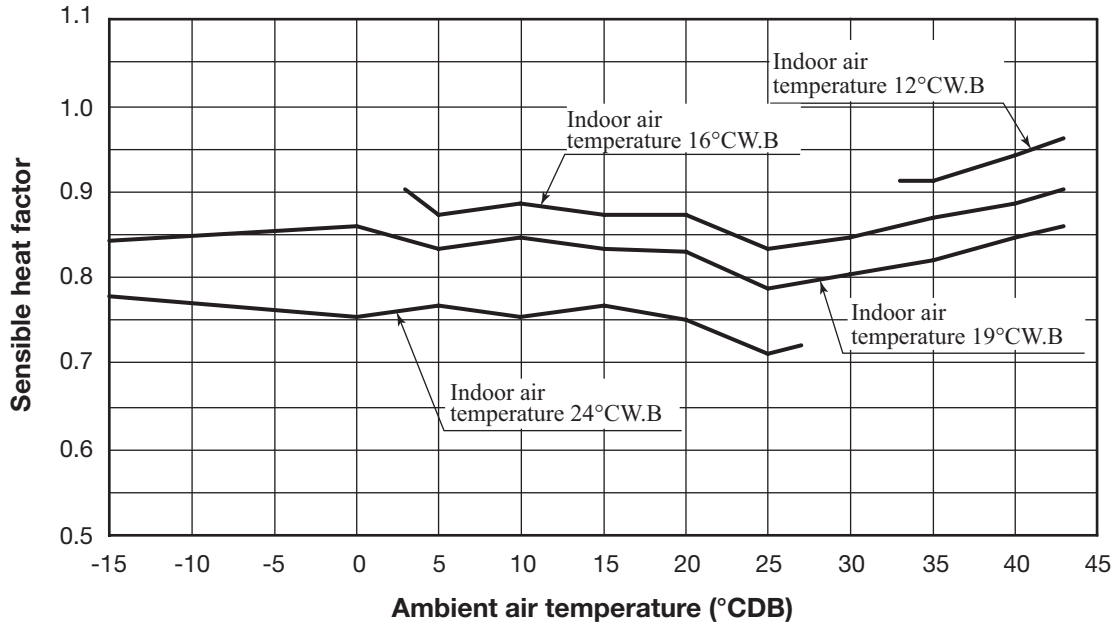
2) Heating



Notes 1) Above figure shows the compensation coefficient for the rated power consumption at the maximum power consumption.

(c) Sensible heet factor (Reference)

1) Cooling



Notes 1) Above figure shows the sensible heat factor at the maximum capacity.

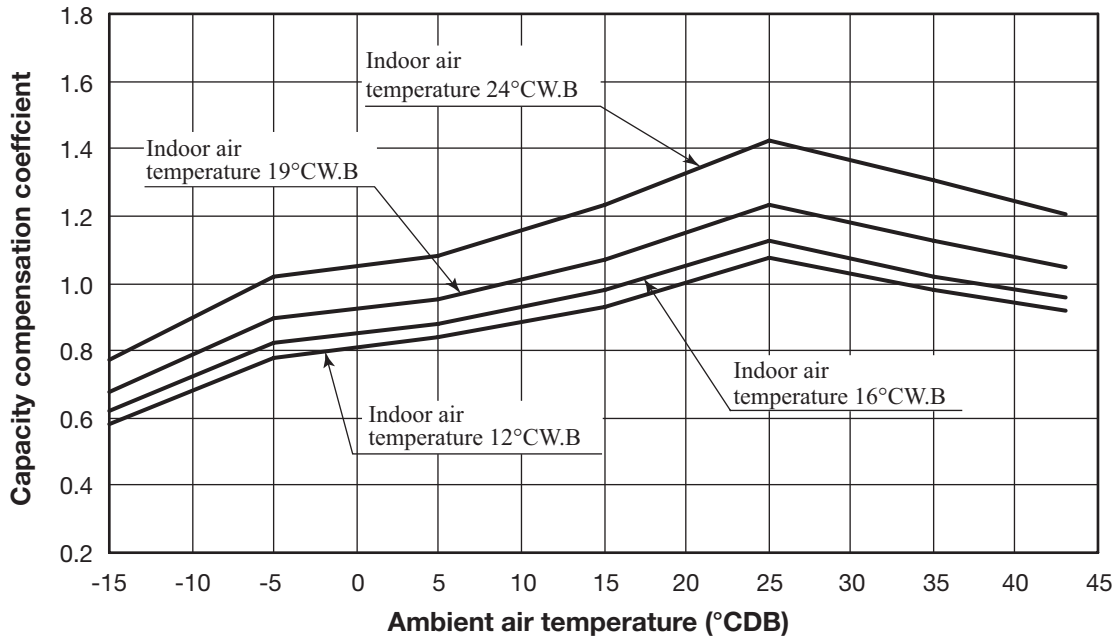
(2) Models 71~250

Caution: In case that the operation during low ambient temperature below -5°C is expected, install the outdoor unit where it is not influenced by natural wind. Otherwise protection control by low pressure will be activated much more frequently and it will cause insufficient capacity or breakdown of the compressor in worst case.

(a) Capacity compensation coeffcient

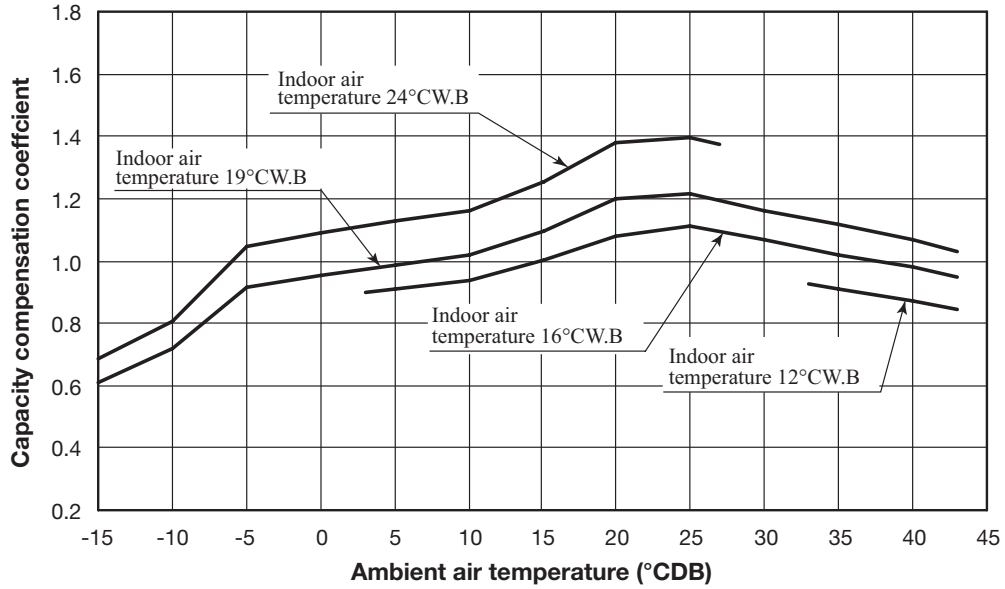
1) Cooling

a) Model 71



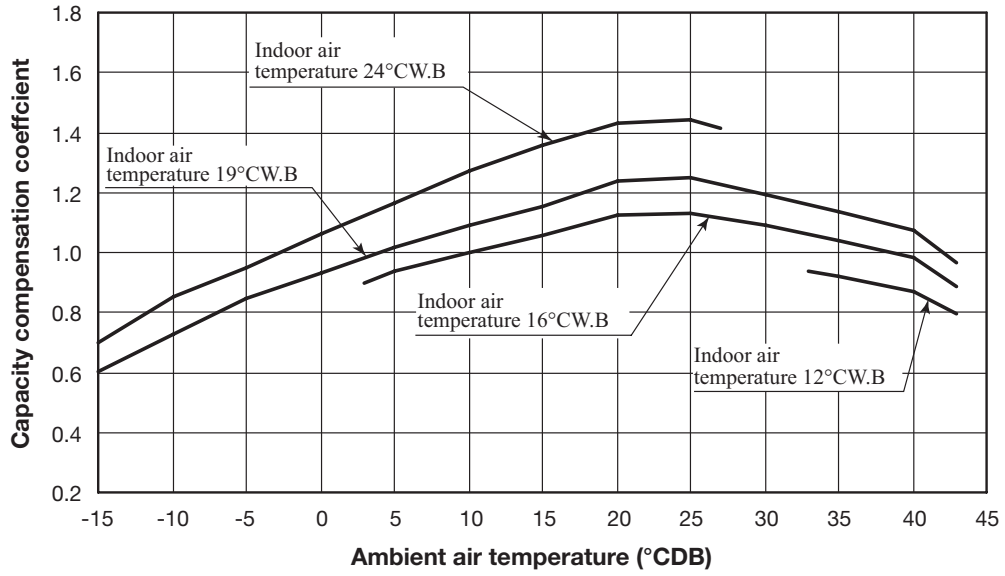
Notes 1) Above figure shows the compensation coefficient for the rated capacity at the maximum capacity.

b) Model 100~140



Notes 1) Above figure shows the compensation coefficient for the rated capacity at the maximum capacity.

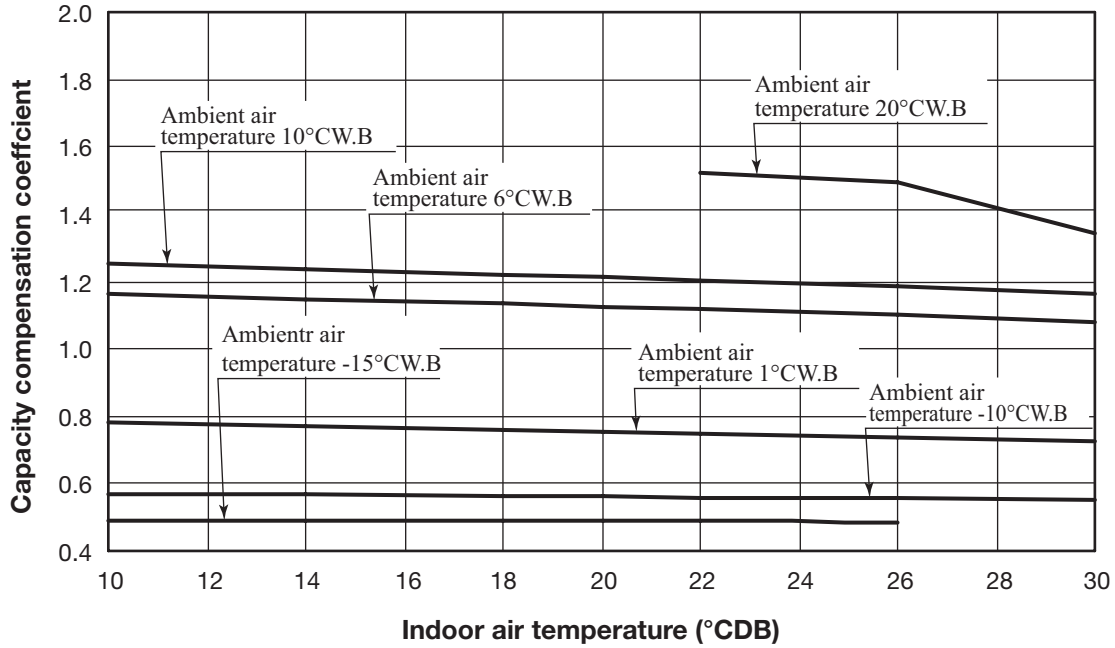
c) Model 200,250



Notes 1) Above figure shows the compensation coefficient for the rated capacity at the maximum capacity.

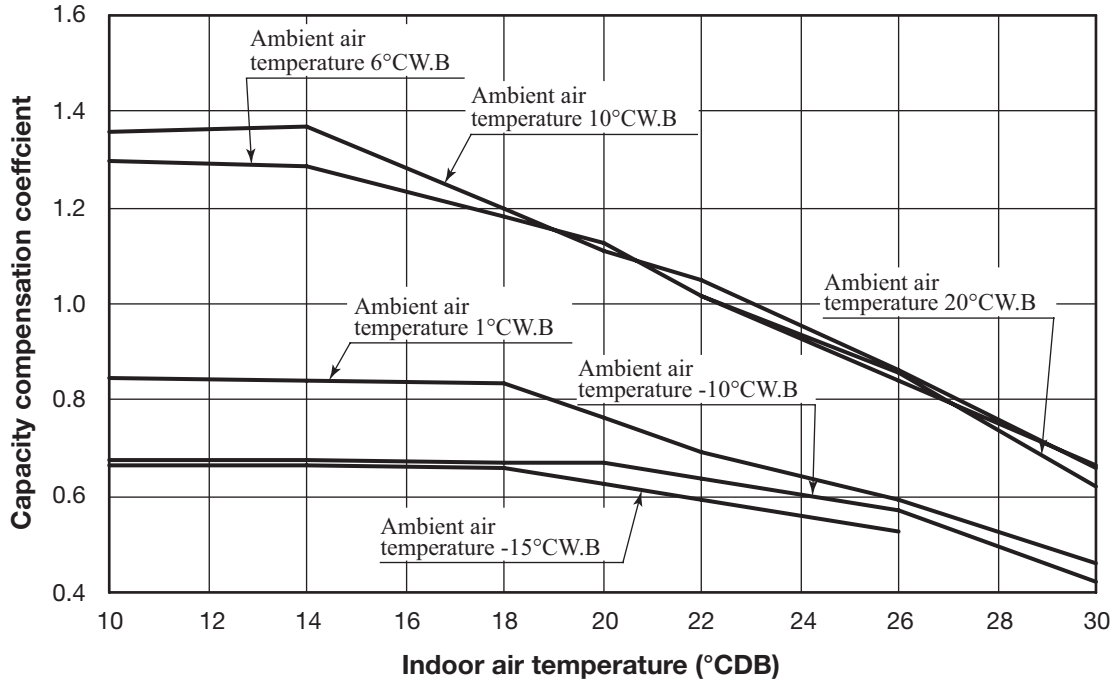
2) Heating

a) Model 71



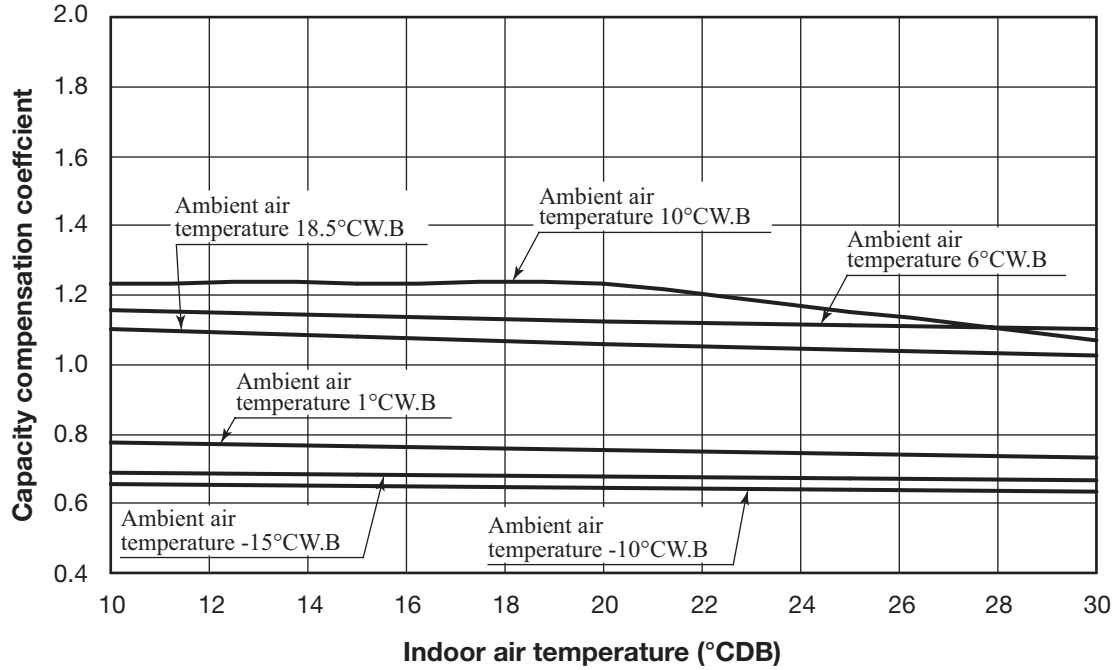
Notes 1) Above figure shows the compensation coefficient for the rated capacity at the maximum capacity.

b) Model 100~140



Notes 1) Above figure shows the compensation coefficient for the rated capacity at the maximum capacity.

c) Models 200, 250

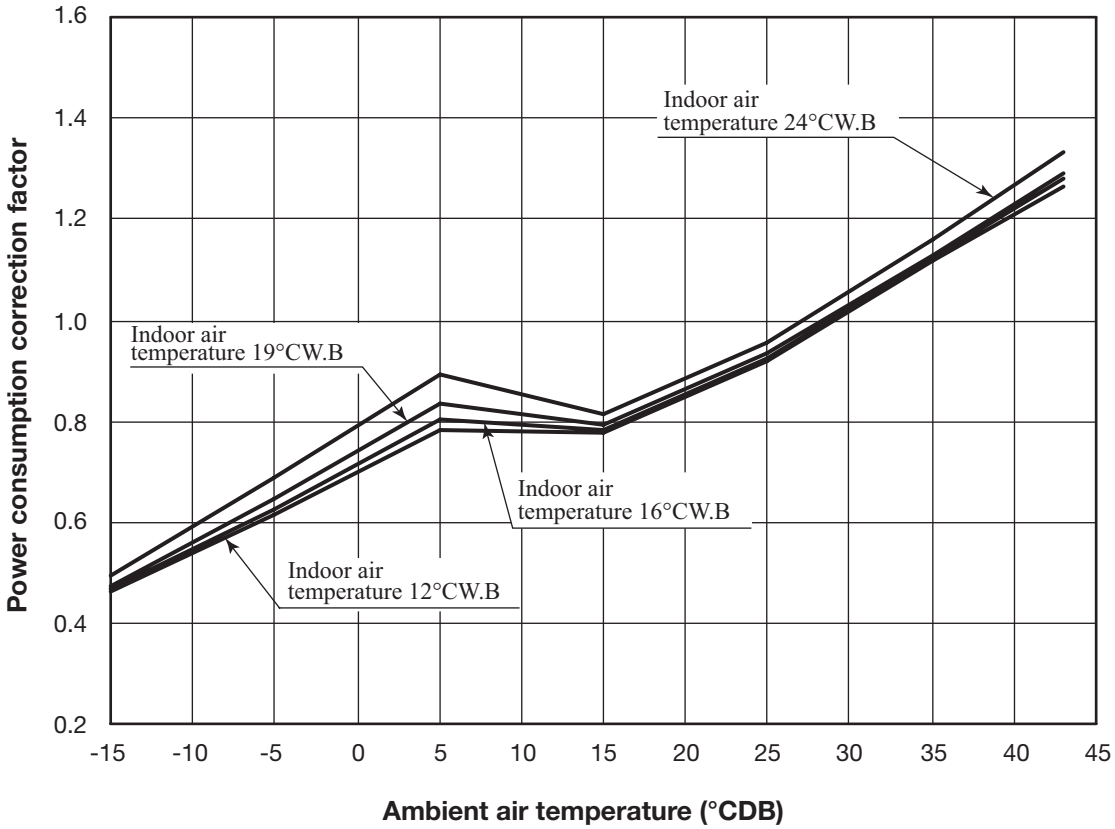


Notes 1) Above figure shows the compensation coefficient for the rated capacity at the maximum capacity.

(a) Power consumption coeffcient factor

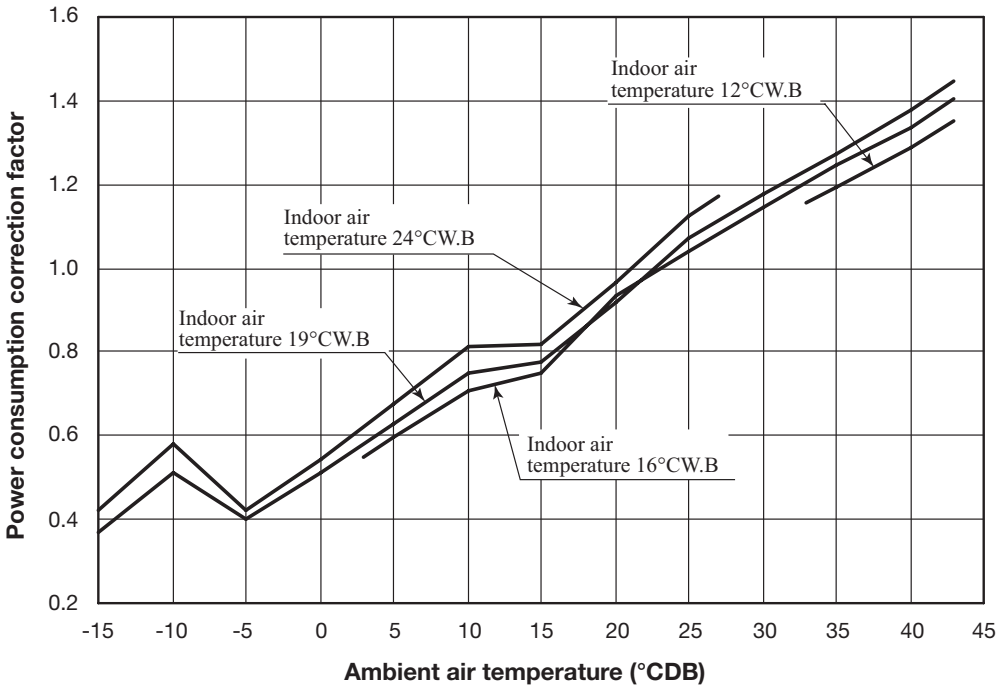
1) Cooling

a) Model 71



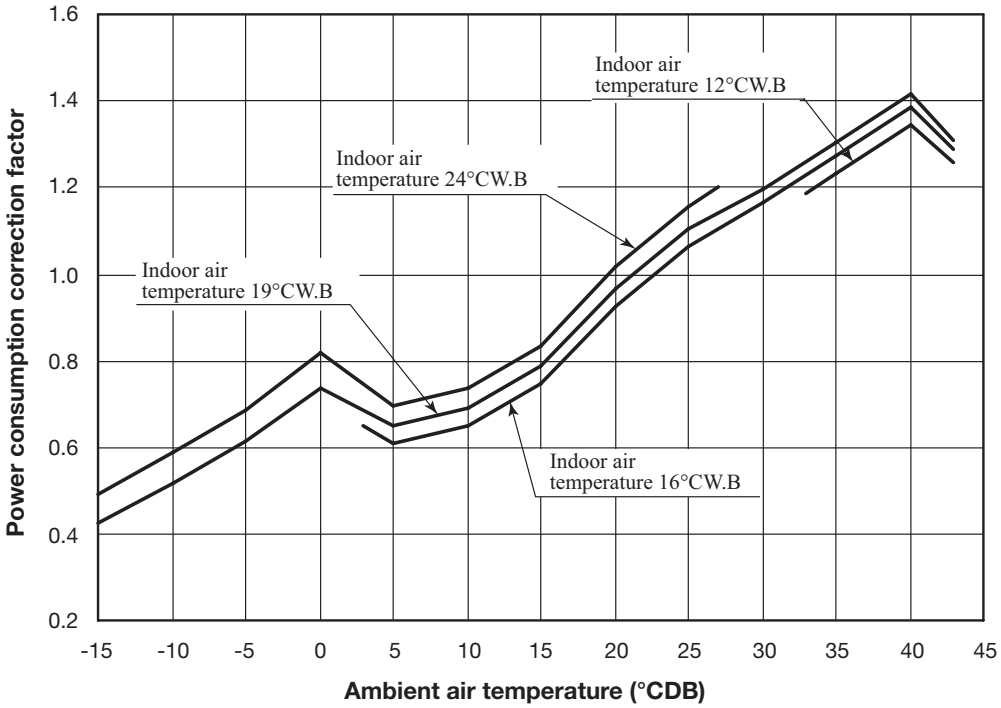
Notes 1) Above figure shows the compensation coefficient for the rated capacity at the maximum capacity.

b) Models 100~140



Notes 1) Above figure shows the compensation coefficient for the rated power consumption at the maximum power consumption.

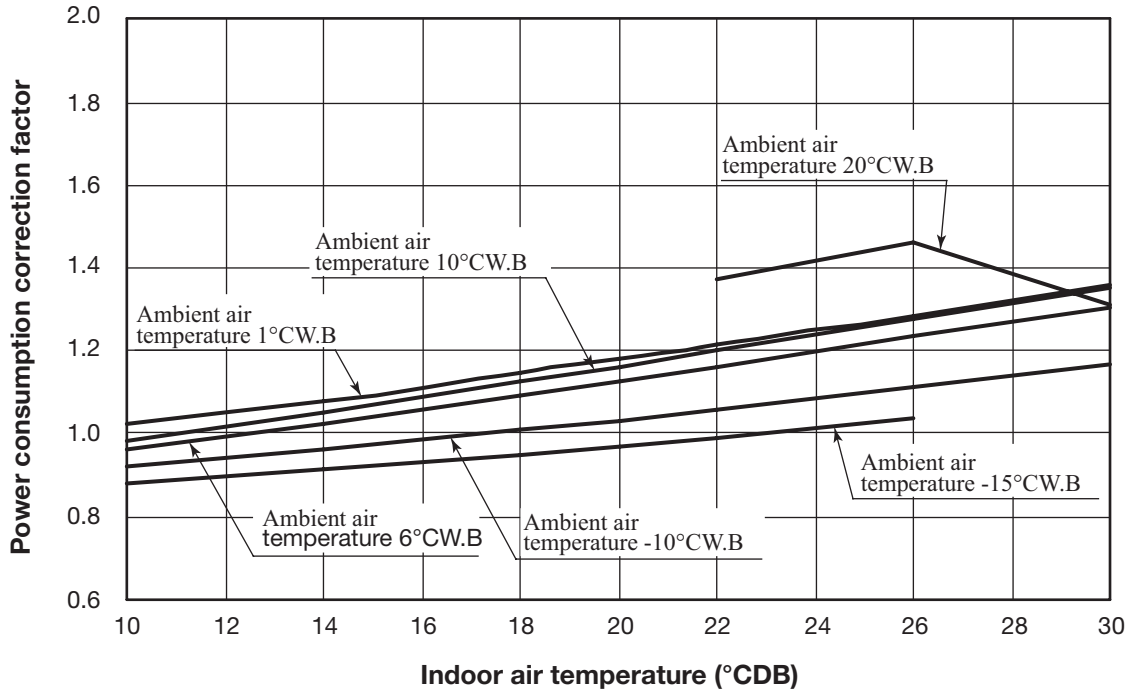
c) Models 200, 250



Notes 1) Above figure shows the compensation coefficient for the rated power consumption at the maximum power consumption.

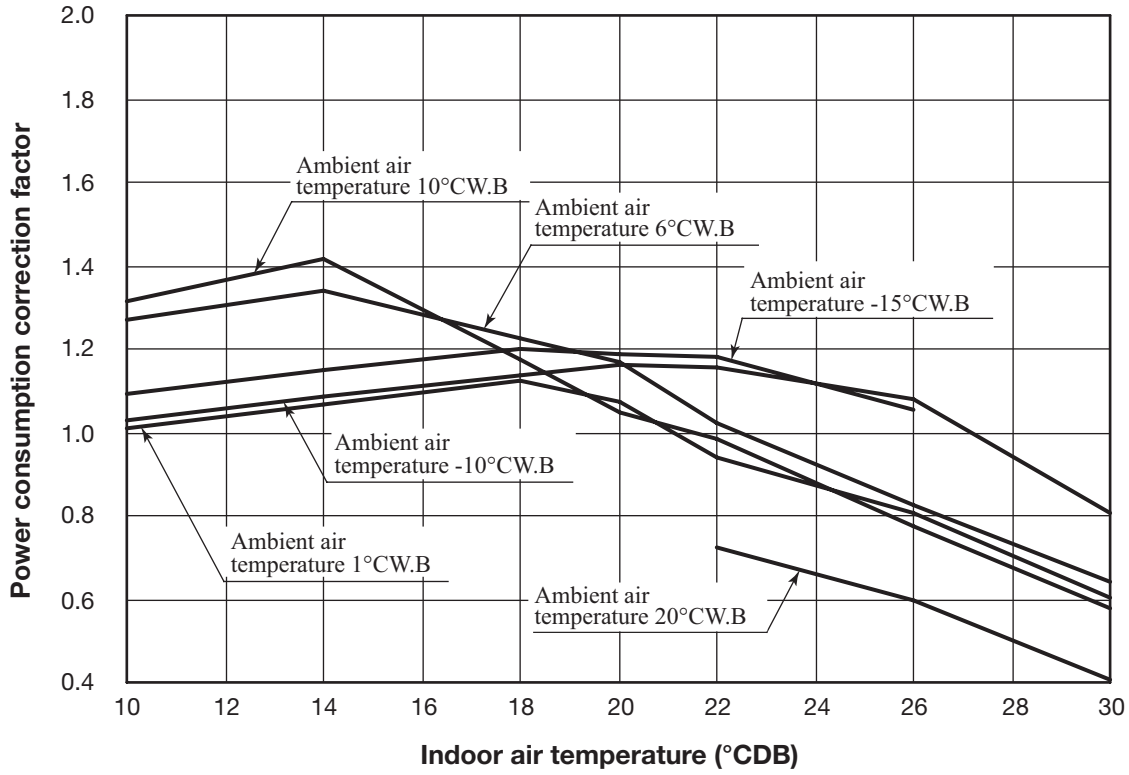
2) Heating

a) Model 71



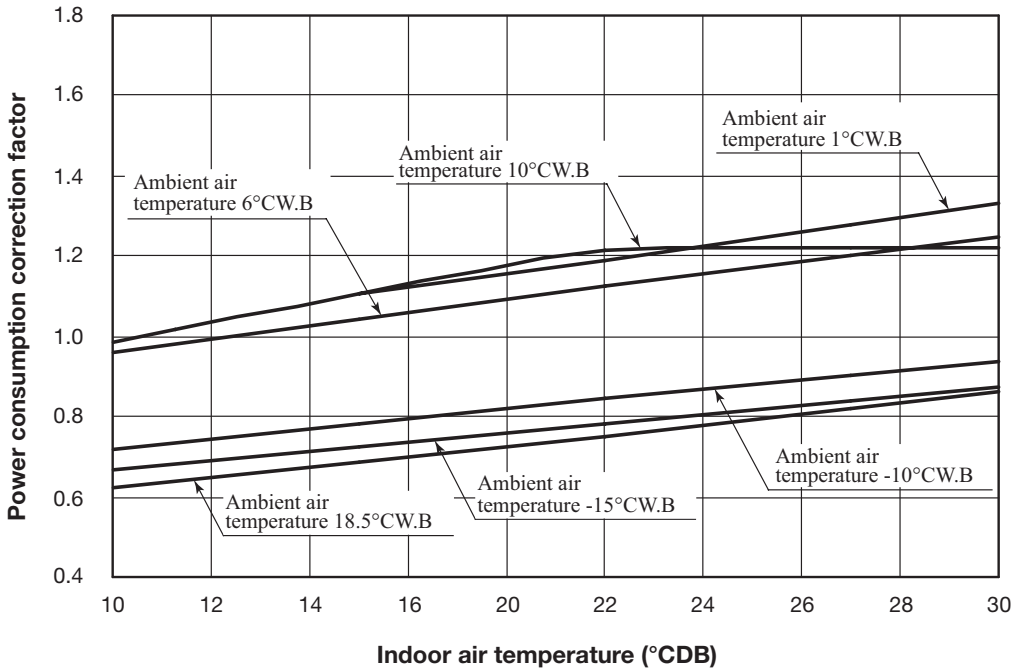
Notes 1) Above figure shows the compensation coefficient for the rated power consumption at the maximum power consumption.

b) Models 100~140



Notes 1) Above figure shows the compensation coefficient for the rated power consumption at the maximum power consumption.

c) Models 200, 250

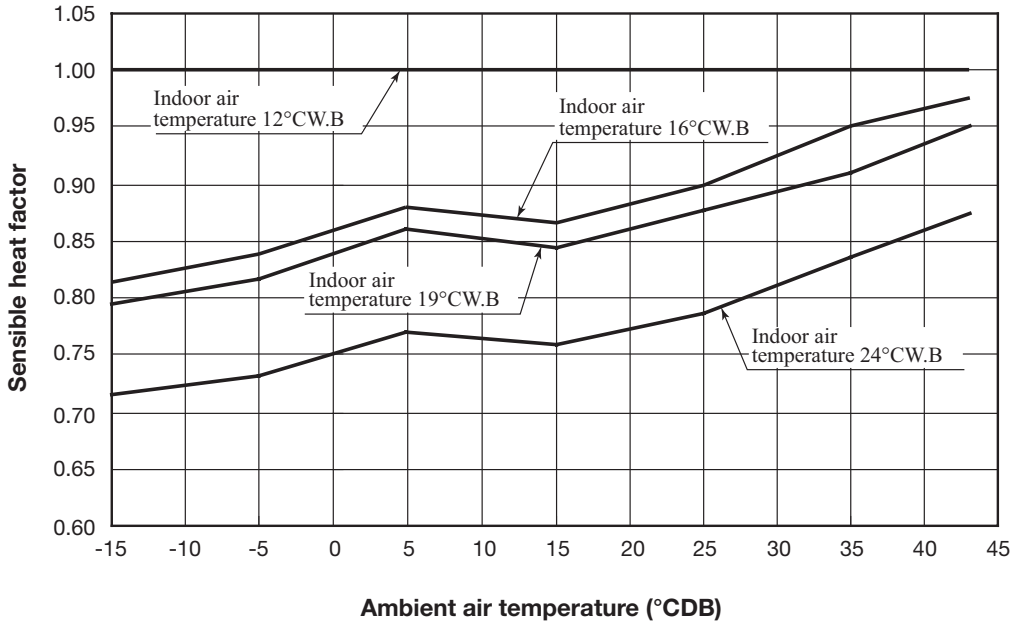


Notes 1) Above figure shows the compensation coefficient for the rated power consumption at the maximum power consumption.

(c) Sensible heat factor (Reference)

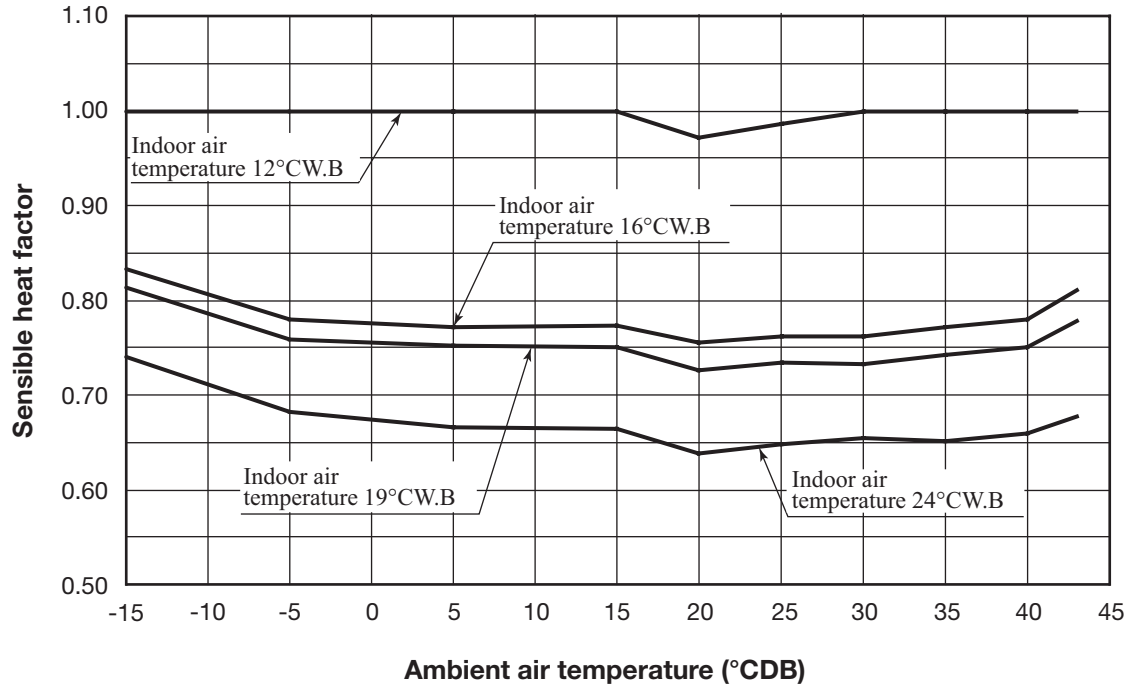
1) Cooling

a) Model 71



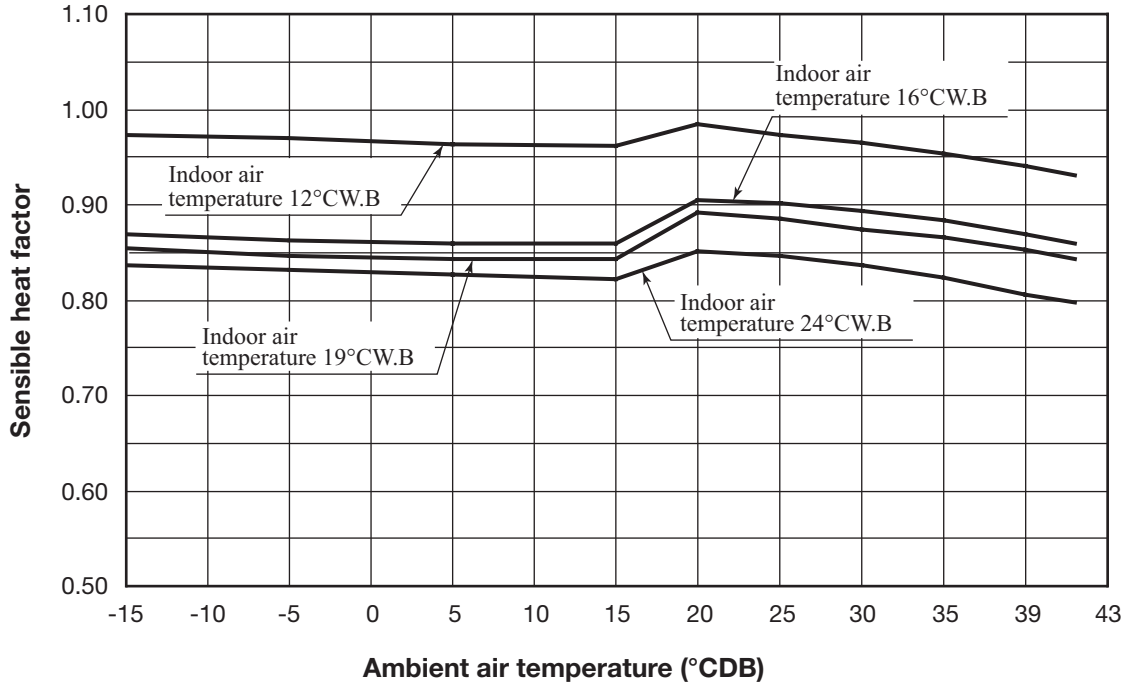
Notes 1) Above figure shows the compensation coefficient for the rated power consumption at the maximum power consumption.

b) Models 100~140



Notes 1) Above figure shows the sensible heat factor at the maximum capacity.

c) Models 200, 250



Notes 1) Above figure shows the sensible heat factor at the maximum capacity.

(3) Correction of cooling and heating capacity in relation to air flow rate control (fan speed)
Coefficient: 1.00 at High, 0.97 at Middle, 0.95 at Low

(4) Correction of cooling and heating capacity in relation to one way length of refrigerant piping
It is necessary to correct the cooling and heating capacity in relation to the one way equivalent piping length between the indoor and outdoor units.

(i) Models 40~60

Equivalent piping length(1) m		7.5	10	15	20	25	30	35	40	45	50	55
Heating		1	0.995	0.992	0.990	0.987	0.984	0.981	0.978	0.975	0.972	0.970
Cooling	40 model	1	0.997	0.991	0.985	0.980	0.974	0.968	0.962	0.956	—	—
	50 model	1	0.996	0.989	0.981	0.973	0.966	0.958	0.951	0.943	—	—
	60 model	1	0.995	0.986	0.977	0.967	0.958	0.948	0.939	0.930	—	—

Note (1) Calculate the equivalent length using the following formula.
However, install the piping so that the equivalent length is within +5 m of the piping distance limit (actual length) for each respective piping system.

(ii) Models 71 ~ 140

Equivalent piping length (1) (m)			7.5	10	15	20	25	30	35	40	45	50	55
Heating			1	1	1	1	1	0.998	0.998	0.993	0.993	0.988	0.988
Cooling	71 model	ϕ15.88	1	0.996	0.989	0.982	0.975	0.968	0.961	0.954	0.947	0.940	0.933
	100 model		1	0.991	0.978	0.964	0.951	0.937	0.924	0.910	0.897	0.883	0.870
	125 model		1	0.986	0.968	0.950	0.932	0.914	0.896	0.878	0.860	0.842	0.824
	140 model		1	0.985	0.966	0.946	0.927	0.907	0.888	0.868	0.849	0.829	0.810
	71 model	ϕ19.05	1.008	1.006	1.003	1	0.997	0.994	0.991	0.988	0.985	0.982	0.979
	100 model		1.016	1.013	1.007	1.002	0.996	0.991	0.985	0.980	0.974	0.969	0.963
	125 model		1.022	1.018	1.009	1.001	0.992	0.984	0.975	0.967	0.958	0.950	0.941
	140 model		1.026	1.021	1.011	1.002	0.992	0.983	0.973	0.964	0.954	0.945	0.935

Note (1) Calculate the equivalent length using the following formula.
However, install the piping so that the piping length is within +5 m of the limit length (actual length) for the respective types.

(iii) Models 200, 250

Equivalent piping length(1) (m)			7.5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
Heating			1	0.998	0.995	0.991	0.988	0.984	0.981	0.977	0.974	0.970	0.967	0.963	0.960	0.956	0.953
Cooling	200 model	ϕ25.4	1	0.998	0.995	0.991	0.988	0.984	0.981	0.977	0.974	0.970	0.967	0.963	0.960	0.956	0.953
	250 model		1	0.996	0.990	0.984	0.978	0.972	0.966	0.960	0.954	0.948	0.942	0.936	0.930	0.924	0.918
	200 model	ϕ22.22	0.993	0.990	0.984	0.977	0.971	0.964	0.958	–	–	–	–	–	–	–	–
	250 model		0.988	0.983	0.973	0.963	0.953	0.943	0.933	–	–	–	–	–	–	–	–
	200 model	ϕ28.58	1.003	1.002	1	0.998	0.996	0.994	0.992	0.990	0.988	0.986	0.984	0.982	0.980	0.978	0.976
	250 model		1.004	1.003	0.999	0.996	0.992	0.989	0.985	0.982	0.978	0.975	0.971	0.968	0.964	0.961	0.957

Note (1) Calculate the equivalent length using the following formula.
However, install the piping so that the piping length is within +5 m of the limit length (actual length) for the respective types.

• Equivalent Length = Actual Length + (Equivalent bend length x number of bends in the piping.)
Equivalent length per bend.

Gas Pipe Diameter (mm)	ϕ12.7	ϕ15.88	ϕ19.05	ϕ22.22	ϕ25.4	ϕ28.58
Equivalent Bend Length	0.20	0.25	0.30	0.35	0.40	0.45

(5) When the outdoor unit is located below indoor units in cooling mode, or when the outdoor unit is located above indoor units in heating mode, the correction coefficient mentioned in the below table should be subtracted from the value in the above table.

Height difference between the indoor unit and outdoor unit in the vertical height difference	**5m**	**10m**	**15m**	**20m**	**25m**	**30m**
Adjustment coefficient	0.01	0.02	0.03	0.04	0.05	0.06

Piping length limitations

Item \ Model	40~60	71, 100, 125, 140	200, 250
Max. one way piping length	40m	50m	70m*
Max. vertical height difference	Outdoor unit is higher 30m Outdoor unit is lower 15m		

Notes (1) Values in the table indicate the one way piping length between the indoor and outdoor units.
(2) When ϕ22.22 gas pipe is applied to 200 and 250 (*mark), maximum one way length is limited to 30m.

How to obtain the cooling and heating capacity

Example : The net cooling capacity of the model FDUM100VNV with the air flow “High”, the piping length of 15m, the outdoor unit located 5m lower than the indoor unit, indoor wet-bulb temperature at 19.0 ˚C and outdoor dry-bulb temperature 35 ˚C is

Net cooling capacity = 10.0 × 1.00 × (0.978 (1) - 0.01) × 1.12 ≒ 10.8 kW

- 10.0 : FDUM100VNV
- 1.00 : Air flow “High”
- (0.978 (1) - 0.01) : Length 15m.(Gas pipe size is ϕ15.88) Height difference 5m
- 1.12 : Factor by air temperatures (value at the max. capacity)

1.2.7 Characteristics of fan

(1) Duct connected-Middle static pressure-type (FDUM)

• External static pressure table

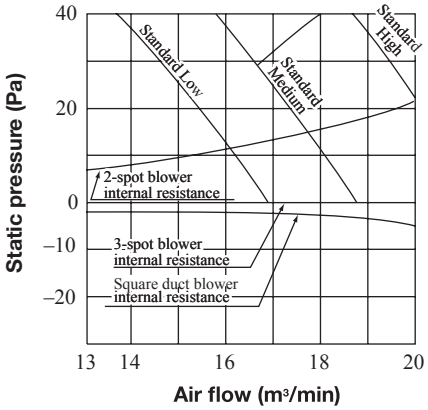
Unit : Pa (50Hz/60Hz)

Model \ Duct specs. / Air flow (m³/min)		1 spot closing		Standard		Square duct	
		Stan-dard	High (4) speed	Stan-dard	High (4) speed	Stan-dard	High (1) speed
FDUM50V	14	-	-	50/40	85/90	50/45	90/90
FDUM60V	18	35/30	70/85	50/40	85/100	55/50	90/100
FDUM71V	20	30/25	65/80	50/45	85/100	55/50	90/105
FDUM100V	28	50/50	80/90	60/60	90/100	65/65	95/105
FDUMA125V, 140V	34	50/45	75/90	60/55	85/100	65/65	95/105

Notes (1) 1 spot closing: Round duct flange at center is removed and shield with a special panel (option).
(2) Standard: ø200 duct are installed at all blowout holes.
(3) Square duct: All round ducts are removed and replaced with special square duct flanges (option).
(4) When using the high speed setting, turn the dip switch SW9-4 on the indoor PCB to the ON position.
(When setting from the remote controller, select "Hi CEILNG 1")

How to interpret the blower characteristics table

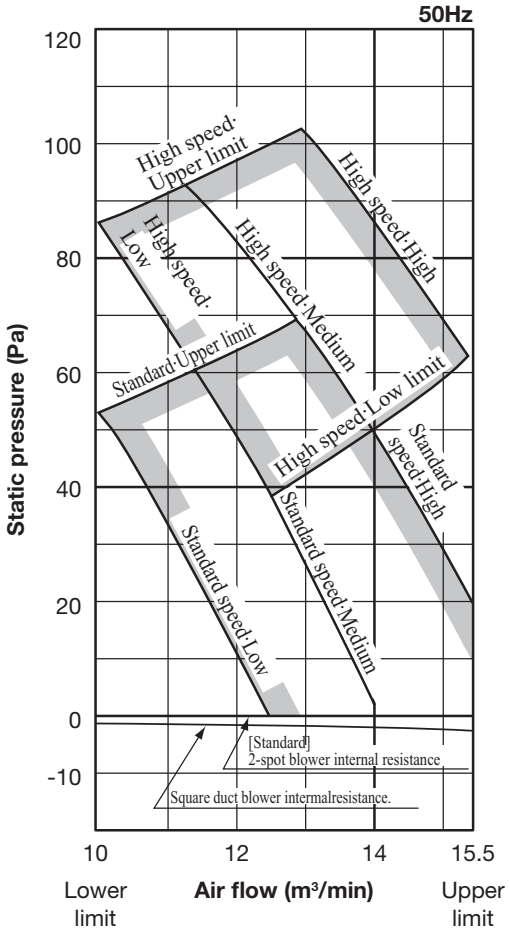
Example : Case of FDUM60V (50Hz)

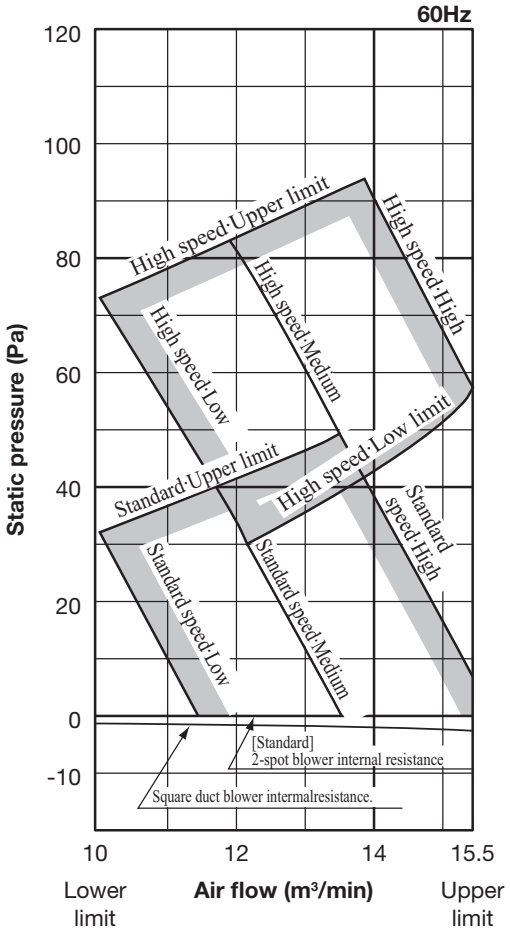


① 2-spot blowout.....
Internal resistance increases more than the standard 3-spot blowout.Approx. 14Pa at 17m³/min

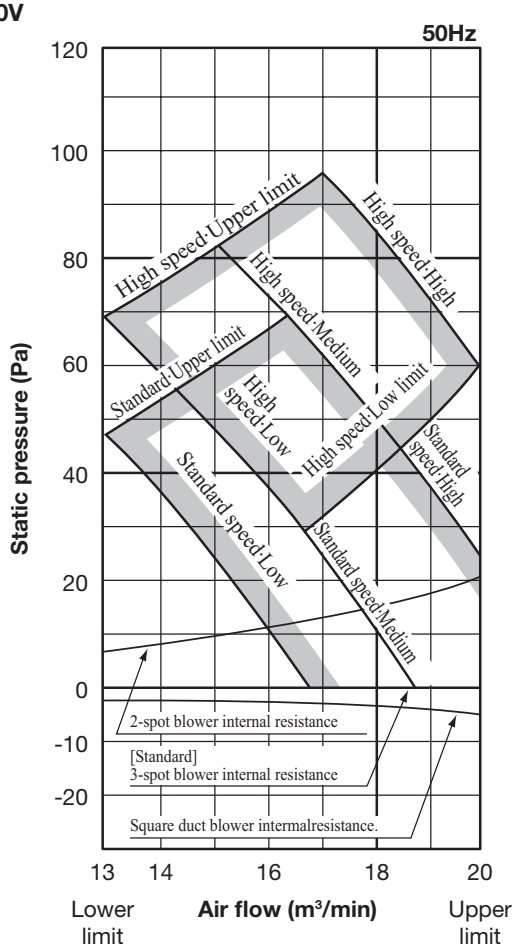
② Square duct blowout.....
Internal resistance decreases more than the standard round duct (ø200 3-spot). 3Pa at 17m³/min. (External static pressure increases in reverse.)

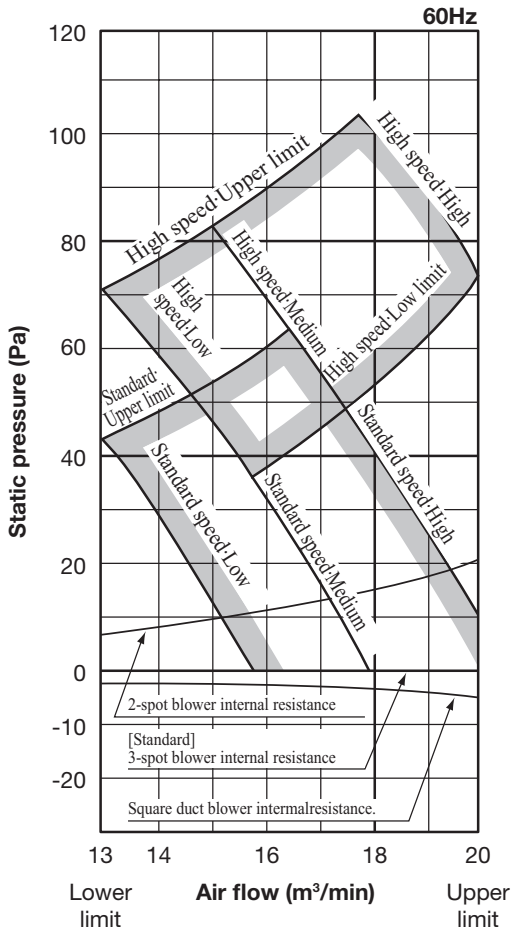
FDUM50V



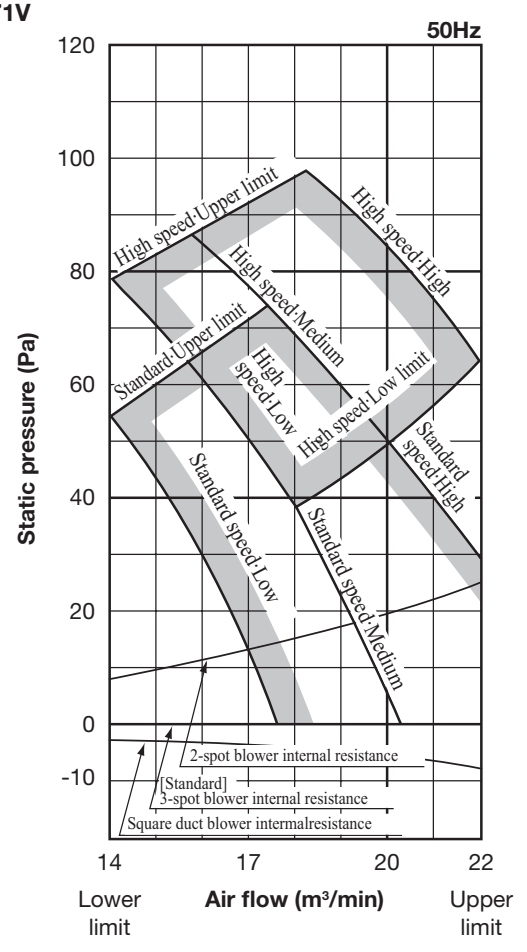


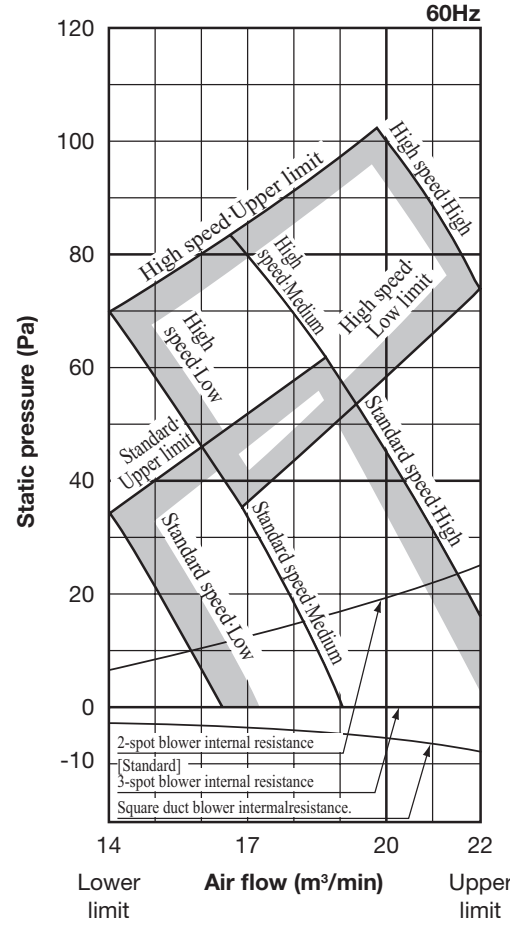
FDUM60V



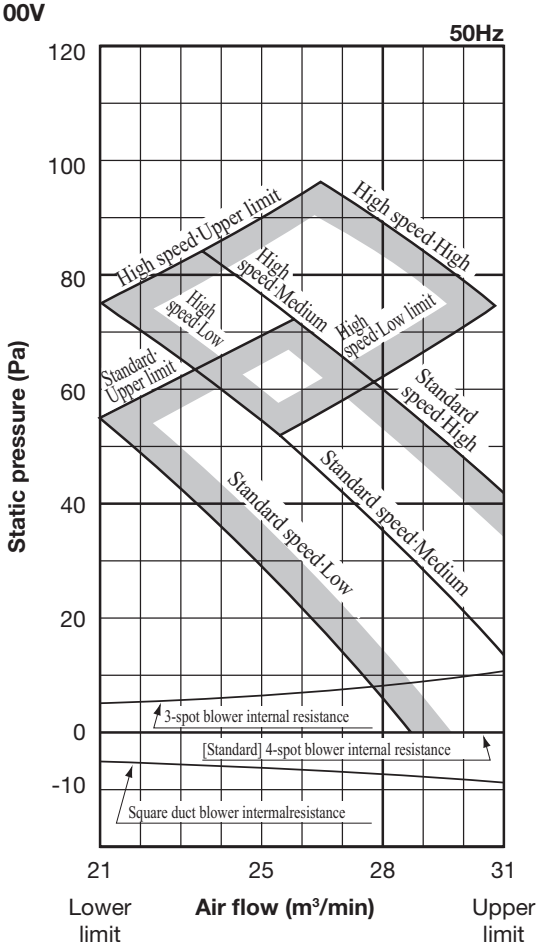


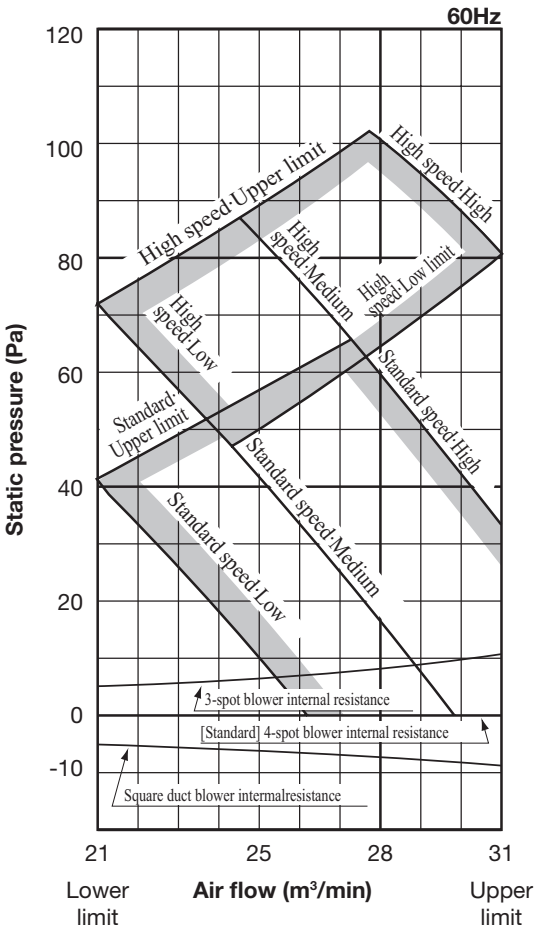
FDUM71V



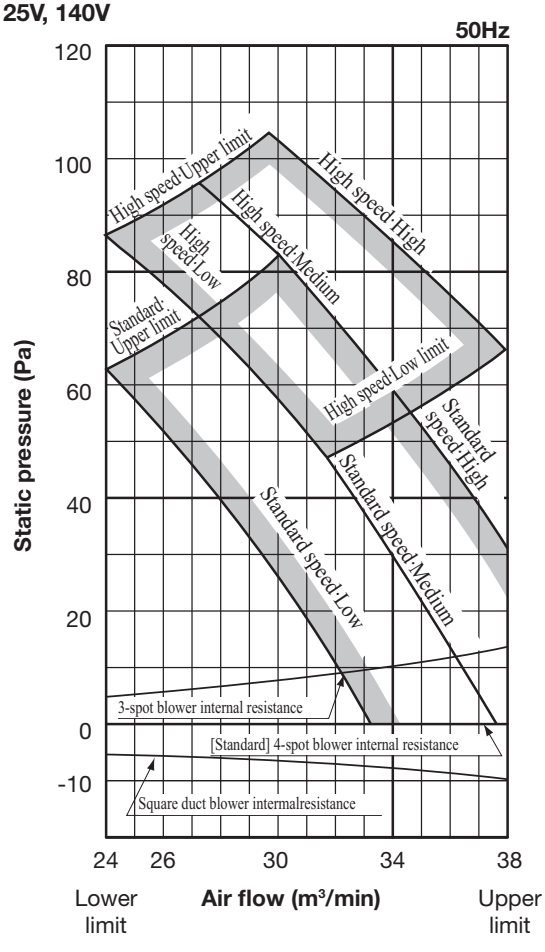


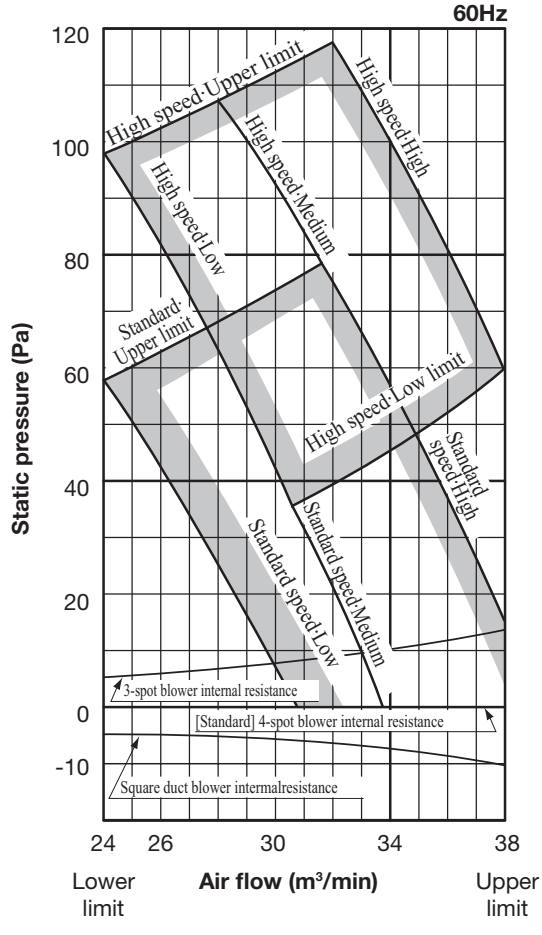
FDUM100V





FDUM125V, 140V





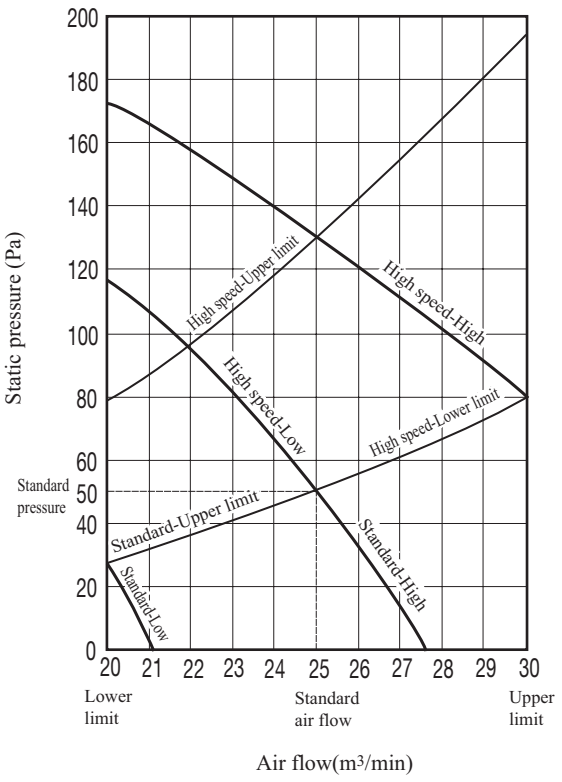
(2) Duct connected-High Static pressure-type (FDU)

• Air flow range table

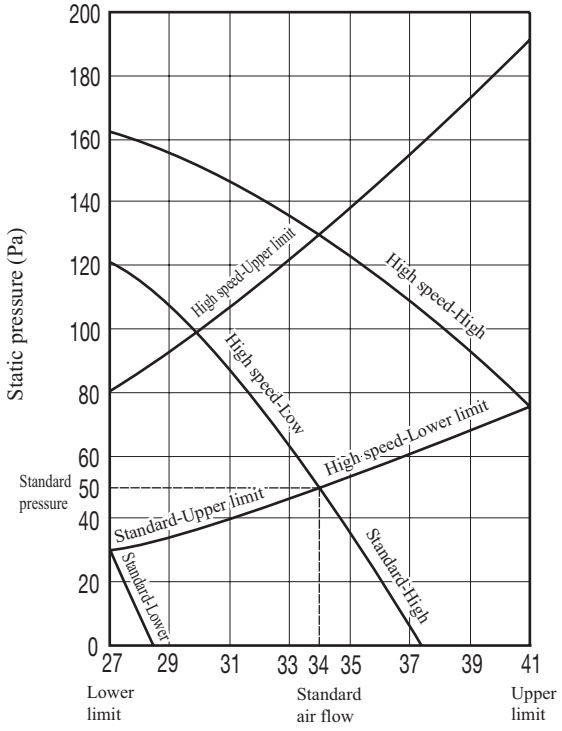
(50/60Hz)

Model \ Item	Air flow range (m^3/min)		
	Low limit	Standard	Upper limit
FDU71V	20	25	30
FDU100V	27	34	41
FDU125V, 140V	33.5	42	50
FDU200V	38/45	51/60	65/66
FDU250V	51/60	68/80	87/88

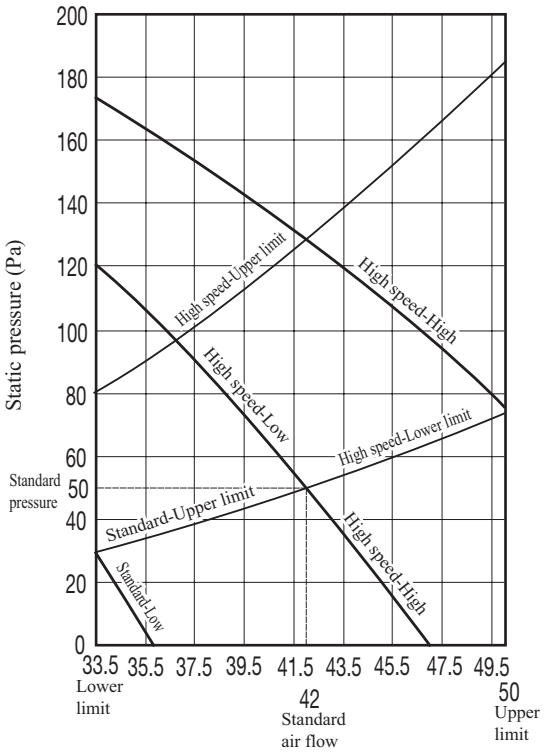
Model FDU71V



Model FDU100V



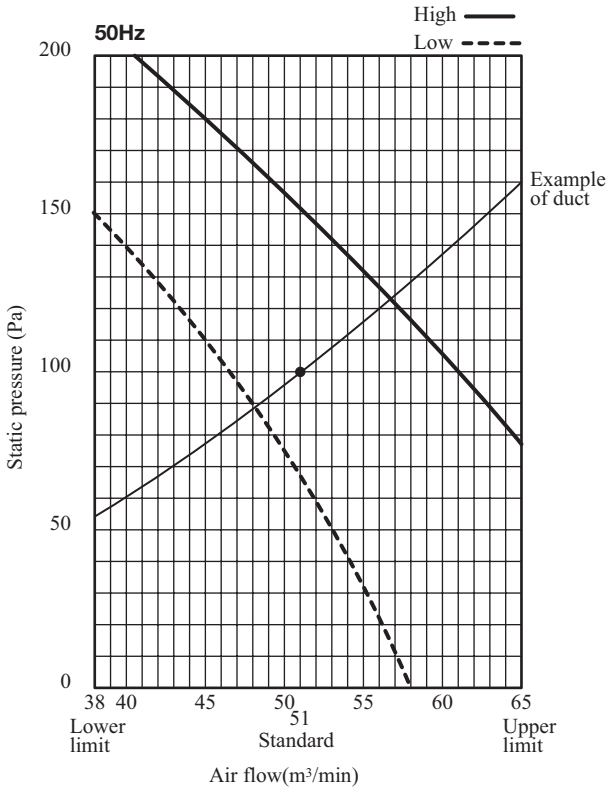
Model FDU125V, 140V

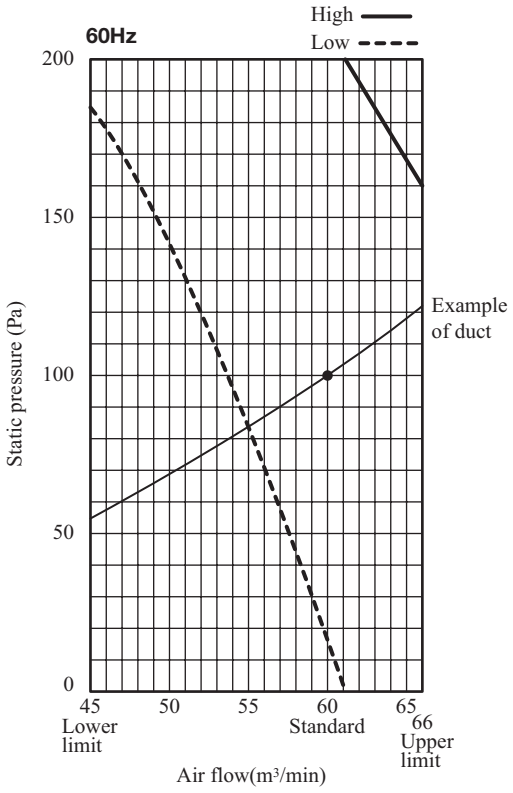


Model FDU200V

■Standard (Factory Settings)

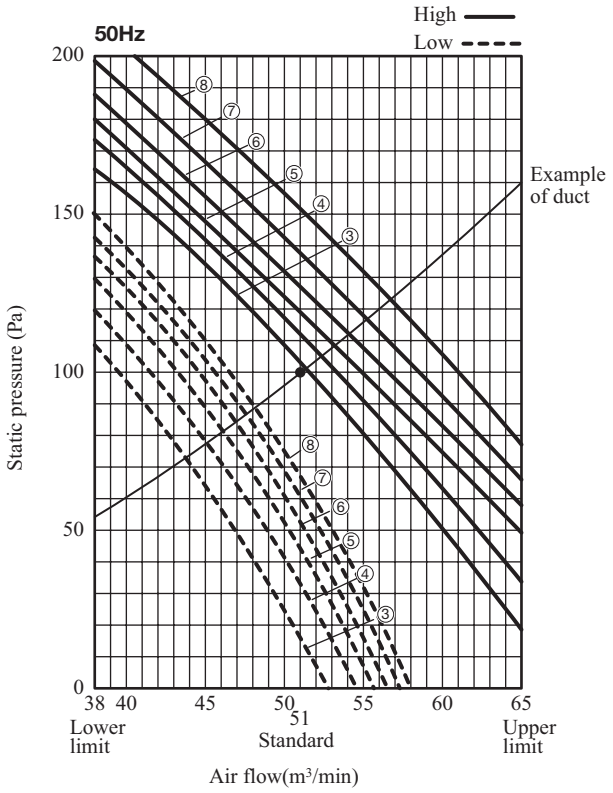
• Condition of standard rating Rated air volume: 200Pa



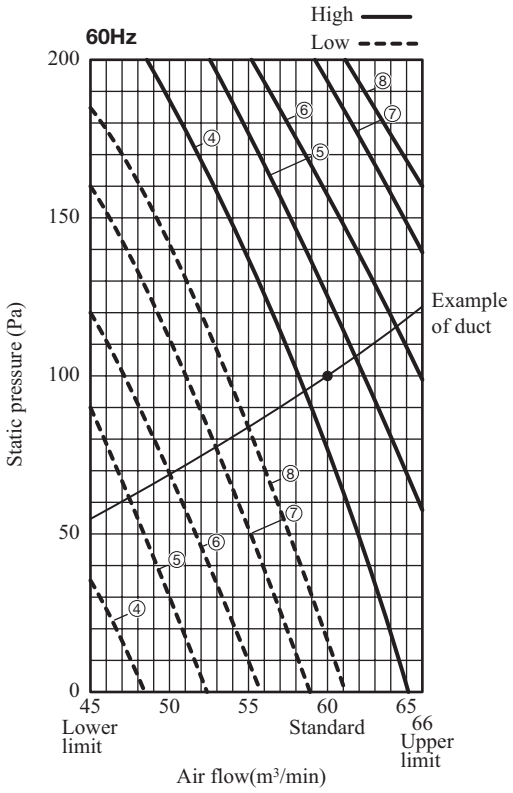


■When the fan controller kit is used (Option)

• Condition of standard rating Rated air volume: 200Pa



Notes (1) Nos.②, ① of fan controller should not be used because the fan motor could produce electromagnetic noise.

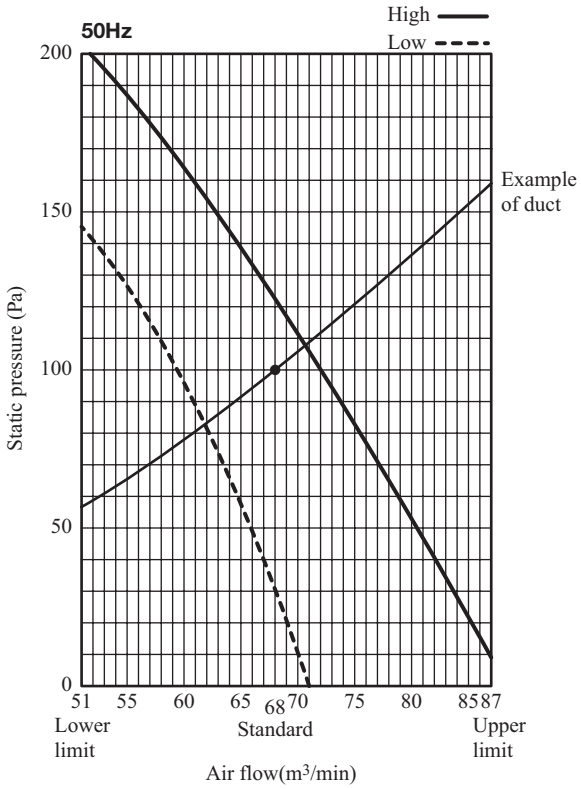


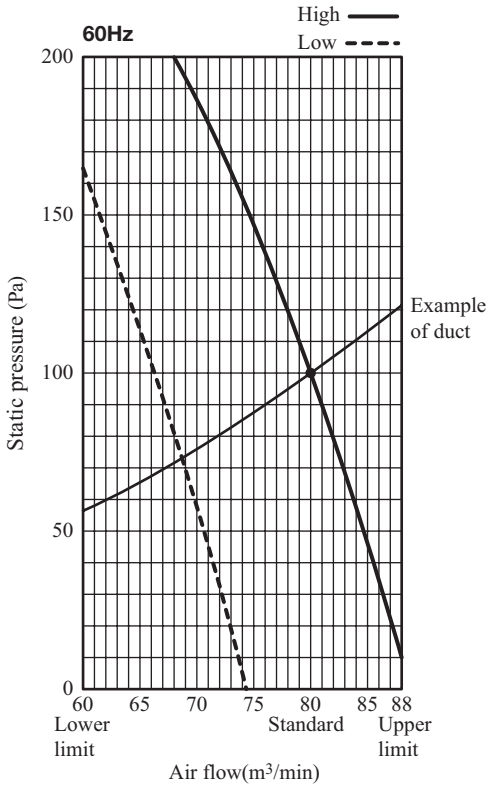
Notes (1) Nos.③, ② and ① of fan controller should not be used because the fan motor could produce electromagnetic noise.

Model FDU250V

■Standard (Factory Settings)

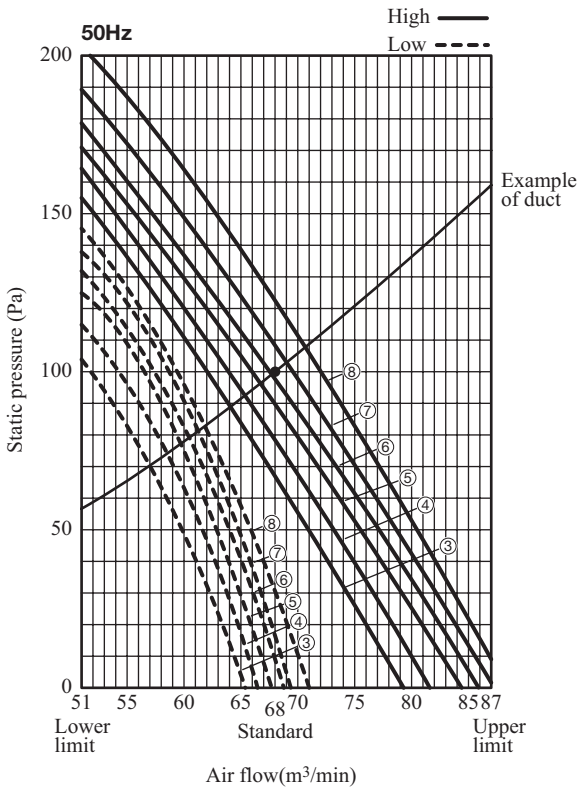
• Condition of standard rating Rated air volume: 200Pa



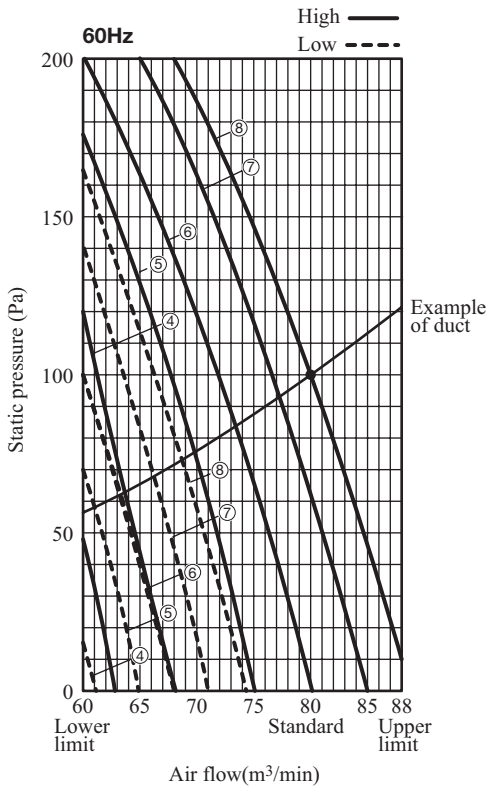


■When the fan controller kit is used (Option)

• Condition of standard rating Rated air volume: 200Pa



Notes (1) Nos.②, ① of fan controller should not be used because the fan motor could produce electromagnetic noise.



Notes (1) Nos.③, ② and ① of fan controller should not be used because the fan motor could produce electromagnetic noise.

1.2.8 Noise level

Notes (1) The data are based on the following conditions.
Ambient air temperature: Indoor unit 27˚C DB, 19˚C WB. Outdoor unit 35˚C DB.
(2) The data in the chart are measured in an anechoic room.
(3) The noise levels measured in the field are usually higher than the data because of reflection.
(4) Noise levels for the FDTC, FDT, FDEN and FDKN series show the noise level when in the Powerful mode.

(1) Indoor unit

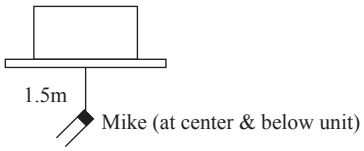
(a) Ceiling cassette-4 way compact (600×600mm)-type (FDTC)

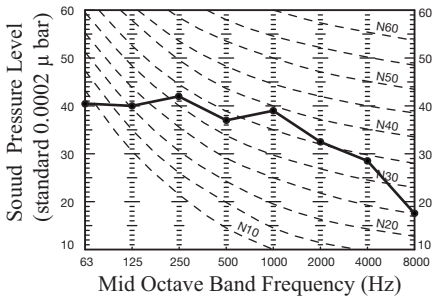
Models FDTC40V, 50V

Noise level 42 dB (A) at HIGH
38 dB (A) at MEDIUM
35 dB (A) at LOW

Measured based on JIS B 8616

Mike position as pen drawing

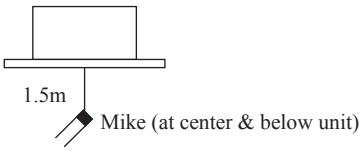




(b) Ceiling cassette-4 way-type (FDT)

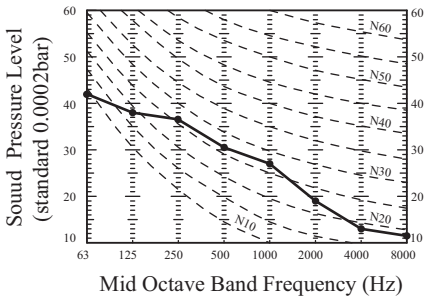
Measured based on JIS B 8616

Mike position as pen drawing



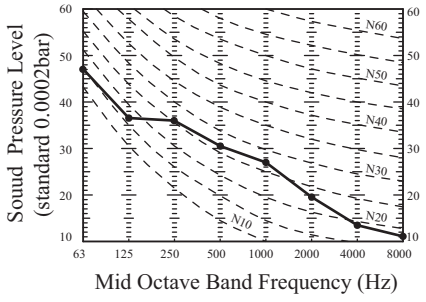
Model FDT40V

Noise level 33 dB (A) at HIGH
31 dB (A) at MEDIUM
30 dB (A) at LOW



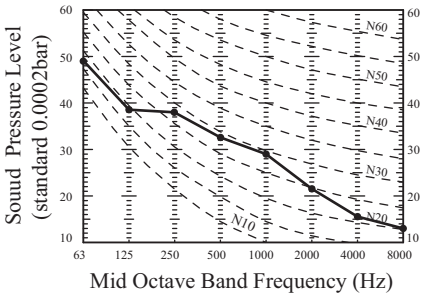
Models FDT50V, 60V

Noise level 33 dB (A) at HIGH
31 dB (A) at MEDIUM
30 dB (A) at LOW



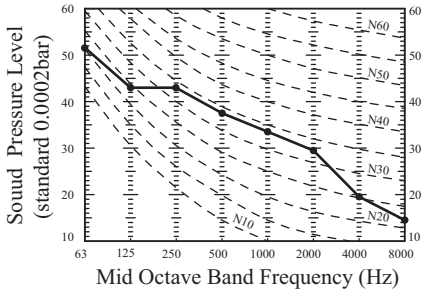
Model FDT71V

Noise level 35 dB (A) at HIGH
33 dB (A) at MEDIUM
31 dB (A) at LOW



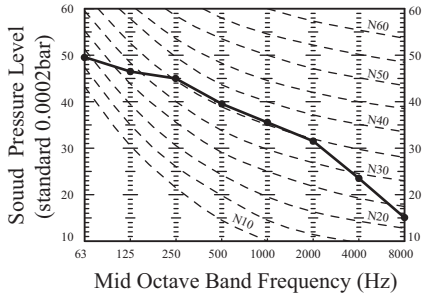
Model FDT100V

Noise level 40 dB (A) at HIGH
37 dB (A) at MEDIUM
35 dB (A) at LOW



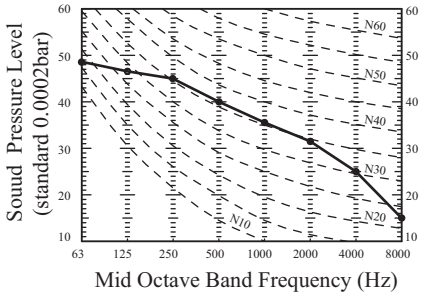
Model FDT125V

Noise level 42 dB (A) at HIGH
40 dB (A) at MEDIUM
37 dB (A) at LOW



Model FDT140V

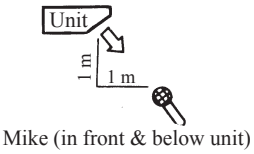
Noise level 43 dB (A) at HIGH
41 dB (A) at MEDIUM
38 dB (A) at LOW



(c) Ceiling suspended type (FDEN)

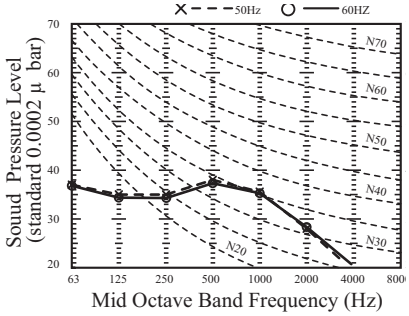
Measured based on JIS B 8616

Mike position as pen drawing



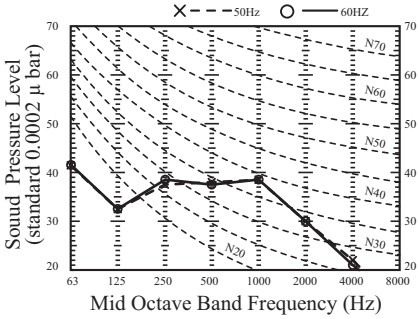
Models FDEN40V, 50V

Noise level 39 dB (A) at HIGH
38 dB (A) at MEDIUM
37 dB (A) at LOW



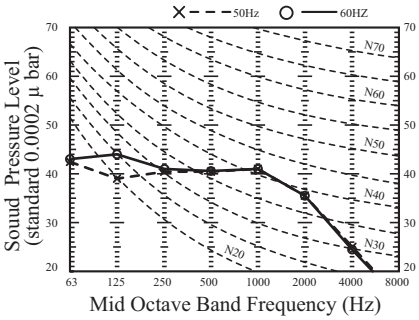
Models FDEN60V, 71V

Noise level 41 dB (A) at HIGH
39 dB (A) at MEDIUM
38 dB (A) at LOW



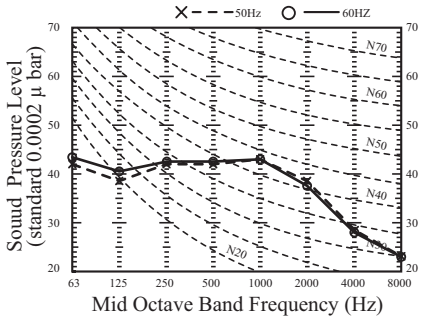
Model FDEN100V

Noise level 44 dB (A) at HIGH
41 dB (A) at MEDIUM
39 dB (A) at LOW



Models FDEN125V, 140V

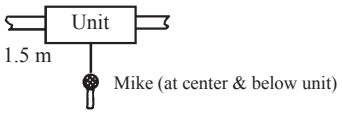
Noise level 46 dB (A) at HIGH
44 dB (A) at MEDIUM
43 dB (A) at LOW



(d) Duct connected-Middle static pressure-type (FDUM)

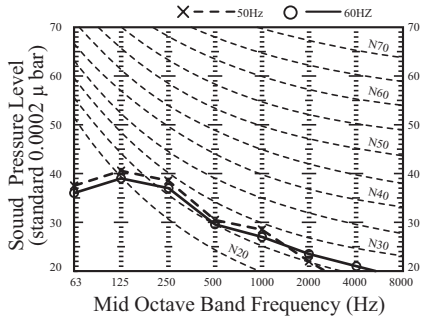
Measured based on JIS B 8616

Mike position as pen drawing



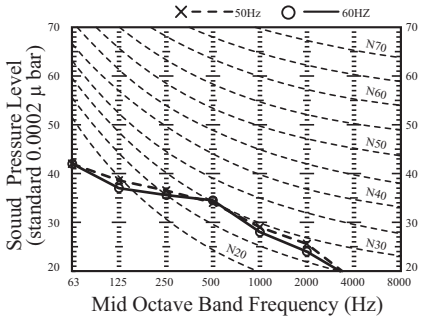
Models FDUM50V, 60V

Noise level 34 dB (A) at HIGH
31 dB (A) at MEDIUM
28 dB (A) at LOW



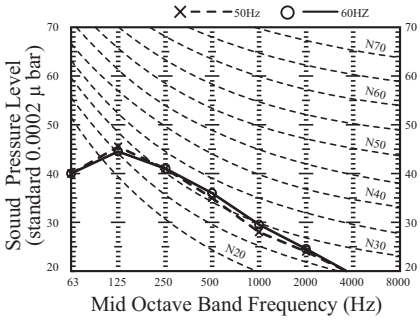
Model FDUM71V

Noise level 35 dB (A) at HIGH
32 dB (A) at MEDIUM
29 dB (A) at LOW



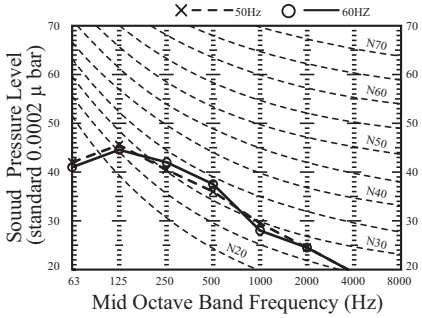
Model FDUM100V

Noise level 37 dB (A) at HIGH
35 dB (A) at MEDIUM
32 dB (A) at LOW



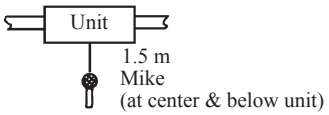
Models FDUM125V, 140V

Noise level 38 dB (A) at HIGH
36 dB (A) at MEDIUM
33 dB (A) at LOW



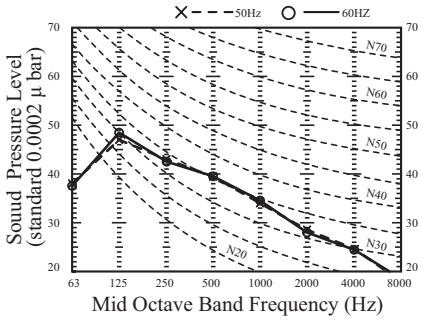
(e) Duct connected-High static pressure-type (FDU)

Measured based on JIS B 8616
Mike position as pen drawing



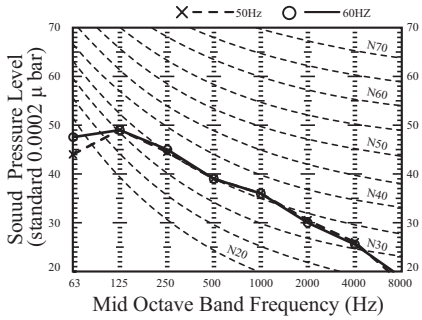
Model FDU71V

Noise level 41 dB (A) at HIGH
37 dB (A) at Low



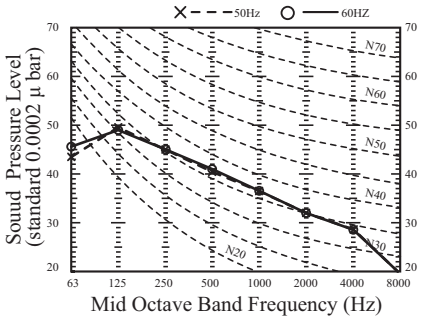
Model FDU100V

Noise level 42 dB (A) at HIGH
37 dB (A) at Low



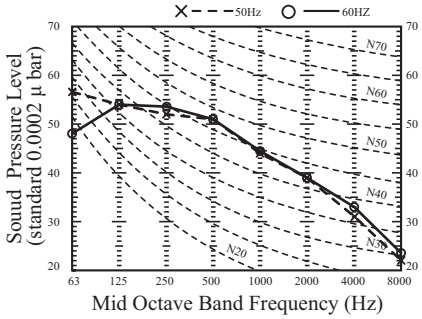
Model FDU125V, 140V

Noise level 43 dB (A) at HIGH
38 dB (A) at Low



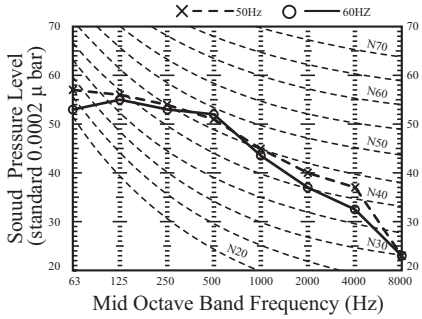
Model FDU200V

Noise level 51 dB (A)



Model FDU250V

Noise level 52 dB (A)



- **Power level**

(Measurement conditions: JIS-B8616, measurement location: reverberation chamber)

Unit: dB

Model	Air supply side	Air return side	Model	Air supply side	Air return side
FDU71V	65	65	FDU200V	75	64
FDU100V	66	66	FDU250V	76	65
FDU125V, 140V	67	67			

Note (1) Concerning the power level, the values shown are for when the outdoor unit's External static pressure is 200 Pa.
·71~140V:50 Pa
·200, 250V:200 Pa

(2) Outdoor unit

Measured based on JIS B 8616

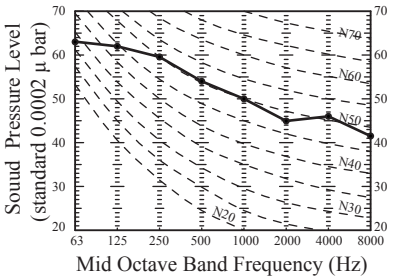
Mike position: at highest noise level in position as mentined below

Distance from front side 1m

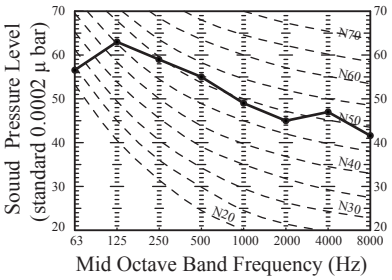
Height 1m

Models SRC40ZHX-S, 50ZHX-S

Cooling noise level 47 dB (A)

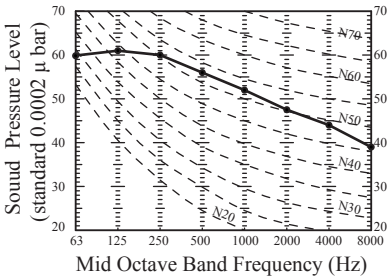


Heating noise level 47 dB (A)

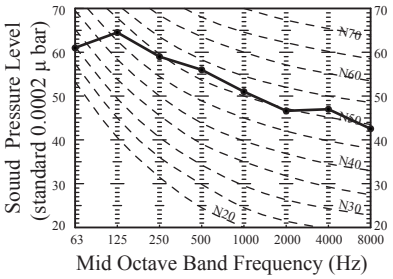


Model SRC60ZHX-S

Cooling noise level 48 dB (A)

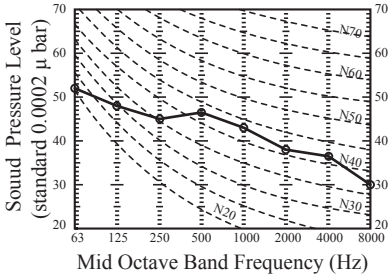


Heating noise level 48 dB (A)



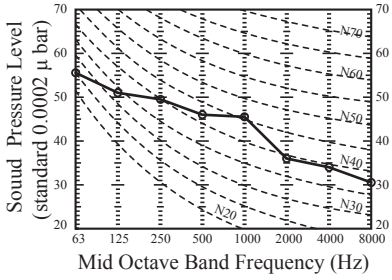
Model FDC71VN

Noise level 48 dB (A)



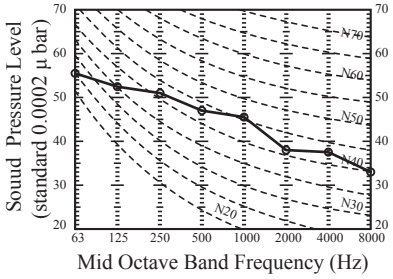
Model FDC100VN
100VS

Noise level 49 dB (A)

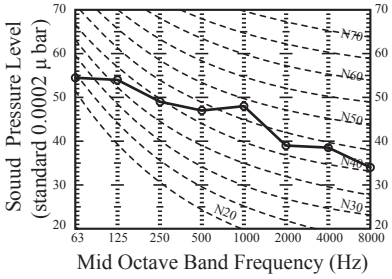


Model FDC125VN
125VS

Cooling noise level 50 dB (A)

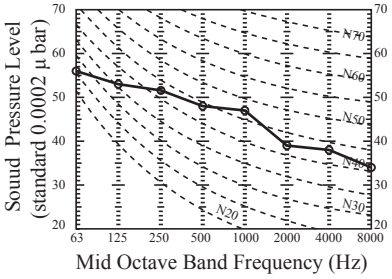


Heating noise level 51 dB (A)



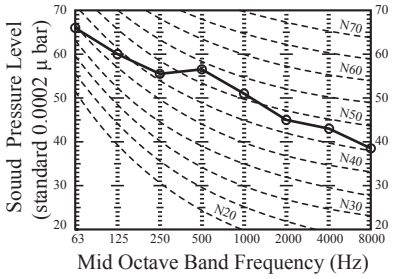
Model FDC140VN
140VS

Noise level 51 dB (A)



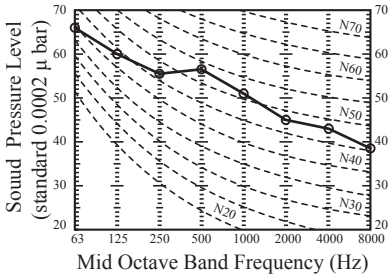
Model FDC200VS

Noise level 57 dB (A)

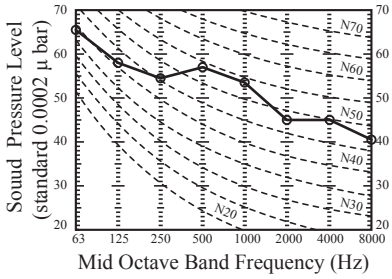


Model FDC250VS

Cooling noise level 57 dB (A)



Heating noise level 58 dB (A)

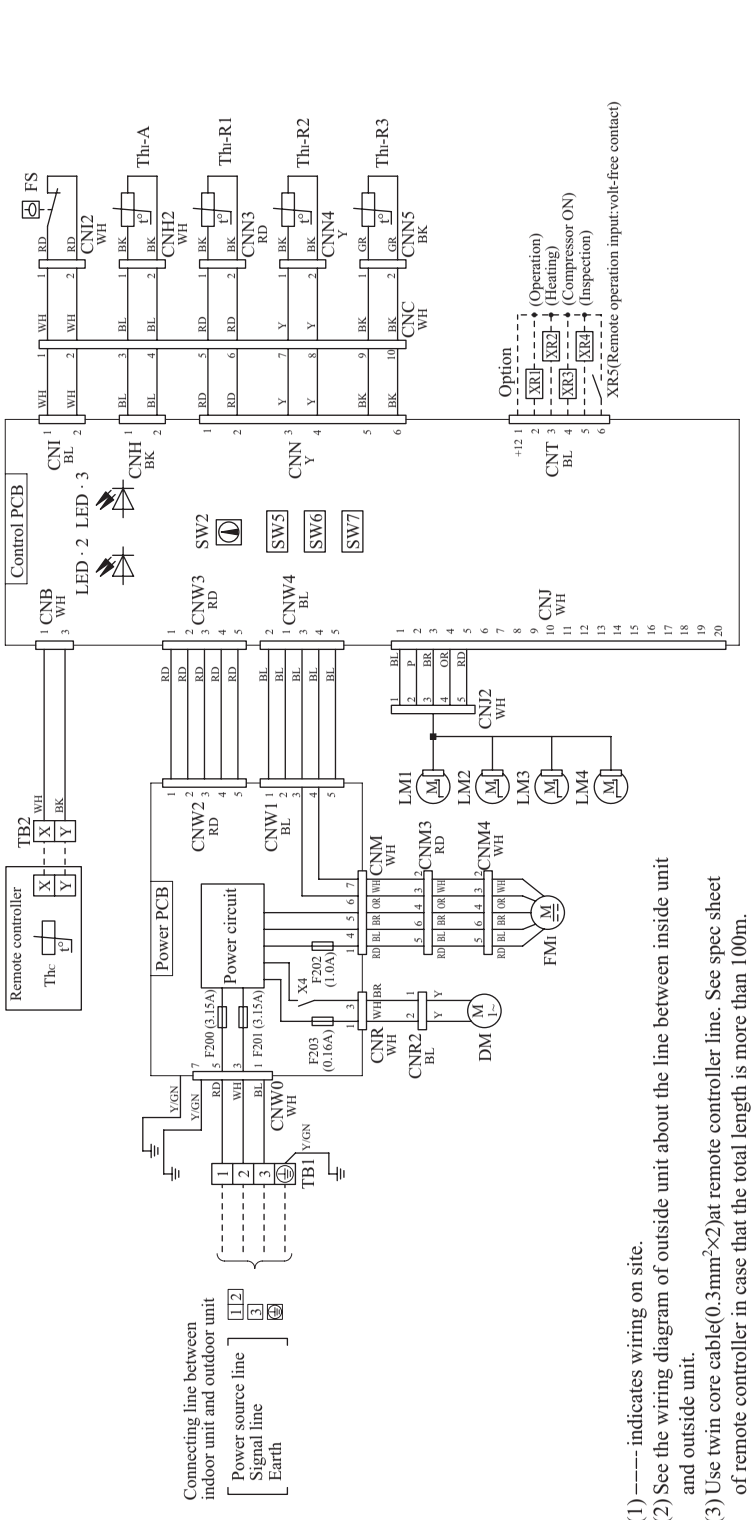


1.3 ELECTRICAL WIRING

(1) Indoor unit

(a) Ceiling cassette-4 way compact (600×600mm)-type (FDTC)

Models All models



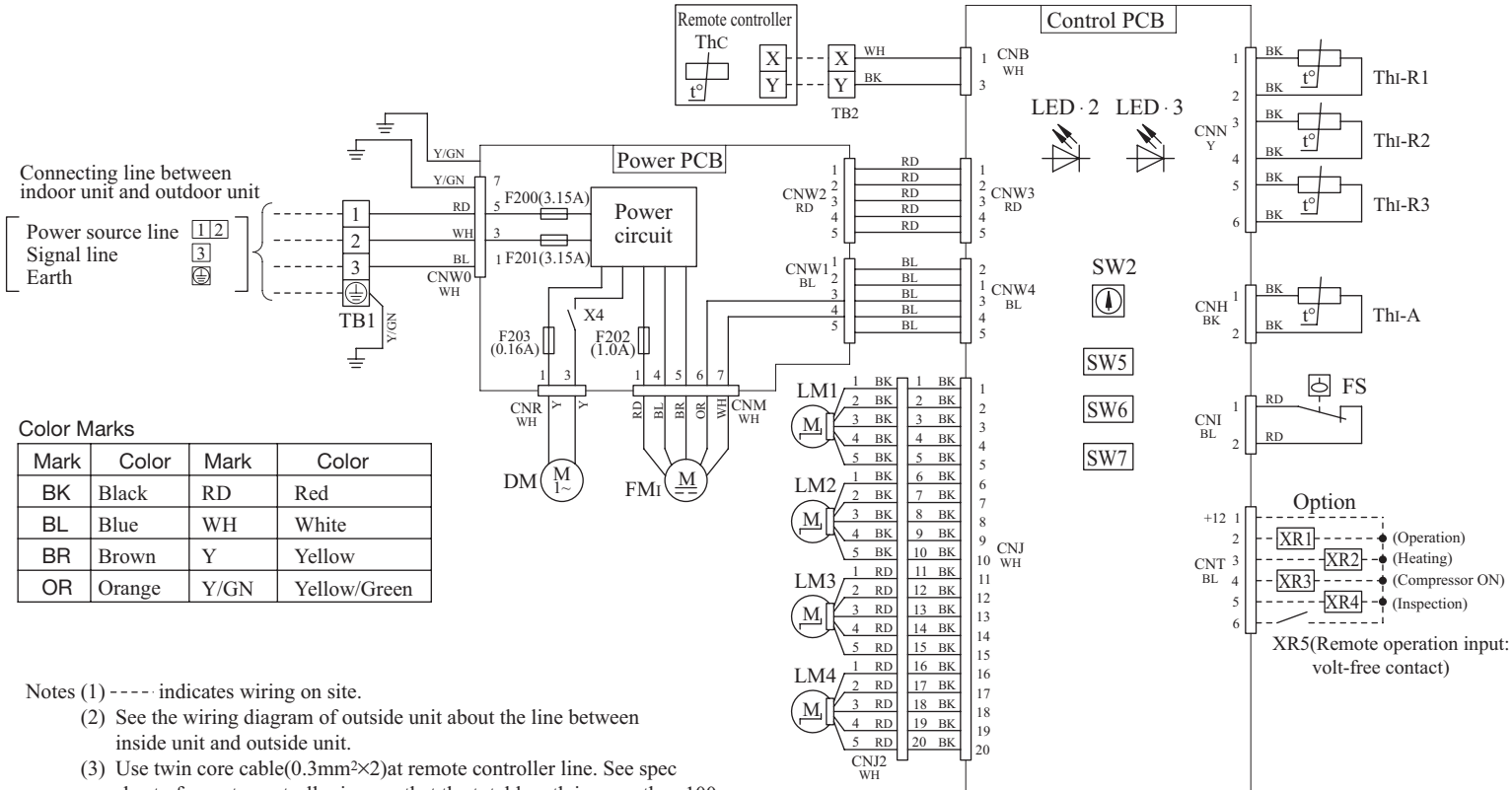
Notes (1) ——– indicates wiring on site.
(2) See the wiring diagram of outside unit about the line between inside unit and outside unit.
(3) Use twin core cable(0.3mm^2×2)at remote controller line. See spec sheet of remote controller in case that the total length is more than 100m.
(4) Do not put remote controller line alongside power source line.

Meaning of marks

Mark	Parts name	Mark	Parts name	Mark	Parts name
CNB~Z	Connector	LM1~4	Louver motor	TB2	Terminal block (Signal line) (□ mark)
DM	Drain motor	SW2	Remote controller communication address	Thc	Thermistor (Remote controller)
F200~203	Fuse			Th-A	Thermistor (Return air)
FM	Fan motor	SW5	Plural units Master/Slave setting	Th-R1,2,3	Thermistor (Heat exchanger)
FS	Float switch	SW6	Model capacity setting	X4	Relay for DM
LED · 2	Indication lamp (Green-Normal operation)	SW7-1	Operation check, Drain motor test run	■ mark	Closed-end connector
LED · 3	Indication lamp(Red-Inspection)	TB1	Terminal block(Power source) (□ mark)		

Color Marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GR	Gray
OR	Orange
P	Pink
RD	Red
WH	White
Y	Yellow
Y/GN	Yellow/Green



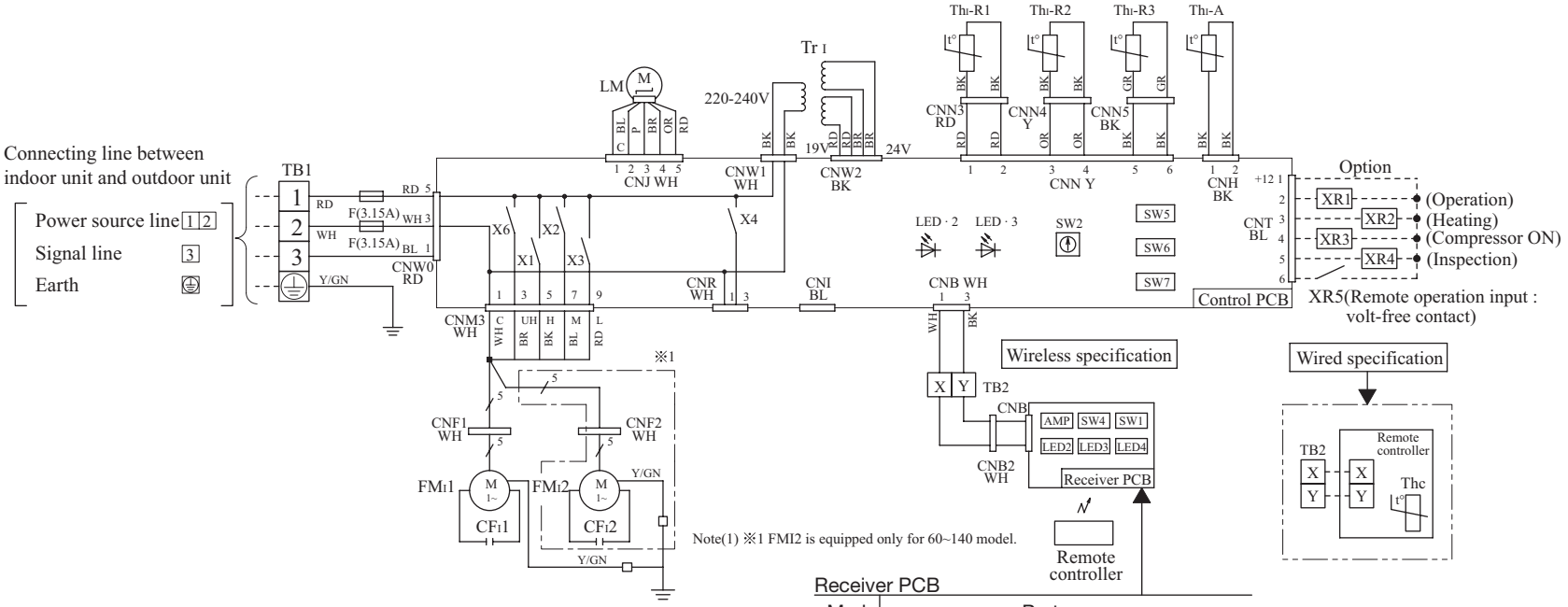
Color Marks

Mark	Color	Mark	Color
BK	Black	RD	Red
BL	Blue	WH	White
BR	Brown	Y	Yellow
OR	Orange	Y/GN	Yellow/Green

Notes (1) - - - - indicates wiring on site.
(2) See the wiring diagram of outside unit about the line between inside unit and outside unit.
(3) Use twin core cable(0.3mm²×2)at remote controller line. See spec sheet of remote controller in case that the total length is more than 100m.
(4) Do not put remote controller line alongside power source line.

Meaning of marks

Mark	Parts name	Mark	Parts name	Mark	Parts name
CNB~Z	Connector	LM1~4	Louver motor	TB2	Terminal block (Signal line) (□ mark)
DM	Drain motor	SW2	Remote controller communication address	ThC	Thermistor (Remote controller)
F200~203	Fuse			ThI-A	Thermistor (Return air)
FMI	Fan motor	SW5	Plural units Master/Slave setting	ThI-R1, 2, 3	Thermistor (Heat exchanger)
FS	Float switch	SW6	Model capacity setting	X4	Relay for DM
LED · 2	Indication lamp (Green-Normal operation)	SW7-1	Operation check, Drain motor test run	■ mark	Closed-end connector
LED · 3	Indication lamp (Red-Inspection)	TB1	Terminal block (Power source) (□ mark)		



Notes (1) ---- indicates wiring on site.
(2) See the wiring diagram of outside unit about the line between indoor unit and outdoor unit.
(3) Use twin core cable ($0.3mm^2 \times 2$) at remote controller line. See spec sheet of remote controller in case that the total length is more than 100m.
(4) Do not put remote controller line alongside power source line.

Receiver PCB

Mark	Parts name
LED2	Indication lamp (Green-Normal operation)
LED3	Indication lamp (Yellow-Timer/Inspection)
LED4	7-segment display
SW1	Switches for setting
SW4	Back-up switch (Operation/Stop)

Meaning of marks

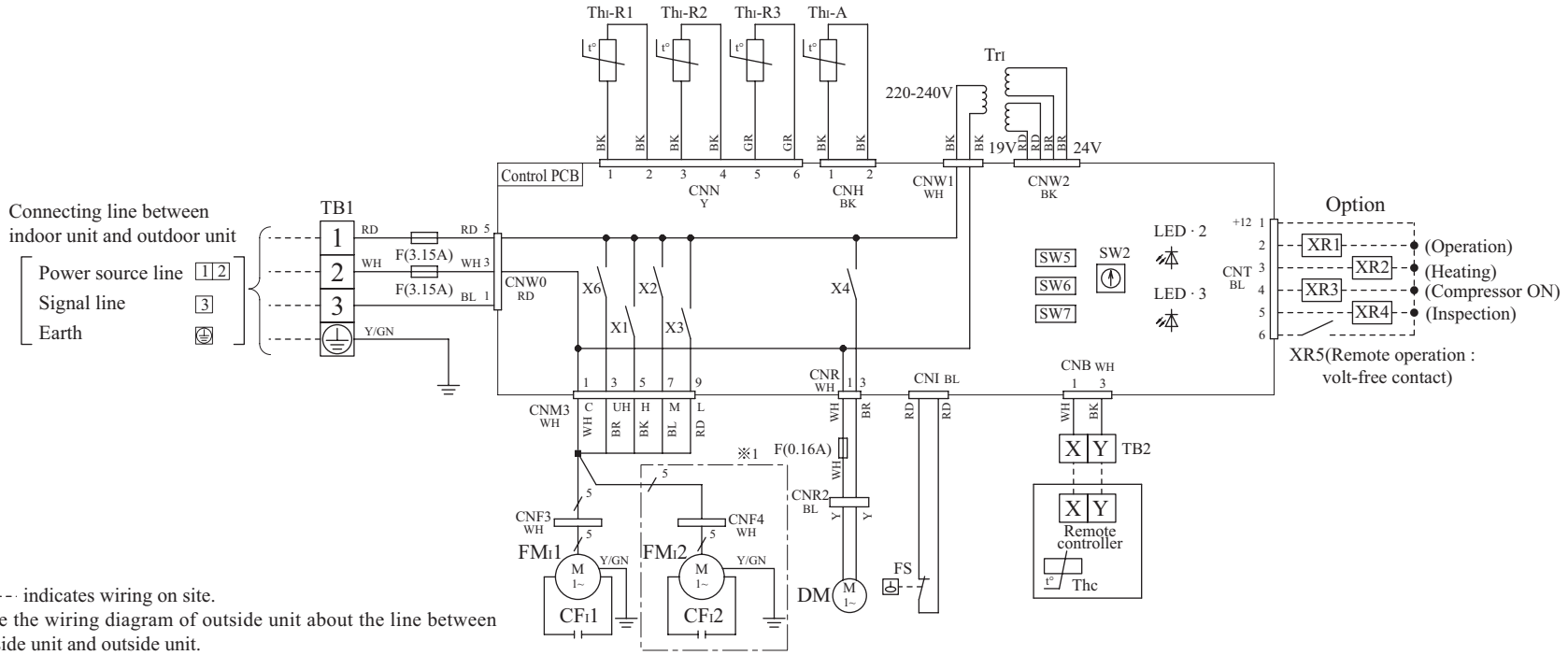
Mark	Parts name	Mark	Parts name	Mark	Parts name
CFı1, 2	Capacitor for FMı	SW2	Remote controller communication address	Thl-A	Thermistor (Return air)
CNB~Z	Connector	SW5	Plural units Master/Slave setting	Thl-R1, 2, 3	Thermistor (Heat exchanger)
F	Fuse	SW6	Model capacity setting	Trl	Transformer
FMı1, 2	Fan motor (with thermostat)	SW7-1	Operation check, Drain motor test run	X1~3, 6	Relay for FM
LED · 2	Indication lamp (Green-Normal operation)	TB1	Terminal block (Power source) (□ mark)	X4	Relay for DM
LED · 3	Indication lamp (Red-Inspection)	TB2	Terminal block (Signal line) □ mark)	■ mark	Closed-end connector
LM	Louver motor	Thc	Thermistor (Remote controller)		

Color Marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GR	Gray
OR	Orange
P	Pink
RD	Red
WH	White
Y	Yellow
Y/GN	Yellow/Green

(d) Duct connected-Middle static pressure-type (FDUM)

Models All models



Note(1) ※1 FMI2 is equipped only for 100~140 model.

Notes (1) ---- indicates wiring on site.
(2) See the wiring diagram of outside unit about the line between inside unit and outside unit.
(3) Use twin core cable (0.3mm^2×2) at remote controller line. See spec sheet of remote controller in case that the total length is more than 100m.
(4) Do not put remote controller line alongside power source line.

Meaning of mark

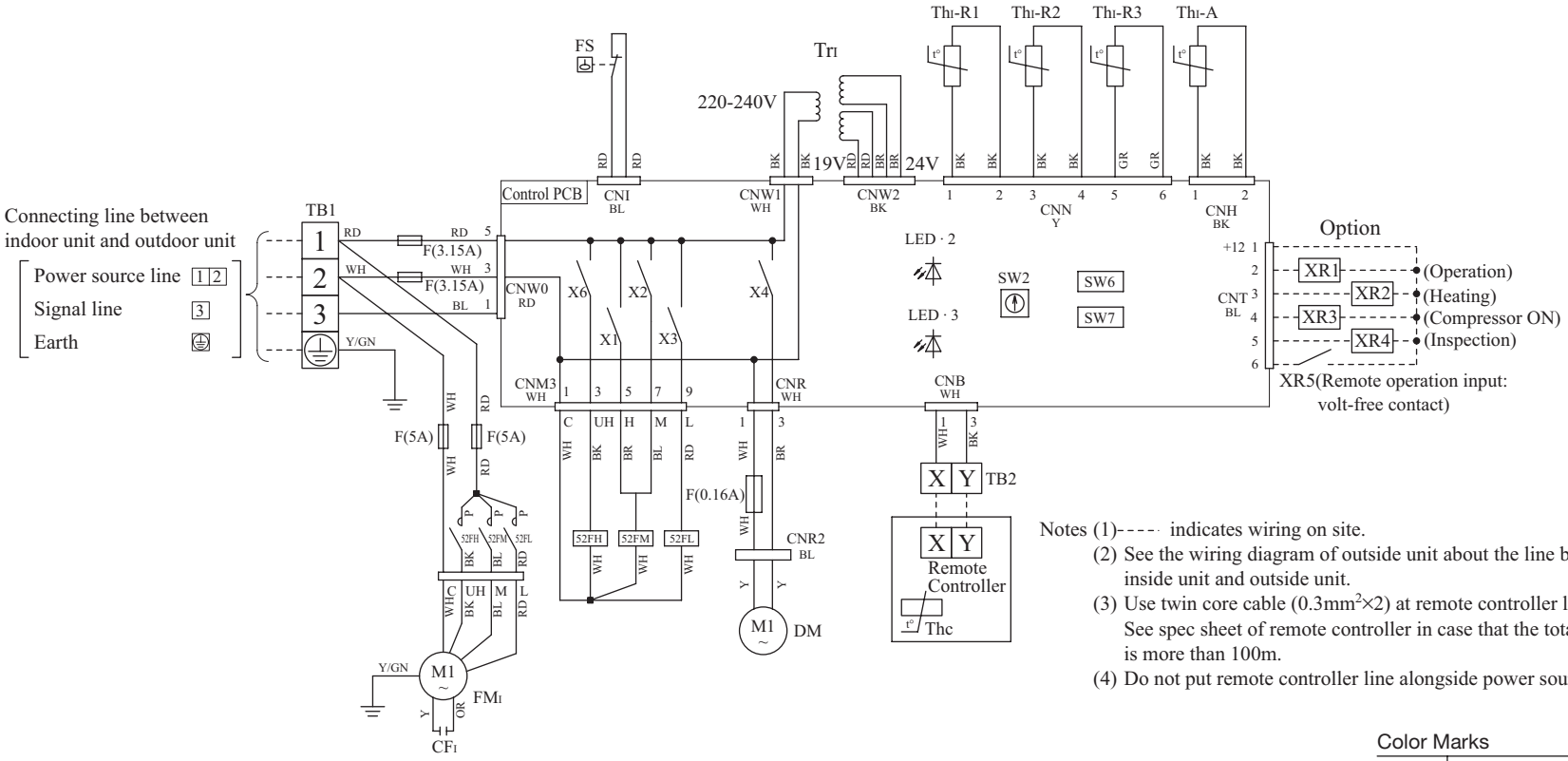
Mark	Parts name	Mark	Parts name	Mark	Parts name
CFı1, 2	Capacitor for FMI	SW2	Remote controller communication address	Thı-R1, 2, 3	Thermistor (Heat exchanger)
CNB~Z	Connector	SW5	Plural units Master/Slave setting	Trı	Transformer
DM	Drain motor	SW6	Model capacity setting	X1~3,6	Relay for FM
F	Fuse	SW7-1	Operation check, Drain motor test run	X4	Relay for DM
FMı1, 2	Fan motor (with thermostat)	TB1	Terminal block (Power source) (□ mark)	■ mark	Closed-end connector
FS	Float switch	TB2	Terminal block (Signal line) (□ mark)		
LED · 2	Indication lamp (Green-Normal operation)	Thc	Thermistor (Remote controller)		
LED · 3	Indication lamp (Red-Inspection)	Thı-A	Thermistor (Return air)		

Color Marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GR	Gray
RD	Red
WH	White
Y	Yellow
Y/GN	Yellow/Green

(e) Duct connected-High static pressure-type (FDU)

Models FDU71V, 100V, 125V, 140V



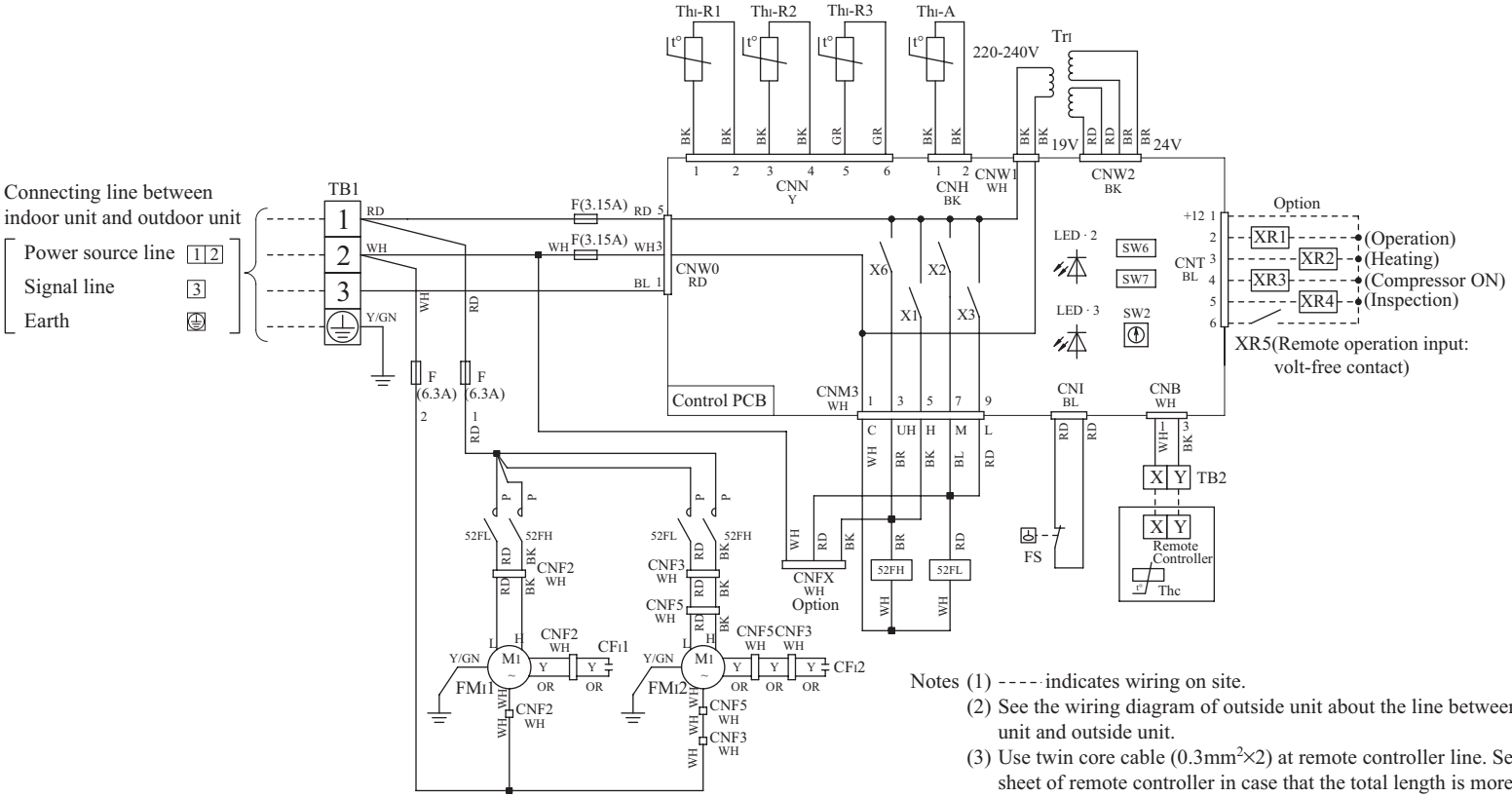
Notes (1)---- indicates wiring on site.
(2) See the wiring diagram of outside unit about the line between inside unit and outside unit.
(3) Use twin core cable (0.3mm^2×2) at remote controller line. See spec sheet of remote controller in case that the total length is more than 100m.
(4) Do not put remote controller line alongside power source line.

Meaning of marks

Mark	Parts name	Mark	Parts name	Mark	Parts name
CFI	Capacitor for FMI	LED · 3	Indication lamp (Red-Inspection)	ThI-A	Thermistor (Return air)
CNB~Z	Connector	SW2	Remote controller communication address	ThI-R1,2,3	Thermistor (Heat exchanger)
DM	Drain motor	SW6	Model capacity setting	TrI	Transformer
F	Fuse	SW7-1	Operation check, Drain motor test run	X1~3, 6	Relay for FM
FMI	Fan motor (with thermostat)	TB1	Terminal block (Power source) (□ mark)	X4	Relay for DM
FS	Float switch	TB2	Terminal block (Signal line) (□ mark)	■ mark	Closed-end connector
LED · 2	Indication lamp (Green-Normal operation)	Thc	Thermistor (Remote controller)	52FL, FM, FH	Electromagnetic contactor for FMI

Color Marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GR	Gray
OR	Orange
P	Pink
RD	Red
WH	White
Y	Yellow
Y/GN	Yellow/Green



Notes (1) ---- indicates wiring on site.
(2) See the wiring diagram of outside unit about the line between inside unit and outside unit.
(3) Use twin core cable (0.3mm^2×2) at remote controller line. See spec sheet of remote controller in case that the total length is more than 100m.
(4) Do not put remote controller line alongside power source line.

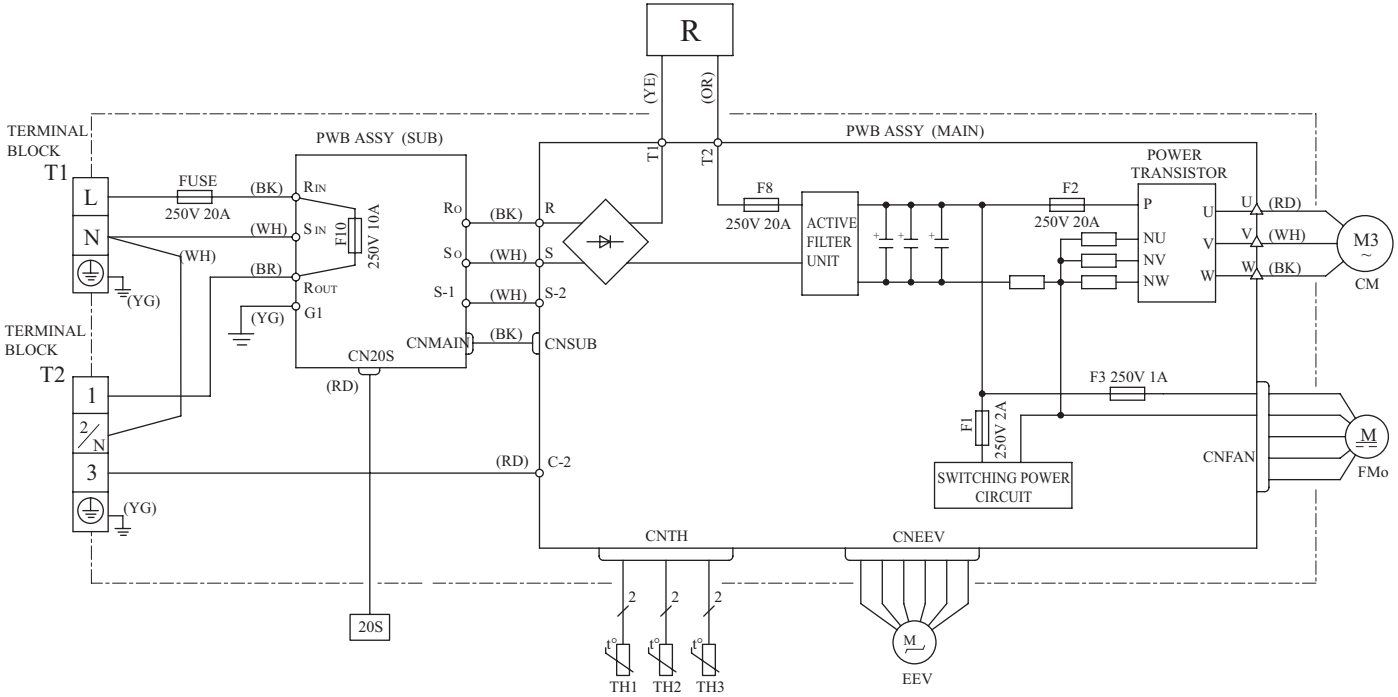
Meaning of marks

Mark	Parts name	Mark	Parts name	Mark	Parts name
CFI1, 2	Capacitor for FMI	LED · 3	Indication lamp (Red-Inspection)	ThI-A	Thermistor (Return air)
CNB~Z	Connector	SW2	Remote controller communication address	ThI-R1, 2, 3	Thermistor (Heat exchanger)
F	Fuse	SW6	Model capacity setting	TrI	Transformer
FC	Fan controller	SW7-1	Operation check, Drain motor test run	X1~3,6	Relay for FM
FMI1, 2	Fan motor (with thermostat)	TB1	Terminal block (Power source) (□ mark)	■ mark	Closed-end connector
FS	Float switch	TB2	Terminal block (Signal line) (□ mark)	52FL,FH	Electromagnetic contactor for FMI
LED · 2	Indication lamp (Green-Normal operation)	Thc	Thermistor (Remote controller)		

Color Marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GR	Gray
OR	Orange
P	Pink
RD	Red
WH	White
Y	Yellow
Y/GN	Yellow/Green

Power source
1 Phase
220-240V 50Hz/220V 60Hz



Meaning of marks

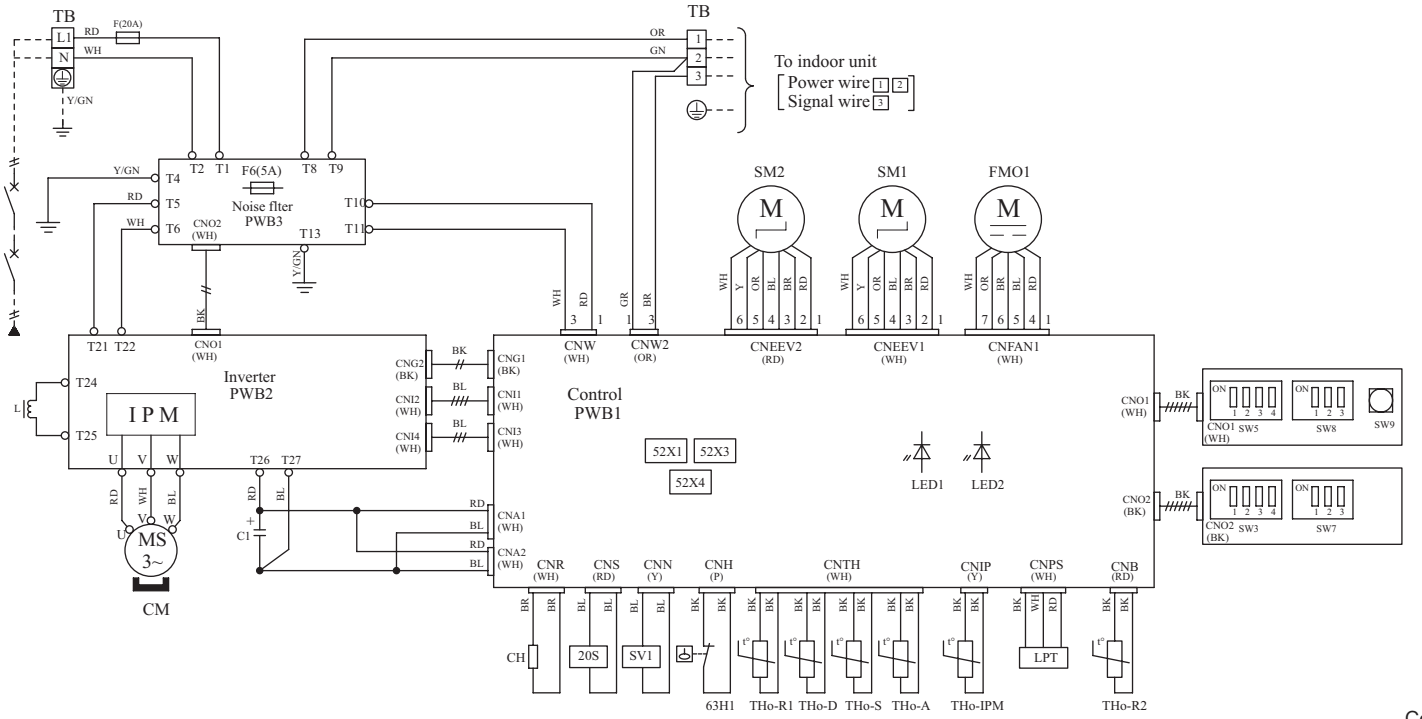
Mark	Parts name
CM	Compressor motor
EEV	Electric expansion valve (coil)
FMo	Fan motor
R	Reactor
TH1	Thermistor (heat exchanger)
TH2	Thermistor (ambient air temp.)
TH3	Thermistor (discharge temp.)
20S	4 way valve (coil)

Color marks

Mark	Color
BK	Black
RD	Red
WH	White
OR	Orange
BR	Brown
YE	Yellow
Y/G	Yellow/Green

Power source

1~220-240V 50Hz/1~220V 60Hz



Meaning of marks

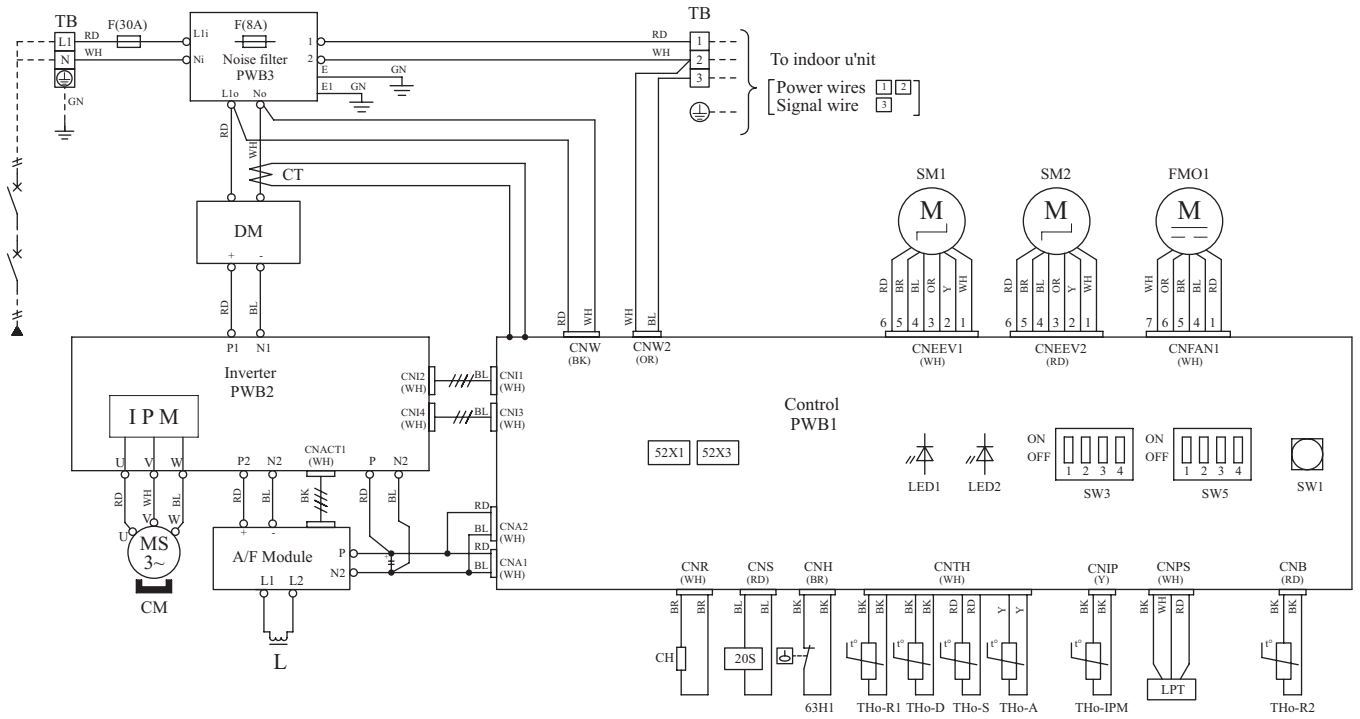
Mark	Parts mame	Mark	Parts mame	Mark	Parts mame
CnA~Z	Connector	LPT	Low pressure sensor	THo-IPM	Thermistor (IPM)
CH	Crankcase heater	SM1	Expansion valve for cooling	THo-R1, 2	Thermistor (Heat exchanger pipe temp.)
CM	Compressor motor	SM2	Expansion valve for heating	THo-S	Thermistor (Suction pipe temp.)
F	Fuse	SV1	Solenoid valve	20S	Solenoid valve for 4 way valve
FM01	Fan motor	SW9	Pump down switch	52X1	Auxilliary relay (for CH)
IPM	Intelligent power module	SW3, 5, 7, 8	Local setting switch	52X3	Auxilliary relay (for 20S)
L	Reactor	TB	Terminal block	52X4	Auxilliary relay (for SV1)
LED1	Indication lamp (GREEN)	THo-A	Thermistor (Ambient air temp.)	63H1	High pressure switch
LED2	Indication lamp (RED)	THo-D	Thermistor (Discharge pipe temp.)		

Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GR	Gray
P	Pink
OR	Orange
RD	Red
WH	White
Y	Yellow
Y/GN	Yellow/Green

Power source

1~220-240V 50Hz/1~220V 60Hz



Meaning of marks

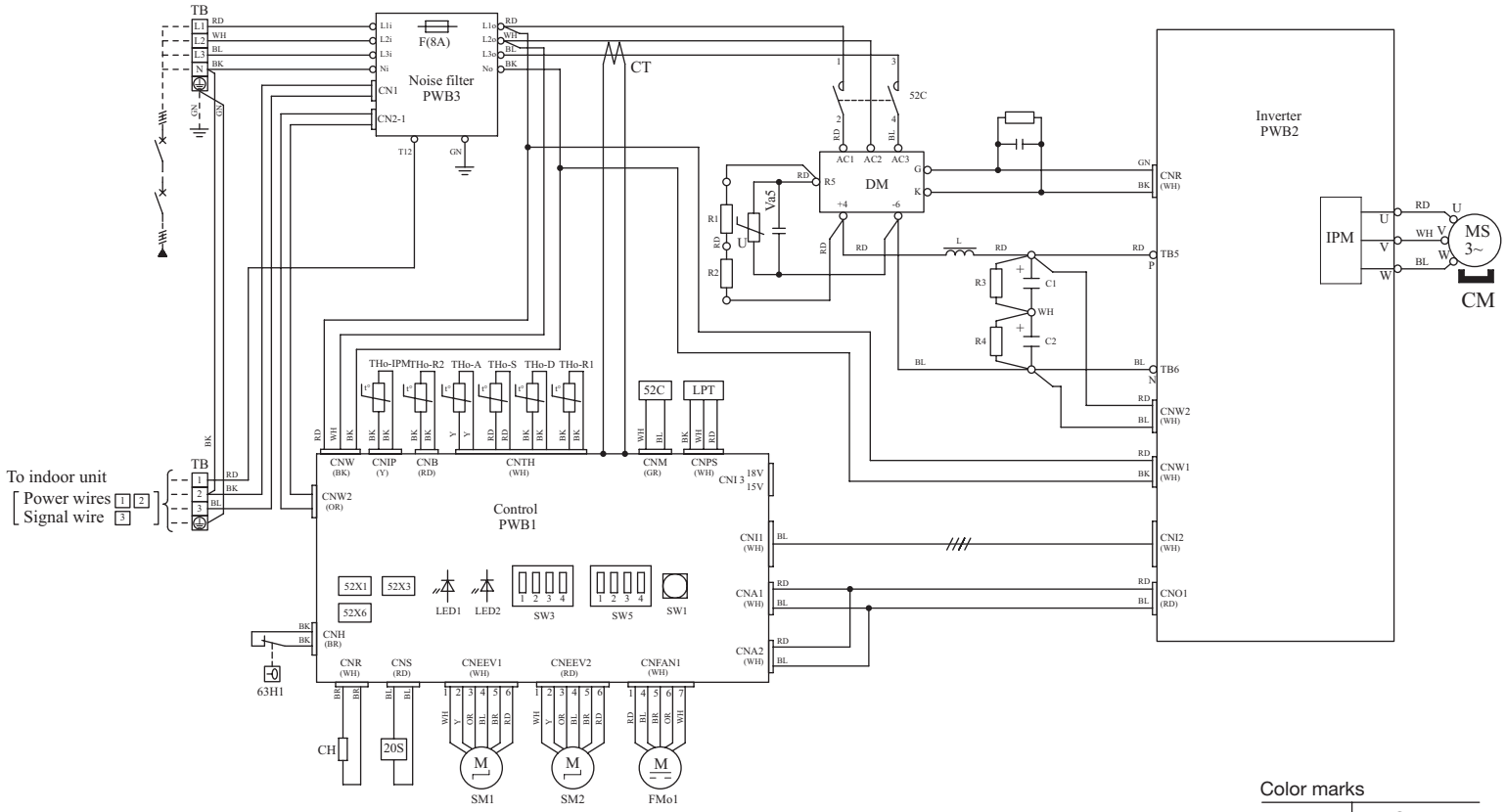
Marks	Parts name	Mark	Parts mame	Mark	Parts mame
CnA~Z	Connector	LED1	Indication lamp (GREEN)	THo-D	Thermistor (Discharge pipe temp.)
CH	Crankcase heater	LED2	Indication lamp (RED)	THo-IPM	Thermistor (IPM)
CM	Compressor motor	LPT	Low pressure sensor	THo-R1, 2	Thermistor (Heat exchanger pipe temp.)
CT	Current sensor	SM1	Expansion valve for cooling	THo-S	Thermistor (Suction pipe temp.)
DM	Diode module	SM2	Expansion valve for heating	20S	Solenoid valve for 4 way valve
F	Fuse	SW1	Pump down switch	52X1	Auxilliary relay (for CH)
FM01	Fan motor	SW3, 5	Local setting switch	52X3	Auxilliary relay (for 20S)
IPM	Intelligent power module	TB	Terminal block	63H1	High pressure switch
L	Reactor	THo-A	Thermistor (Ambient air temp.)		

Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GN	Green
GR	Gray
P	Pink
OR	Orange
RD	Red
WH	White
Y	Yellow
Y/GN	Yellow/Green

Power source

3N~380-415V 50Hz



Meaning of marks

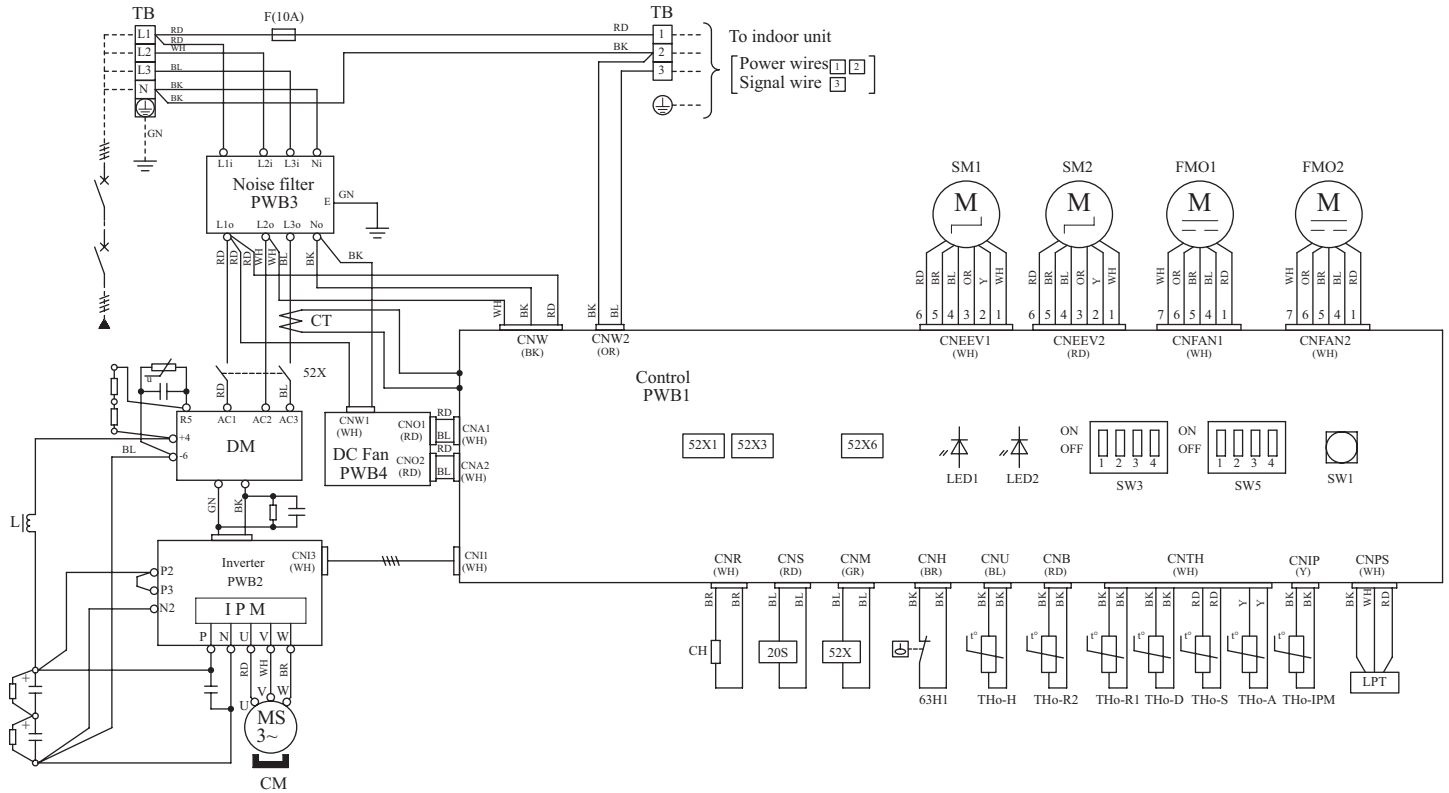
Mark	Parts name	Mark	Parts name	Mark	Parts name
CnA~Z	Connector	LED1	Indication lamp (GREEN)	THo-D	Thermistor (Discharger pipe temp.)
CH	Crankcase heater	LED2	Indication lamp (RED)	THo-IPM	Thermistor (IPM)
CM	Compressor motor	LPT	Low pressure sensor	THo-R1, 2	Thermistor (Heat exchanger pipe temp.)
CT	Current sensor	SM1	Expansion valve for cooling	THo-S	Thermistor (Suction pipe temp.)
DM	Diode module	SM2	Expansion valve for heating	20S	Solenoid valve for 4 way valve
F	Fuse	SW1	Pump down switch	52X1	Auxilliary relay (for CH)
FM01	Fan motor	SW3, 5	Local setting switch	52X3	Auxilliary relay (for 20S)
IPM	Intelligent power module	TB	Terminal block	52X6	Auxilliary relay (for 52C)
L	Reactor	THo-A	Thermistor (Ambient air temp.)	63H1	High pressure switch

Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GR	Gray
P	Pink
OR	Orange
RD	Red
WH	White
Y	Yellow
Y/GN	Yellow/Green

Power source

3N~380-415V 50Hz



Meaning of marks

Mark	Parts name	Mark	Parts name	Mark	Parts name
CnA~Z	Connector	LED2	Indication lamp (RED)	THo-IPM	Thermistor (IPM)
CH	Crankcase heater	LPT	Low pressure sensor	THo-R1, 2	Thermistor (Heat exchanger pipe temp.)
CM	Compressor motor	SM1	Expansion valve for cooling	THo-S	Thermistor (Suction pipe temp.)
CT	Current sensor	SM2	Expansion valve for heating	20S	Solenoid valve for 4 way valve
DM	Diode module	SW1	Pump down switch	52X1	Auxilliary relay (for CH)
F	Fuse	SW3,5	Local setting switch	52X3	Auxilliary relay (for 20S)
FM01, 02	Fan motor	TB	Terminal block	52X6	Auxilliary relay (for 52X)
IPM	Intelligent power module	THo-A	Thermistor (Ambient air temp.)	63H1	High pressure switch
L	Reactor	THo-D	Thermistor (Discharge pipe temp.)		
LED1	Indication lamp (GREEN)	THo-H	Thermistor (Comp. undeneth temp.)		

Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GR	Gray
P	Pink
OR	Orange
RD	Red
WH	White
Y	Yellow
Y/GN	Yellow/Green

1.4 OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

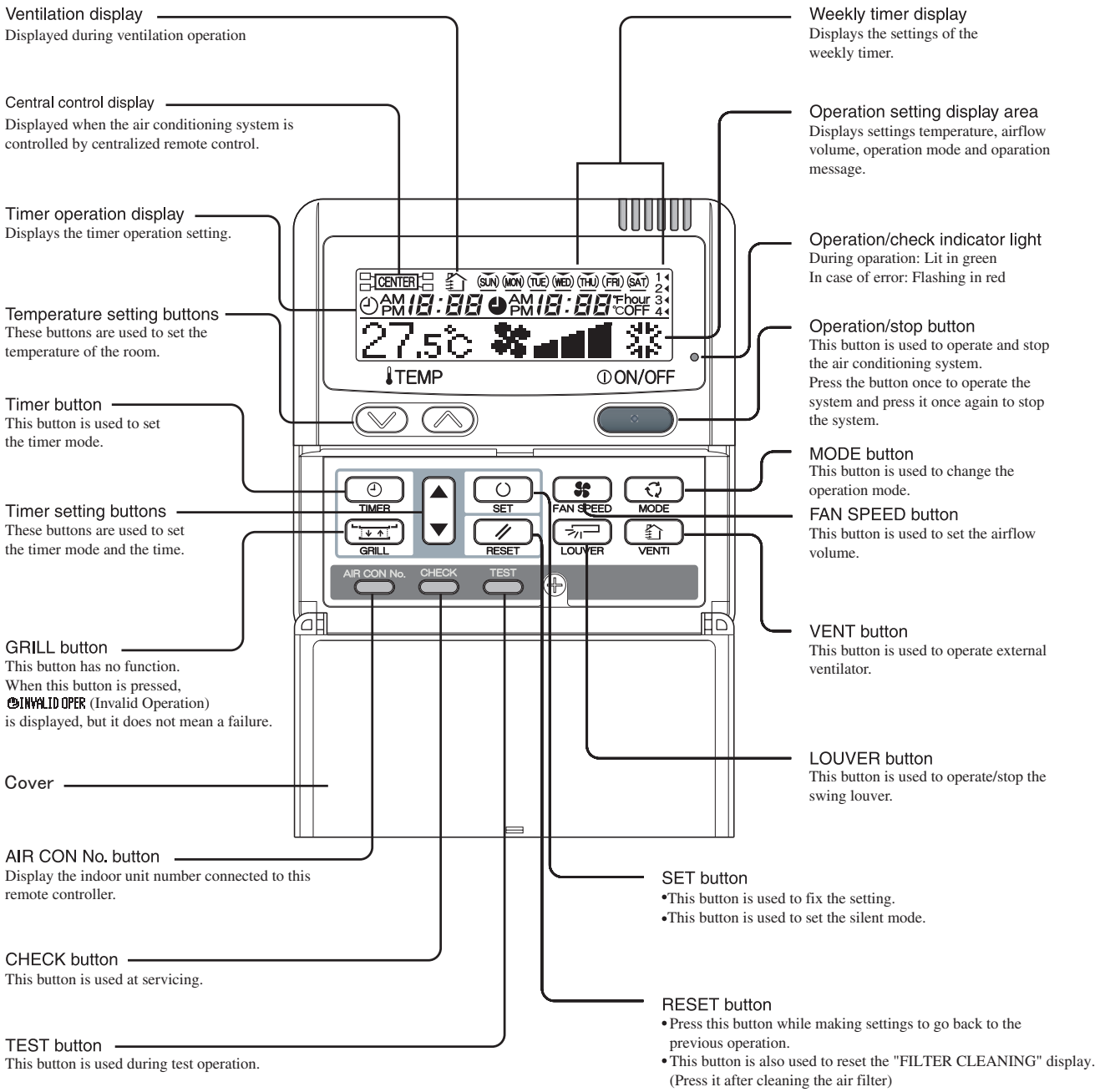
(1) Remote controller

(a) Wired remote controller

The figure below shows the remote controller with the cover opened. Note that all the items that may be displayed in the liquid crystal display area are shown in the figure for the sake of explanation.

Characters displayed with dots in the liquid crystal display area are abbreviated.

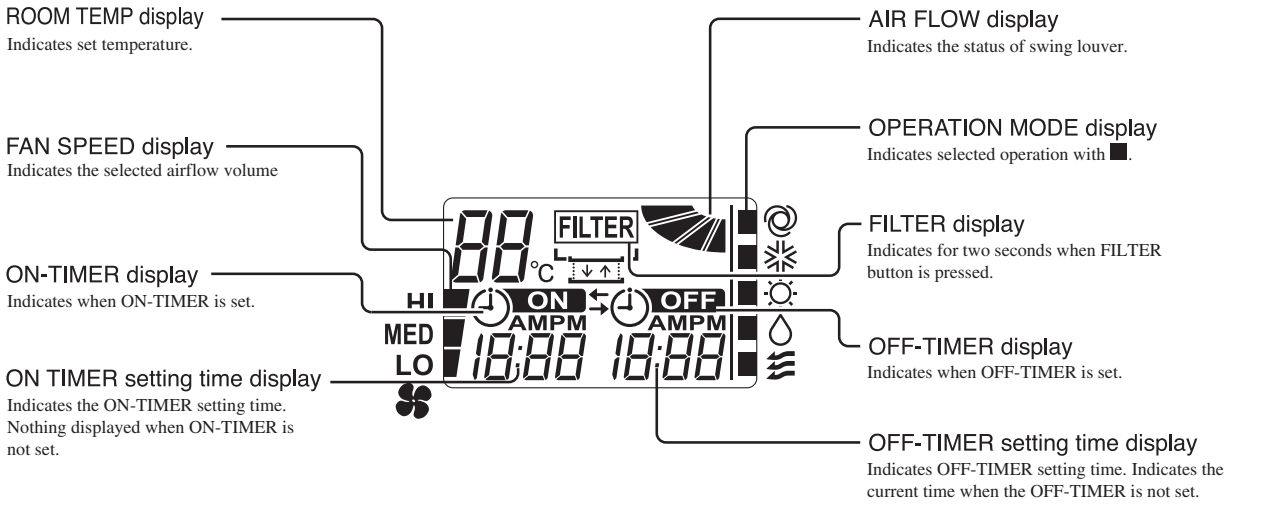
The figure below shows the remote control with the cover opened.



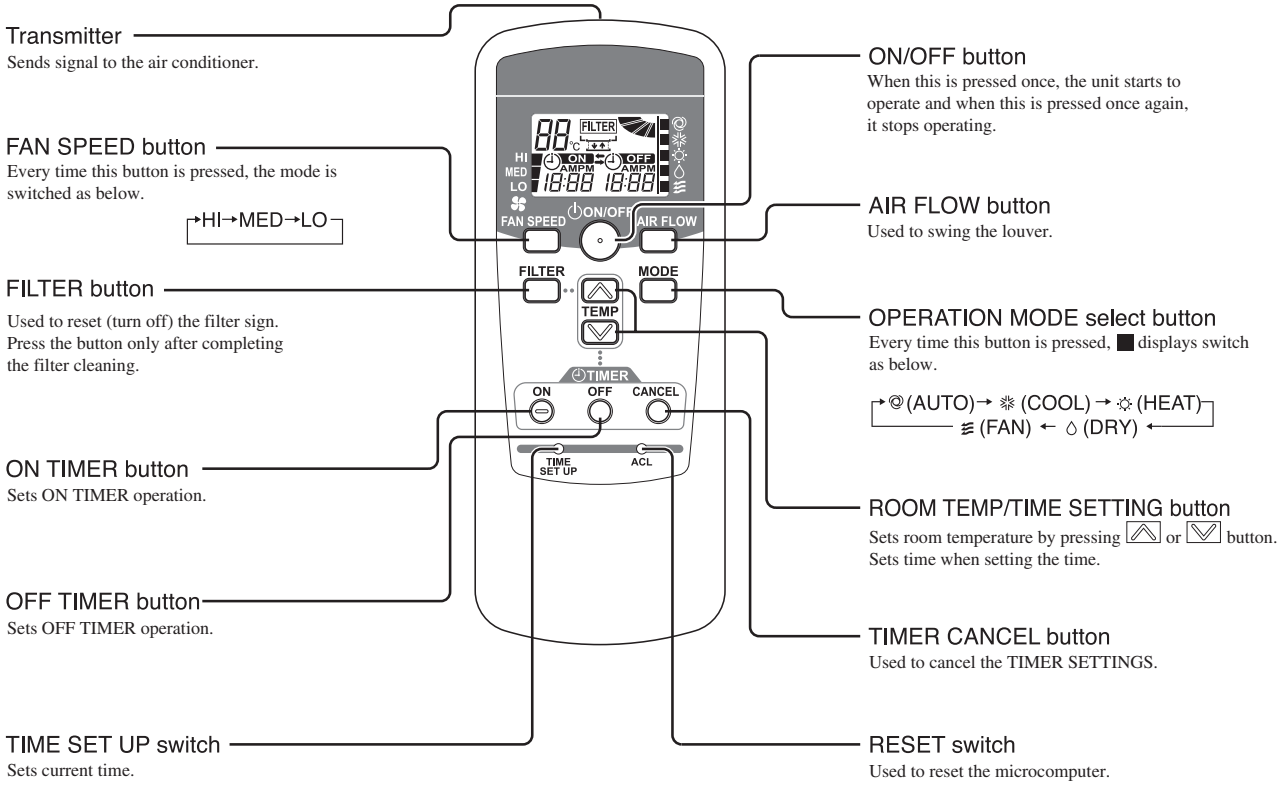
* All displays are described in the liguid crystal display for explanation.

(b) Wireless remote controller

Indication section



Operation section

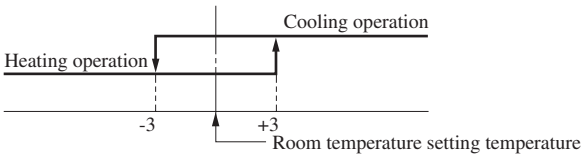


* All displays are described in the liquid crystal display for explanation

(2) Operation control function by the indoor controller

(a) Auto operation [Applicable model: All models of the cooling and heating type]

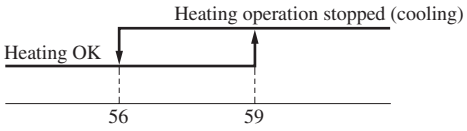
If "Auto" mode is selected by the remote controller, the heating and the cooling are automatically switched according to the difference between outdoor air temperature and setting temperature and the difference between setting temperature and return air temperature. (When the switching of cooling mode ↔ heating mode takes place within 3 minutes, the compressor does not operate for 3 minutes by the control of 3-minute timer.) This will facilitate the cooling/heating switching operation in intermediate seasons and the adaptation to unmanned operation at stores, etc (ATM corner of bank).



Room temperature (detected with Thı-A) [deg]

Note (1) Room temperature control during auto cooling/auto heating is performed according to the room temperature setting temperature. (DIFF: ±1 deg)

(2) If the indoor unit heat exchanger temperature rises to 59°C or higher during heating operation, it is switched automatically to cooling operation. In addition, for 1 hour after this switching, the heating operation is not performed, regardless of the temperature shown at right.



Indoor unit heat exchanger temp. (°C)

(b) Operations of functional items during cooling/heating [Applicable model: All models]

Operation / Functional item	Cooling		Fan	Heating			Dehumidify
	Thermostat ON	Thermostat OFF		Thermostat ON	Thermostat OFF	Hot start (Defrost)	
Compressor	○	×	×	○	×	○	○/×
4-way valve	×	×	×	○	○	○(×)	×
Outdoor unit fan	○	×	×	○	×	○(×)	○/×
Indoor unit fan	○	○	○	○/×	○/×	○/×	○/×
Louver motor	○/×			○/×	○/×	○/×	○/×
Drain pump (3)	○	×(2)	×(2)	○/×(2)			Thermostat ON: ○ Thermostat OFF: ×(2)

Note (1) ○: Operation ×: Stop ○/×: Turned ON/OFF by the control other than the room temperature control.

(2) ON during the drain motor delay control.

(3) Drain pump ON setting may be selected with the indoor unit function setting of the wired remote controller. Refer to page 233 for details.

(c) Dehumidifying operation

1) When the humidity sensor is not provided (Models other than FDT Series)

Return air temperature thermistor [Thı-A (by the remote controller when the remote controller thermistor is enabled)] controls the indoor temperature environment simultaneously.

a) Operation is started in the cooling mode. When the difference between the return air temperature and the setting temperature is 2°C or less, the indoor unit fan tap is brought down by one tap. That tap is retained for 3 minutes after changing the indoor unit fan tap.

b) If the return air temperature exceeds the setting temperature by 3°C during defrosting operation, the indoor unit fan tap is raised. That tap is retained for 3 minutes after changing the indoor unit fan tap.

c) If the thermostat OFF is established during the above control, the indoor unit fan tap at the thermostat ON is retained so far as the thermostat is turned OFF.

d) After stopping the cooling operation, the indoor unit continues to run at Lo for 15 seconds.

2) When the humidity thermistor is provided (FDT Series only) [Optional]

a) Operation starts in the cooling mode, and the target relative temperature is determined based on the setting temperature. If the humidity detected by the humidity thermistor becomes lower than the target relative temperature, the indoor unit fan tap is retained.

b) Anything other than a) above is same as the item 1) above.

(d) Timer operation [Applicable model: All models]

1) Timer

Set the duration of time from the present to the time to turn off the air-conditioner.

It can be selected from 10 steps in the range from "OFF 1 hour later" to "OFF 10 hours later". After the clock timer setting, the remaining time is displayed with progress of time in the unit of hour.

2) OFF timer

Time to turn OFF the air-conditioner can be set in the unit of 10 minutes.

3) ON timer

Time to turn ON the air-conditioner can be set. Indoor temperature can be set simultaneously.

4) Weekly timer

Timer operation (ON timer, OFF timer) can be set up to 4 times a day for each weekday.

5) Timer operations which can be set in combination

Item \ Item	Timer	OFF timer	ON timer	Weekly timer
Timer		×	○	×
OFF timer	×		○	×
ON timer	○	○		×
Weekly timer	×	×	×	

Note (1) ○: Allowed ×: Not

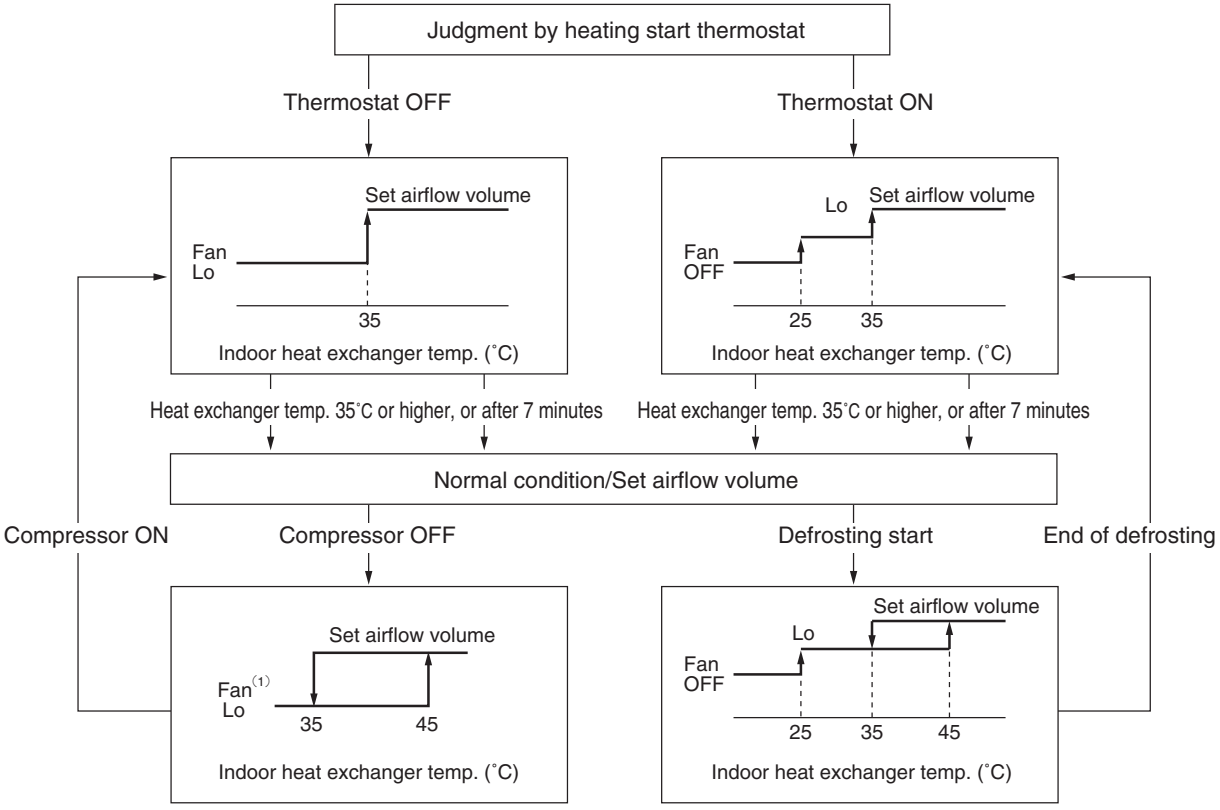
(e) Remote controller display during the operation stop

1) "Centralized control ON" is displayed always on the LCD under the "Center/Remote" and "Center" modes during the operation stop (Power ON). This is not displayed under the "Remote" mode.

2) If this display is not shown under the "Center/Remote" mode, check if the indoor unit power switch is turned on or not.

(f) Hot start (Cold draft prevention at heating) [Applicable model: All models of the heating and cooling type]

At the startup of heating operation, at resetting of the thermostat, during defrost operation and at returning to heating, the indoor fan is controlled by the indoor heat exchanger temperature (detected with Thı-R) for preventing the cold draft.



Note (1) Heating preparation is displayed during the hot start (when the compressor is operating and the indoor fan does not provide the set airflow volume).

(g) Hot keep [Applicable model: All models of the heating and cooling type]

Hot keep control is performed at the start of the defrost control.

1) Control
   a) When the indoor heat exchanger temperature (detected with Thı-R1 or R2) drops to 35°C or lower, the speed of indoor fan is changed to the lower tap at each setting.
   b) During the hot keep, the louver horizontal control signal is transmitted.
2) Ending condition
   When the indoor fan is at the lower tap at each setting, it returns to the set airflow volume as the indoor heat exchanger temperature rises to 45°C or higher.

(h) Fan control during the heating thermostat OFF [Applicable model: All models of the heating and cooling type]

When the heating thermostat is turned OFF, the setting of the fan control is selectable using the indoor function of wired remote controller [☼ FAN CONTROL].

1) Soft wind (Factory default)
   If the indoor heat exchanger temperature drops below 35°C with the heating thermostat OFF, the indoor fan operate at the lower speed tap at each setting.
2) Set airflow volume
   Even if the indoor heat exchanger temperature drops below 35°C with the heating thermostat OFF, the indoor fan continues to run at the set airflow volume.
3) Intermittent
   If the indoor heat exchanger temperature drops below 35°C with the heating thermostat OFF, the indoor fan operates at the lower speed tap at each setting and, when the indoor heater exchanger temperature drops below 25°C, the indoor fan stops for 5 minutes. Then the fan runs at the low speed tap for 2 minutes, and the judgment is made by the thermostat.
4) Stop
   If the indoor heat exchanger temperature drops below 35°C with the heating thermostat OFF, the indoor fan is turned OFF. The same applies also when the remote controller sensor is effective.

(i) Filter sign [Applicable model: All models]

As the operation time (Total ON time of ON/OFF switch) accumulates to 180 hours (1), "Filter cleaning" is displayed on the remote controller. (This is displayed when the unit is in trouble and under the centralized control, regardless of ON/OFF)

Note (1) Time setting for the filter sign can be made as shown below using the indoor function of wired remote controller "FILTER SIGN SET". (It is set at 1 at the shipping from factory.)

Filter sign setting	Function
Setting 1	Setting time: 180 hrs (Factory default)
Setting 2	Setting time: 600 hrs
Setting 3	Setting time: 1,000 hrs
Setting 4	Setting time: 1,000 hrs (Unit stop) (2)

(2) After the setting time has elapsed, the "FILTER CLEANING" is displayed and, after operating for 24 hours further (counted also during the stop), the unit stops.

(j) Auto swing control [Applicable model: FDTC, FDT and FDEN]

1) Louver control
   a) Press the "LOUVER" button to operate the swing louver when the air conditioner is operating.
      "AUTO ⇄" is displayed for 3 seconds and then the swing louver moves up and down continuously.
   b) To fix the swing louver at a position, press one time the "LOUVER" button while the swing louver is moving so that four stop positions are displayed one after another per second.
      When a desired stop position is displayed, press the "LOUVER" button again. The display stops, changes to show the "STOP 1 ⇄" for 5 seconds and then the swing louver stops.
   c) Louver operation at the power on with a unit having the louver 4-position control function
      The louver swings one time automatically (without operating the remote controller) at the power on.
      This allows inputting the louver motor (LM) position, which is necessary for the microcomputer to recognize the louver position.

      Note (1) If you press the "LOUVER" button, the swing motion is displayed on the louver position LCD for 10 second. The display changes to the "AUTO ⇄" display 3 seconds later.

2) Automatic louver level setting during heating

At the hot start with the heating thermostat OFF, regardless whether the auto swing switch is operated or not (auto swing or louver stop), the louver takes the level position (In order to prevent the cold start). The louver position display LCD continues to show the display which has been shown before entering this control.

3) Louver-free stop control

When the louver-free stop has been selected with the indoor function of wired remote controller "⇄ POSITION", the louver motor stops when it receives the stop signal from the remote controller. If the auto swing signal is received from the remote controller, the auto swing will start from the position where it was before the stop.

Note (1) When the indoor function of wired remote controller "Louver control setting" has been switched, switch also the remote control function "⇄ POSITION" in the same way.

(k) Compressor inching prevention control [Applicable model: All models]

1) 3-minute timer

When the compressor has been stopped by the thermostat, remote controller operation switch or anomalous condition, its restart will be inhibited for 3 minutes. However, the 3-minute timer is invalidated at the power on the electric power source for the unit.

2) 3-minute forced operation timer

- Compressor will not stop for 3 minutes after the compressor ON. However, it stops immediately when the unit is stopped by means of the ON/OFF switch or by when the thermister turned OFF the change of operation mode.
- If the thermostat is turned OFF during the forced operation control of heating compressor, the louver position (with the auto swing) is returned to the level position.

Note (1) The compressor stops when it has entered the protective control.

(l) Drain motor (DM) control [Applicable model: FDTC and FDT]

1) Drain motor (DM) is operated during the cooling or dehumidifying mode operations and simultaneously with the compressor ON. The DM continues to operate for 5 minutes after the operation stop, anomalous stop, thermostat stop or when it was switched from the cooling and dehumidifying operations to the fan or heating operation.

	Indoor unit operation mode				
	Stop (1)	Cooling	Dehumidifying	Fan (2)	Heating
Compressor ON		Control A			
Compressor OFF	Control B				

Note (1) Including the stop from the heating, dehumidifying and heating, and the anomalous stop
(2) Including the "Fan" operation according to the mismatch of operation modes

a) Control A

i) If the float switch detects any anomalous draining condition, the unit stops with the anomalous stop (displays E9) and the drain pump starts. After detecting the anomalous condition, the drain motor continues to be ON.

ii) It keeps operating while the float switch is detecting the anomalous condition.

b) Control B

If the float switch detects any anomalous drain condition, the drain motor is turned ON for 5 minutes, and at 10 seconds after the drain motor OFF it checks the float switch. If it is normal, the unit is stopped under the normal mode or, if there is any anomalous condition, E9 is displayed and the drain motor is turned ON. (The ON condition is maintained during the drain detection.)

2) Drain motor (DM) interlock control

a) Start conditions

Depending on the function setting by the remote controller, the drain motor is turned ON under either one of the following conditions.

i) During heating mode operation (Both the thermostat ON/OFF)

ii) During heating mode operation (Both the thermostat ON/OFF) + Fan operation

iii) Fan operation

b) End conditions

The drain motor is turned OFF 5 minutes after the stop of operations i) to iii) above.

(m) Operation check/drain pump test run operation mode

1) If the power is turned on by the dip switch (SW7-1) on the indoor PCB when electric power source is supplied, it enters the mode of operation check/drain pump test run. It is ineffective (prohibited) to change the switch after turning power on.

2) When the communication with the remote controller has been established within 60 seconds after turning power on by the dip switch (SW7-1) ON, it enters the operation check mode. Unless the remote controller communication is established, it enters the drain pump test run mode.

Note (1) To select the drain pump test run mode, disconnect the remote controller connector (CNB) on the indoor PCB to shut down the remote controller communication.

3) Operation check mode

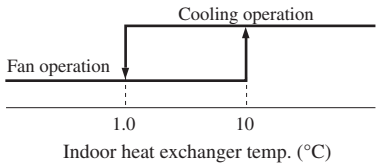
There is no communication with the outdoor unit but it allows performing operation in respective modes by operating the remote controller.

4) Drain pump test run mode

As the drain pump test run is established, the drain pump only operates and during the operation protective functions by the microcomputer of indoor unit become ineffective.

(n) Cooling, dehumidifying frost protection

1) To prevent frosting during cooling mode or dehumidifying mode operation, the of compressor speed is reduced if the indoor unit heat exchanger temperature (detected with Thı-R) drops to C °C or lower at A minutes after the start of compressor operation. If the indoor unit heat exchanger temperature is C °C or lower after B minutes, the compressor speed is reduced further. If it becomes D °C or higher, the control terminates. When the indoor unit heat exchanger temperature has become as show below after reducing the compressor speed, it is switched to the fan operation. For the selection of indoor fan speed, refer to item 2).



Model \ Symbol	A	B	C	D
SRC40~60	4	1	1.0	2.5
FDC71~250	4	1	1.0	2.5

2) Selection of indoor fan speed

If it enters the frost prevention control during cooling operation (excluding dehumidifying), the indoor unit fan speed is switched.

(a) In cases of FDTC, FDUM, FDU and FDEN

i) When the indoor unit return air temperature (detected with Thı-A) is 23°C or lower, this control is invalidated and, as 2 hours elapse after starting the frost prevention control, it is terminated.

ii) If it is detected again within 15 minutes from the start of frost prevention control, the indoor fan speed is raised by 1 tap to increase the indoor unit fan speed. If it is detected within further 15 minutes, the indoor unit fan speed is raised by 1 tap more.

Note (1) Indoor unit fan speed can be increased by up to 2 taps.

iii) "FAN CONTROL ON"/"FAN CONTROL OFF" of this control is selectable with the function setting of remote controller.

b) In the case of FDT

i) When the indoor unit return air detection temperature (detected with Thı-A) is 23°C or higher and the indoor unit heat exchanger temperature (detected with Thı-R) detects the compressor frequency drop start temperature A°C+1°C, of indoor unit fan speed is increased by 20rpm.

ii) If the phenomenon of i) above is detected again after the acceleration of indoor unit fan, indoor unit fan speed is increased further by 20rpm.

Note (1) Indoor unit fan speed can be increased by up to 2 taps.

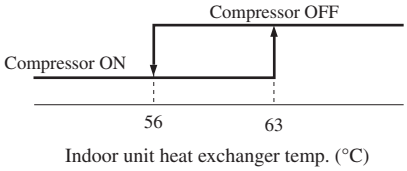
• Compressor frequency drop start temperature

Item \ Symbol	A
Temperature - Low (Factory default)	1.0
Temperature - High	2.5

Note (1) Frost prevention temperature setting can be selected with the indoor unit function setting of the wired remote controller. For details, refer to page 233.

(o) Heating overload protection [Applicable model: All models of the cooling and heating type]

1) If the indoor unit heat exchanger temperature (detected with Thı-R) at 63°C or higher is detected for 2 seconds continuously, the compressor stops. When the compressor is restarted after a 3-minute delay, if a temperature at 63°C or higher is detected for 2 seconds continuously within 60 minutes after initial detection and if this is detected 5 times consecutively, the compressor stops with the anomalous stop (E8). Anomalous stop occurs also when the indoor unit heat exchanger temperature at 63°C or higher is detected for 6 minutes continuously.



2) Indoor unit fan speed selection

If, after second detection of heating overload protection up to fourth, the indoor fan is set at Me and Lo taps when the compressor is turned ON, the indoor fan speed is increased by 1 tap.

(p) Anomalous fan motor [In case of FDT only]

After starting the fan motor, if the fan motor speed is 200rpm or less is detected for 30 seconds continuously and 4 times within 60 minutes, then fan motor stops with the anomalous stop (E16).

(q) Plural unit control – Control of 16 units group by one remote controller [Applicable model: All models]

1) Function

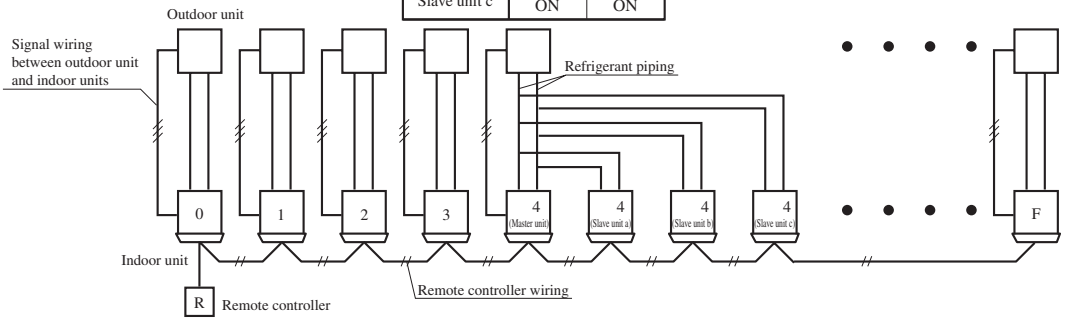
One remote controller switch can control a group of multiple number of unit (Max. 16 indoor units). “Operation mode” which is set by the remote controller switch can operate or stop all units in the group one after another in the order of unit No.(1). Thermostat and protective function of each unit function independently.

Note (1) Unit No. is set by SW2 on the indoor unit control PCB. Unit No. setting by SW2 is necessary for the indoor unit only. In cases of the twin, triple and double-twin specification, it is necessary set for the master and the slave units. This can be selected by SW5. (All are set for the master unit at the shipping from factory.)

SW2: For setting of 0 – 9, A – F
SW5: For setting of master and slave units
(See table shown at right.)

SW5 setting

Unit \ Switch	SW5-1	SW5-2
Master unit	OFF	OFF
Slave unit a	OFF	ON
Slave unit b	ON	OFF
Slave unit c	ON	ON



(2) Unit No. may be set at random unless duplicated, it should be better to set orderly like 0, 1, 2…, F to avoid mistake.

2) Display to the remote controller

a) Center or each remote controller basis, heating preparation: the youngest unit No. among the operating units in the remote mode (or the center mode unless the remote mode is available) is displayed.

b) Inspection display, filter sign: Any of unit that starts initially is displayed.

c) Confirmation of connected units
Pressing “AIR CON No.” button on the remote controller displays the indoor unit address. If “▲” “▼” button is pressed at the next, it is displayed orderly starting from the unit of youngest No.

d) In case of anomaly

i) If any anomaly occurs on a unit in a group (a protective function operates), that unit stops with the anomalous stop but any other normal units continue to run as they are.

ii) Signal wiring procedure
Signal wiring between indoor and outdoor units should be made on each unit same as the normal wiring. For the group control, lay connect with sires wiring between rooms using terminal blocks (X, Y) of remote controller.
Connect the remote controller communication wire separately from the power supply wire or wires of other electric devices (AC220V or higher).

(r) High ceiling control [Applicable model: All models]

In the case of indoor unit installed in a higher ceiling room, the airflow volume mode control can be changed with the wired remote controller indoor unit function “FAN SPEED SET”.

Fan tap		Indoor unit airflow setting	
Fan speed set	Standard	Hi - Me - Lo	Hi - Lo
	High speed 1, 2	UHi - Hi - Me	UHi - Me

Note (1) Factory default is Standard.

(2) At the hot-start and heating thermostat OFF, or other, the indoor unit fan is operated at the low speed tap of each setting.

(s) Abnormal temperature thermistor (return air/indoor unit heat exchanger) wire/short-circuit detection [Applicable model: All models]

1) Broken wire detection

When the return air temperature thermistor detects -20°C or lower or the heat exchanger temperature thermistor detect -40°C or lower for 5 seconds continuously, the compressor stops. After a 3-minute delay, the compressor restarts but, if it is detected again within 60 minutes after the initial detection for 6 minutes continuously, stops again (the return air temperature thermistor: E7, the heat exchanger temperature thermistor: E6).

2) Short-circuit detection

If the heat exchanger temperature thermistor detects 70°C or higher for 5 seconds continuously at 2 minutes and 20 seconds after the compressor ON during cooling operation, the compressor stops (E6).

(t) Operation permission/prohibition/coin timer control [Applicable model: All models]

Permission or prohibition of the air-conditioner operation is controlled by selecting Effective setting with the wired remote controller indoor unit function "Operation permission/prohibition" and the external input ON to CnT. Connect the remote start/stop monitor kit and enter an external input to CnT.

(Use this when controlling the air-conditioner operation permission/prohibition with signals of coin timer, etc. available from markets.)

1) Operation permission/prohibition mode is selected by selecting Effective with the wired remote controller indoor unit function "OPERATION PERMISSION/PROHIBITION".

Normal operation (Factory default)	Effective (Operation permission/prohibition mode)
Turn CnT input ON to operate and turn CnT input OFF to stop. Inputs to CnT and the remote controller control, the start or stop on the last push first basis.	Turn CnT input ON to permit operation. Switch it OFF to prohibit the operation.

2) In the case of CnT input ON (Operation permission)

a) Air-conditioner is controlled for operation/stop, etc. in accordance with signals from the remote controller's signal wire.

(At "Center" mode setting, it is operable from the center only.)

b) Depending on how the wired remote controller indoor unit function "OPERATION PERMISSION/PROHIBITION" is set, the operation or stop of air conditioner can be selected when it is changed from CnT input OFF → ON.

In case of normal operation	In case of Effective
Air-conditioner starts from the stopped condition upon receipt of signal at the item 1) above. (Factory default)	Air-conditioner starts as CnT input is turned ON. Signals of item 1) controls subsequent operation. (Setting at site)

3) In case of CnT input OFF (Operation prohibition)

a) Air-conditioner is unable to control the operation/stop, etc. in accordance with signals from the remote controller signal wire.

b) Air-conditioner stops as it changes CnT input ON → OFF.

4) During the multiple units control, only the master accepts this control.

Slave unit does not accept. Slave unit is interlocked with the input to the master.

(u) External control (Remote display)/Remote operation [Applicable model: All models]

Always connect the standard remote controller. Otherwise, you cannot perform the remote operation.

1) Output for external control (remote display) (Optional remote RUN/STOP monitor kit can be utilized.)

Following output connectors (CNT) are provided on the indoor control PCB. Connect the remote RUN/STOP monitor kit and pick up from respective no-voltage contactors.

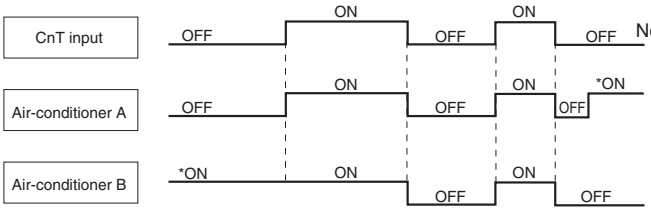
- **Operation output**: Outputs DC12V relay drive signal during operation.
- **Heating output**: Outputs DC12V relay drive signal during heating operation.
- **Compressor ON output**: Outputs DC12V relay drive signal when the compressor is operating.
- **Error output**: When any anomalous condition occurs, it outputs DC12V relay drive signal.

2) Remote operation input

Remote operation inputs (switch input, timer input) connectors (CnT) are provided on the indoor control PCB.
However, the remote operation by the CnT is not effective when "Center mode" is selected with the air-conditioner.

a) Factory default (At the shipping from factory) [Indoor function of wired remote controller "External input selector" is set at the level input.]

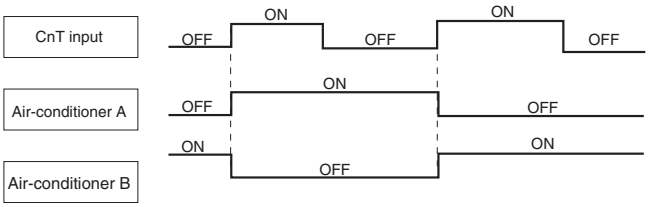
- Startup at the input signal to CnT OFF → ON [Edge input] … Air-conditioner ON
- Stop at the input signal to CnT ON → OFF [Edge input] … Air-conditioner OFF



Note (1) ON marked with * means ON by a remote controller switch or other.

b) When the setting is changed to the pulse input at site using the indoor unit function of wired remote controller "External input selector"

It becomes effective only when the input signal to CnT is changed OFF→ON and the air-conditioner operation [ON/OFF] is inverted.



(v) Fan control at heating startup (Applicable model: FDT)

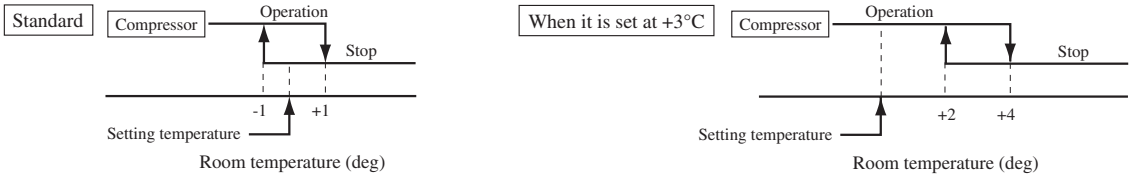
1) Start conditions
At the start of heating operation, if the difference of setting temperature and return air temperature is 5°C or higher after the end of hot start control, this control is performed.

2) Contents of control
a) Sampling is made at each minute and, when the indoor unit heat exchanger temperature (detected with Thı-R) is 37°C or higher, present number of revolutions of indoor unit fan speed is increased by $10min^{-1}$.
b) If the indoor unit heat exchanger temperature drops below 35°C at next sampling, present number of revolutions of indoor unit fan speed is reduced by $10min^{-1}$.

3) End conditions
Indoor fan speed is reduced to the setting airflow volume when the compressor OFF is established and at 30 minutes after the start of heating operation.

(w) Room temperature detection temperature compensation during heating [Applicable model: All models of the heating and cooling type]

With the standard specification, the compressor is turned ON/OFF with the thermostat setting temperature. When the thermostat is likely to turn OFF earlier because the unit is installed at the ceiling where warm air tends to accumulate, the setting can be changed with the wired remote controller indoor unit function "Heating room temperature compensation". The compressor and the heater are turned ON/OFF at one of the setting temperature +3, +2 or +1°C in order to improve the feeling of heating. The setting temperature, however, has the upper limit of 30°C.



(x) Return air temperature compensation

This is the function to compensate the deviation between the detection temperature by the return air temperature thermistor and the measured temperature after installing the unit.

1) It is adjustable in the unit of 0.5°C with the wired remote controller indoor unit function "RETURN AIR TEMP".
• +1.0°C, +1.5°C, +2.0°C • -1.0°C, -1.5°C, -2.0°C

2) Compensated temperature is transmitted to the remote controller and the compressor to control them.

Note (1) The detection temperature compensation is effective on the indoor unit thermistor only.

(3) Operation control function by the wired remote controller

(a) Switching sequence of the operation mode switches of remote controller

(b) [CPU reset]

This functions when [Inspection] and [Grill Up/Down] buttons on the remote controller are pressed simultaneously. Operation is same as that of the power supply reset.

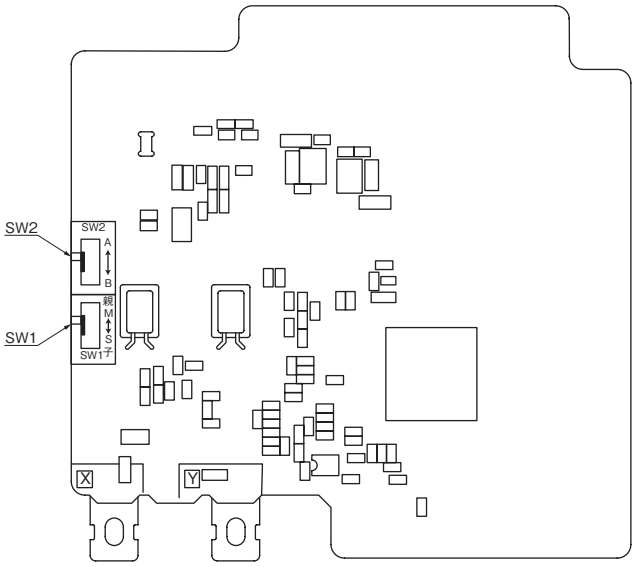
(c) [Power failure compensation function]...Electric power supply failure

- This becomes effective if "Power failure compensation effective" is selected with the setting of remote controller function.
- Since it memorizes always the condition of remote controller, it starts operation according to the contents of memory no sooner than normal state is recovered after the power failure. Although the auto swing stop position and the timer mode are cancelled, the weekly timer setting is restored with the holiday setting for all weekdays.
  After recovering from the power failure, it readjusts the clock and resets the holiday setting for each weekday so that the setting of weekly timer becomes effective.
- Content memorized with the power failure compensation are as follows.

  Note (1) Items⑥, ⑦ and ⑧ are memorized regardless whether the power failure compensation is effective or not while the setting of silent mode is cancelled regardless whether the power failure compensation is effective or not.

  ① At power failure – Operating/stopped
  If it had been operating under the clock off timer mode, time timer mode, the state of stop is memorized. (Although the timer mode is cancelled at the recovery from power failure, the setting of weekly timer is changed to the holiday setting for all weekdays.)
  ② Operation mode
  ③ Airflow volume mode
  ④ Room temperature setting
  ⑤ Louver auto swing/stop
  However, the stop position (4-position) is cancelled so that it returns to Position (1).
  ⑥ "Remote controller function items" which have been set with the remote controller function setting ("Indoor function items" are saved in the memory of indoor unit.)
  ⑦ Upper limit value and lower limit value which have been set with the temperature setting control
  ⑧ Clock timer and weekly timer settings (Other timer settings are not memorized.)

[Parts layout on remote controller PCB]



■ **Control selector switch (SW1)**

Switch		Function
SW1	M	Master remote controller
	S	Slave remote controller

Note (1) Don't change SW2 because it is not used normally.

(4) Operation control function by the outdoor controller

◆ SRC40~60 models

(a) Outline of heating operation

1) Operation of major functional components in heating mode

	Heating			
	Thermostat ON	Thermostat OFF	Defrost	Failure
Compressor	ON	OFF	OFF	OFF
Indoor fan motor	ON	ON(HOT KEEP)	OFF	OFF
Outdoor fan motor	ON	OFF (few minutes ON)	OFF	OFF
4-way valve	ON	ON	OFF	OFF (3 minutes ON)

2) Fuzzy operation

Deviation between the room temperature setting correction temperature and the return air temperature is calculated in accordance with the fuzzy rule, and used for control of the air capacity and the inverter speed.

3) Defrosting operation

a) Starting conditions (Defrosting operation can be started only when all of the following conditions are met.)

① After start of heating operation

When it elapsed 35 minutes. (Accumulated compressor operation time)

② After end of defrosting operation

When it elapsed 35 minutes. (Accumulated compressor operation time)

③ Outdoor unit heat exchanger sensor (Th4) temperature

When the temperature has been below –5ºC for 3 minutes continuously.

④ The difference between the outdoor unit air sensor temperature and the outdoor unit heat exchanger sensor temperature

- The ambient air temperature ≧ -2°C : 7°C or higher
- -15°C ≦ The ambient air temperature < -2°C : 4/15 × The ambient air temperature + 7°C or higher
- The ambient air temperature < -15°C : -5°C or higher

⑤ During continuous compressor operation

In addition, when the speed command from the indoor controller of the indoor unit during heating operation has counted 0 rps 10 times or more and all conditions of ①, ②, ③ and ⑤ above and the outdoor air temperature is 3°C or less are satisfied (note that when the temperature for Th4 is -5°C or less: 62 rps or more, -4°C or less: less than 62 rps), defrost operation is started.

b) Reset conditions (Operation returns to the heating cycle when either one of the following is met.)

① Outdoor heat exchanger sensor (Th4) temperature: 10ºC or higher

② When defrosting operation time elapsed 15min.

(b) Outline of cooling operation

1) Operation of major functional components in Cooling mode

	Cooling		
	Thermostat ON	Thermostat OFF	Failure
Compressor	ON	OFF	OFF
Indoor fan motor	ON	ON	OFF
Outdoor fan motor	ON	OFF (few minutes ON)	OFF (few minutes ON)
4-way valve	OFF	OFF	OFF

2) Fuzzy operation

During the fuzzy operation, the air flow and the inverter speed are controlled by calculating the difference between the room temperature setting correction temperature and the return air temperature.

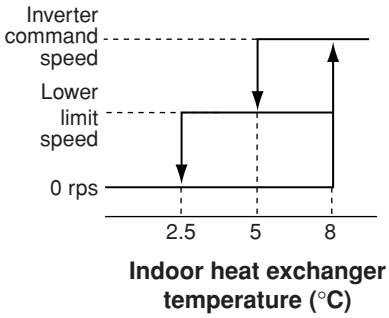
(c) Protective control function

1) Frost prevention control (During cooling or dehumidifying)

a) Operating conditions

i) Indoor heat exchanger temperature (Th2) is lower than 5ºC.

ii) 5 minutes after reaching the inverter command speed except 0 rps.



b) Detail of anti-frost operation

Item \ Indoor heat exchanger temperature	5°C or lower	2.5°C or lower
Lower limit speed	25 rps	0rps
Indoor fan	Depends on operation mode	Protects the fan tap just before frost prevention control
Outdoor fan	Depends on operation mode	Depends on stop mode
4-way valve	OFF	

Notes (1) When the indoor heat exchanger temperature is in the range of 2.5~5 ºC, the speed is reduced by 4 rps at each 20 seconds.
(2) When the temperature is lower than 2.5 ºC continues for 1 minute, the compressor is stopped.
(3) When the indoor heat exchanger temperature is in the range of 5~8 ºC, if the inverter command speed is been maintained and the operation has continued for more than 20 seconds at the same speed, it returns to the normal cooling operation.

c) Reset conditions: When either of the following condition is satisfied.

① When the signal to lower the hertz is received from the indoor unit.

② The inverter command speed is 0 rps.

2) Cooling overload protective control

a) Operating conditions: When the outdoor air temperature (Th5) is 41ºC or higher continues for 30 seconds while the inverter command speed of other than 0 rps.

b) Detail of operation

i) The outdoor fan is stepped up by 3 speed step. (Upper limit 8th speed.)

ii) The lower limit of inverter command speed is set to 30 rps and even if the calculated result becomes lower than that after fuzzy calculation, the speed is kept to 30 rps. However, when the thermo becomes OFF, the speed is reduced to 0 rps.

c) Reset conditions: When either of the following condition is satisfied.

① The outdoor air temperature is lower than 40ºC.

② The inverter command speed is 0 rps.

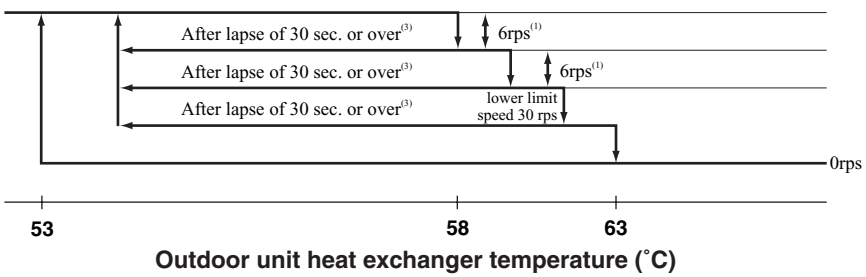
3) Cooling high pressure control

a) Purpose: Prevents anomalous high pressure operation during cooling.

b) Detector: Outdoor heat exchanger sensor (Th4)

c) Detail of operation:

(Example) Fuzzy



Notes (1) When the outdoor heat exchanger temperature is in the range of 58~63 ºC, the speed is reduced by 4 rps at each 30 seconds.
(2) When the temperature is 63 ºC or higher continues for 1 minute, the compressor is stopped.
(3) When the outdoor heat exchanger temperature is in the range of 53~58 ºC, if the inverter command speed is been maintained and the operation has continued for more than 30 seconds at the same speed, it returns to the normal cooling operation.
(4) When the outdoor heat exchanger temperature in less than 53˚C, it returns to the normal heating operation.

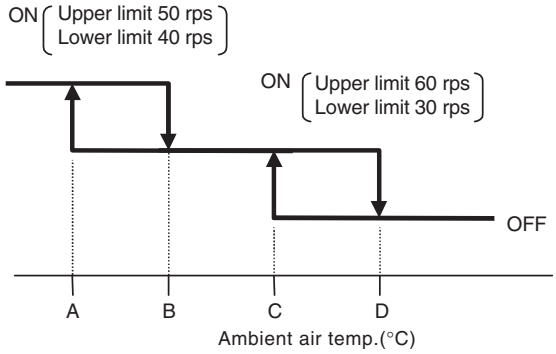
4) Cooling low outdoor temperature protective control

a) Operating conditions: When the ambient air temperature (Th5) is C ºC or lower continues for 20 seconds while the inverter command speed is other than 0 rps.

b) Detail of operation:

① The lower limit of the inverter command speed is set to 44 (30) rps and even if the speed becomes lower than 44 (30) rps, the speed is kept to 44 (30) rps. However, when the thermo becomes OFF, the speed is reduced to 0 rps.

② The upper limit of the inverter command speed is set to 50 (60) rps and even if the calculated result becomes higher than that after fuzzy calculation, the speed is kept to 50 (60) rps.



● Values of A, B, C, D

	Ambient air temp. (˚C)			
	A	**B**	**C**	**D**
First time	0	3	22	25
Since the seconds times	7	10	25	28

c) Reset conditions: When either of the following condition is satisfied

① The ambient air temperature (Th5) is D ˚C or higher.

② The inverter command speed is 0 rps.

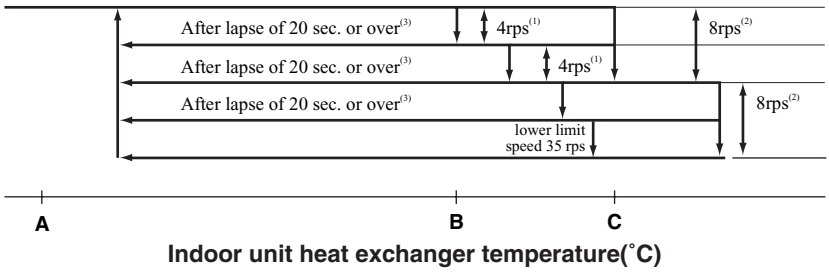
5) Heating high pressure control

a) Purpose: Prevents anomalous high pressure operation during heating.

b) Detector: Indoor heat exchanger sensor (Th2)

c) Detail of operation:

(Example) Fuzzy



Notes (1) When the indoor heat exchanger temperature is in the range of B~C ºC, the speed is reduced by 4 rps at each 20 seconds.
(2) When the indoor heat exchanger temperature is C ºC or higher, the speed is reduced by 8 rps at each 20 seconds.
(3) When the indoor heat exchanger temperature is in the range of A~B ºC, if the inverter command speed is been maintained and the operation has continued for more than 20 seconds at the same speed, it returns to the normal heating operation.
(4) When the indoor heat exchanger temperature is less than A ºC. it returns to the normal heating operation.

● **Temperature list**

Unit : ºC

	A	B	C
RPSmin < 88	48.5	56	58
88 ≦ RPSmin < 108	44	51.5	53.5
108 ≦ RPSmin	39	46.5	48.5

Note (1) RPSmin: The lower one between the outdoor speed and the inverter command speed

6) Heating overload protective control

a) Operating conditions: When the ambient air temperature (Th5) is 17˚C or higher continues for 30 seconds while the inverter command speed other than 0 rps.

b) Detail of operation:

① Taking the upper limit of inverter command speed range at 50 rps, if the output speed obtained with the fuzzy calculation exceeds the upper limit, the upper limit value is maintained.

② The lower limit of inverter command speed is set to 35 rps and even if the calculated result becomes lower than that after fuzzy calculation, the speed is kept to 35 rps. However, when the thermo becomes OFF, the speed is reduced to 0 prs.

③ The outdoor fan is set on 2nd speed.

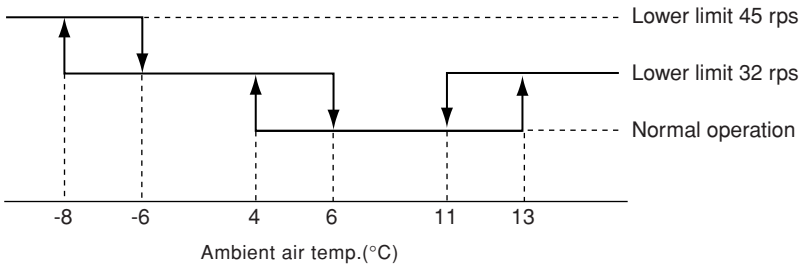
c) Reset conditions: The ambient air temperature (Th5) is lower than 16˚C.

7) Heating low outdoor temperature protective control

◆ **<I>**

a) Operating conditions: When the ambient air temperature (Th5) is lower than 4ºC or higher than 13ºC continues for 30 seconds while the inverter command speed is other than 0 rps.

b) Detail of operation: The lower limit of inverter command speed is change as shown in the fiqure below.



c) Reset conditions: When either of the following condition is satisfied.

① The ambient air temperature (Th5) becomes 6ºC or higher and 11ºC or lower.

② The inverter command speed is 0 rps.

◆ **<II>**

a) Operating conditions: When the outdoor heat exchanger (Th4) is –10ºC or lower continues for 10 minutes while the inverter command speed is other than 0 rps.

b) Detail of operation: When the inverter command speed upper limit is set at 120 rps.

c) Reset conditions: When either of the following condition is satisfied.

① The outdoor heat exchanger (Th4) is -7ºC or higher.

② The inverter command speed is 0 rps.

③ After 2 minutes have passed since this control started.

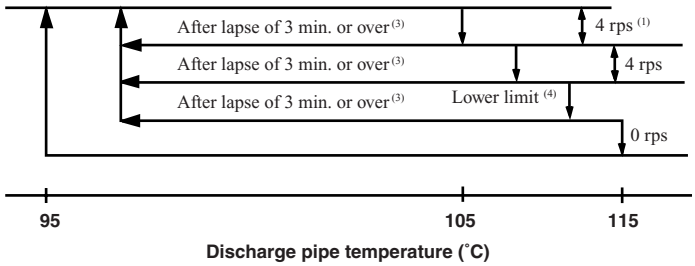
8) Compressor overheat protection

a) Purpose: It is designed to prevent deterioration of oil, burnout of motor coil and other trouble resulting from the compressor overheat.

b) Detail of operation

i) Speeds are controlled with temperature detected by the sensor mounted on the discharge pipe.

(Example) Fuzzy



Notes (1) When the discharge pipe temperature is in the range of 105~115ºC, the speed is reduced by 4 rps.
(2) When the discharge pipe temperature is raised and continues operation for 20 seconds without changing, then the speed is reduced again by 4 rps.
(3) If the discharge pipe temperature is in the range of 95~105ºC even when the inverter command speed is maintained for 3 minutes when the temperature is in the range of 95~105 ºC, the speed is kept at that speed for 3 minutes. This process is repeated until the command speed is reached.
(4) Lower Limit Speed

	Cooling	Heating
Lower Limit Speed	25 rps	32 rps

ii) If the temperature of 115ºC is detected by the sensor on the discharge pipe, then the compressor will stop immediately.
When the discharge pipe temperature is over, 115ºC within 1 hour, send error cord to indoor unit.

9) Current safe

a) Purpose: Current is controlled not to exceed the upper limit of the setting operation current.

b) Detail of operation: Input current to the converter is monitored with the current sensor fixed on the printed circuit board of the outdoor unit and, if the operation current value reaches the limiting current value, the inverter command speed is reduced.
If the mechanism is actuated when the inverter command speed is less than 30 rps, the compressor is stopped immediately. Operation starts again after a delay time of 3 minutes.

10) Current cut

a) Purpose: Inverter is protected from overcurrent.

b) Detail of operation: Output current from the inverter is monitored with a shunt resistor and, if the current exceeds the setting value, the compressor is stopped immediately. Operation starts again after a delay time of 3 minutes.

11) Outdoor unit failure

This is a function for determining when there is trouble with the outdoor unit during air conditioning.
The compressor is stopped if any one of the following in item a), b) is satisfied. Once the unit is stopped by this function, it is not restarted.

a) When the input current is measured at 1 A or less.

b) If the outdoor unit sends a 0 rps signal to the indoor unit 3 times or more within 20 minutes of the power being turned on.

12) Serial signal transmission error protection

a) Purpose: Prevents malfunction resulting from error on the indoor ↔ outdoor signals.

b) Detail of operation: If the compressor is operating and a serial signal cannot be received from the indoor control with outdoor control having serial signals continues for 7 minute and 35 seconds, the compressor is stopped.

After the compressor has been stopped, it will be restarted after the compressor start delay if a serial signal can be received again from the indoor control.

13) Rotor lock

If the motor for the compressor does not turn 1/12 revolution 0.044 seconds after it has been started, it is determined that a compressor lock has occurred and the compressor is stopped.

14) Outdoor fan motor protection

If the outdoor fan motor has operated at 75 rpm or under for more than 30 seconds, the inverter and fan motor are stopped.

15) Outdoor fan control at low outdoor temperature

◆ **Cooling**

a) Operating conditions: When the ambient air temperature (Th5) is 22ºC or lower continues for 30 seconds while the inverter command speed is other than 0 rps.

b) Detail of operation: After the outdoor fan operates at A speed for 60 seconds; the corresponding outdoor heat exchanger temperature shall implement the following controls.

● Value of A

	Outdoor fan
Ambient temperature > 10˚C	2nd speed
Ambient temperature _ 10˚C	1st speed

① Outdoor heat exchanger temperature ≦ 21ºC
After the outdoor fan speed drops (down) to 1 speed for 60 seconds; if the outdoor heat exchanger temperature is lower than 21°C, gradually reduce the outdoor fan speed by 1 speed. (Lower limit 1st speed)

② 21ºC < Outdoor heat exchanger temperature ≦ 38ºC
After the outdoor fan speed maintains at A speed for 20 seconds; if the outdoor heat exchanger temperature is 21°C~ 38°C, maintain outdoor fan speed.

③ Outdoor heat exchanger tempeature > 38ºC
After the outdoor fan speed rises (up) to 1 speed for 60 seconds; if the outdoor heat exchanger temperature is higher than 38°C, gradually increase outdoor fan speed by 1 speed. (Upper limit 3rd speed)

c) Reset conditions: When either of the following conditions is satisfied

① The ambient air temperature (Th5) is 25ºC or higher.

② The inverter command speed is 0 rps.

◆ **Heating**

a) Operating conditions: When the ambient air temperature (Th5) is 4ºC or lower continues for 30 seconds while the inverter command speed is other than 0 rps.

b) Detail of operation: The outdoor fan is stepped up by 2 speed step at each 20 seconds. (Upper limit 8th speed)

c) Reset conditions: When either of the following conditions is satisfied

① The ambient air temperature (Th5) is 6ºC or higher.

② The inverter command speed is 0 rps.

◆ FDC 71 - 250 models

(a) Determination of compressor speed (frequency)

Required frequency

1) Cooling/dehumidifying operation

Unit: rps

Model		71	100	125	140	200	250
Max. required frequency	Indoor unit air flow "Hi"	88	90	105	105	100	120
	Indoor unit air flow "Me", "Lo"	76	60	80	85	70	80
Min. required frequency		20	20	20	20	30	30

2) Heating operation

Unit: rps

Model		71	100	125	140	200	250
Max. required frequency	Indoor unit air flow "Hi"	95	90	105	110	100	120
	Indoor unit air flow "Me", "Lo"	86	60	80	85	70	80
Min. required frequency		20	20	20	20	30	30

3) If "Silent mode start" signal is received from the remote controller, the maximum required frequency becomes same as when the indoor air flow is set at "LO".

4) Max. required frequency under high ambient temperature in cooling mode

Maximum required frequency is selected according to the outdoor air temperature (Tho-A).

Unit: rps

Model		71	100	125	140	200	250
Max. required frequency	Outdoor air temperature is 40°C or higher	76	75	90	96	75	98
	Outdoor air temperature is 46°C or higher	60	75	75	75	66	66

5) Max. required frequency under ambient temperature in heating mode

Maximum required frequency is selected according to the outdoor air temperature (Tho-A).

Unit: rps

Model		71	100	125	140	200	250
Max. required frequency	Outdoor air temperature is 18°C or higher	74	60	80	85	70	80

6) Selection of max. required frequency by heat exchanger temperature

1) Maximum required frequency is selected according to the outdoor unit heat exchanger temperature (Tho-R) during cooling/dehumidifying or according to the indoor unit heat exchanger temperature (Thı-R) during heating mode.

2) When there are 3 indoor unit heat exchanger temperatures (Thı-R), whichever the highest applies,

Unit: rps

Model			71	100	125	140	200	250
Max. required frequency	Cooling/ dehumidifying	Outdoor unit heat exchanger temperature is 56°C or higher	–	–	100	100	–	–
	Heating	Indoor unit heat exchanger temperature is 56°C or higher	–	–	100	100	–	–

7) When any of the controls from 1) to 6) above may duplicate, whichever the smallest value among duplicated controls is taken as the maximum required frequency.

8) During heating, it is operated with the maximum required frequency until the indoor unit heat exchanger temperature becomes 40°C or higher.

(b) Compressor start control

1) Compressor starts upon receipt of the thermostat ON signal from the indoor unit.

2) However, at initial start after turning the power supply breaker, it may enter the standby state for maximum 30 minutes (" ⏻✋ " is displayed on the remote controller) in order to prevent the oil loss in the compressor.

If the cooling/dehumidifying/heating operation is selected from the remote controller when the outdoor unit is in the standby state, " ⏻✋ " is displayed for 3 seconds on the remote controller.

(c) Compressor soft start control

1) Compressor protection start I

[Control condition] Normally, the compressor operation frequency is raised in this start pattern.

[Control contents] a) Starts with the compressor's target frequency at A rps.
However, when the outdoor air temperature (Tho-A) is 35°C or higher during cooling/dehumidifying or the indoor return air temperature (Thı-A) is 25°C or higher during heating, it starts at C rps.

b) At 30 seconds after the start of compressor, its target frequency changes to B rps and the compressor is operated for 2 - 4 minutes with its operation frequency fixed at B rps.

Model	Operation mode	A rps	B rps	C rps
71	Cooling/dehumidifying	42	42	40
	Heating	62	62	40
100~140	Cooling/dehumidifying	55	55	30
	Heating	55	55	30
200, 250	Cooling/dehumidifying	55	55	30
	Heating	55	55	30

2) Compressor protection start III - model 71

[Control condition] At 30 minutes or more after turning the power supply breaker and the number of compressor starts is only 1 counted after the power supply breaker ON.

[Control contents] Operates by selecting one of following operation patterns a), b) and c) according to the operation mode and the outdoor air temperature (Tho-A).

a) Low frequency operation control during cooling/dehumidifying

[Control condition] When the conditions of compressor protection start III are established and one of following conditions ① and ② is satisfied, the low frequency operation control is performed during cooling/dehumidifying.
① When the cooling or dehumidifying operation mode is selected, 6 hours or more have elapsed after turning the power supply breaker on.
② When the cooling or dehumidifying operation mode is selected, the outdoor air temperature (Tho-A) is 5°C or higher. (Less than 6 hours after the power supply breaker on)

[Control contents] Compressor runs at 20 rps for 10 minutes from starting.

b) Forced heating operation control

[Control condition] When the conditions of compressor protection start III are established and the following conditions are satisfied, the forced heating operation control is performed.
When the cooling or dehumidifying operation mode is selected, the outdoor air temperature (Tho-A) is 5°C or lower. (Less than 6 hours after turning the power supply breaker on)

[Control contents] ① Operates the compressor at 42 rps for 10 minutes forcibly in the heating mode.
② Stops the compressor after the end of the control in ① above and restarts 3 minutes later in the cooling mode.
③ After the restart, it operates with the compressor's frequency at 20 rps for 10 minutes in the cooling mode.

c) Low frequency operation control during heating

[Control condition] When the conditions of compressor protection start III are established and at 30 minutes or more after turning the power supply breaker on, the low frequency operation control is performed during heating.

[Control contents] For 10 minutes from the start of compressor, it runs at 42 rps. However, when the outdoor air temperature (Tho-A) is 35°C or higher, it starts at 40 rps and changes to 42 rps 30 seconds later.

3) Compressor protection start III, models 100 - 250

[Control condition] Number of compressor starts is only 1 counted after the power supply breaker ON.

[Control contents] Operates by selecting one of following start patterns according to the operation mode and the outdoor air temperature (Tho-A).

a) Low frequency operation control during cooling/dehumidifying

[Control condition] Upon establishing the conditions of compressor protection start III, the low frequency operation control is performed during cooling/dehumidifying.

[Control contents] ① Starts with the compressor's target frequency at A rps. When the outdoor air temperature (Tho-A) is 35°C or higher, it starts at C rps.
② At 30 seconds after the compressor start, the compressor's target frequency is changed to B rps and the compressor's operation frequency is fixed for 10 minutes.

Model	Operation mode	A rps	B rps	C rps
100~140	Cooling/dehumidifying	55	55	30
200, 250	Cooling/dehumidifying	55	30	30

b) Low frequency operation control during heating

[Control condition] When the conditions of compressor protection start III are established and one of following conditions ① and ② is satisfied, the low number of revolutions operation control is performed during heating.

① At 30 minutes or more after turning the power supply breaker on

② Compressor underneath temperature (Tho-H) is 4°C or higher and the difference from the outdoor air temperature (Tho-A) becomes 4°C or higher. [model 200, 250 only]

[Control contents] ① Starts the compressor with its target frequency at A rps. However, when the indoor unit return air temperature (THI-A) is 25°C or higher, it start at C rps.

② At 30 seconds after the start of compressor, the compressor's target frequency is changed to B rps and the compressor's operation frequency is fixed for 10 minutes.

Model	Operation mode	A rps	B rps	C rps
100~140	Cooling/dehumidifying	55	55	30
200, 250	Cooling/dehumidifying	55	30	30

(d) Outdoor unit fan control

1) Outdoor unit fan tap and fan motor speed

Unit: min^{-1}

Model	Mode	Fan motor tap						
71		① speed	② speed	③ speed	④ speed	⑤ speed	⑥ speed	⑦ speed
	Cooling/dehumidifying	200	400	600	740	810	850	950
	Heating	200	400	600	740	810	850	950
100~140		① speed	② speed	③ speed	④ speed	⑤ speed	⑥ speed	⑦ speed
	Cooling/dehumidifying	200	400	600	740	820	870	910
	Heating	200	400	600	740	820	870	910 (950)(2)
200, 250		① speed	② speed	③ speed	④ speed	⑤ speed	⑥ speed	⑦ speed
	Cooling/dehumidifying	200	370	560 (600)(3)	820	850	910	950
	Heating	200	370	560 (600)(3)	820	850	910	950

Notes (1) Fan motor speed for model 200 and 250 are same for both top and bottom lines
(2) Figures in ( ) are for model 125, 140.
(3) Figures in ( ) are for model 250.

2) Fan tap control during cooling/heating operation

Fan taps are selected depending on the outdoor unit heat exchanger temperature (Tho-R1, R2) and the ambient air temperature (Tho-A).
Note (1) It is detected by Tho-R1 or R2, whichever the higher.

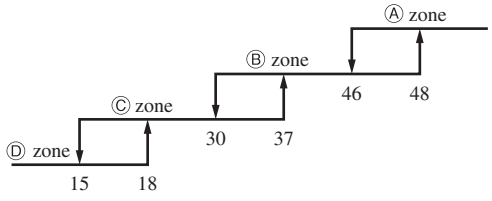
• Model 71 ~ 140

	Ⓐ zone	Ⓑ zone	Ⓒ zone	Ⓓ zone
ⓐ zone	Tap 5(6)	Tap 5(6)	Tap 5	Tap 4
ⓑ zone	Tap 5	Tap 5	Tap 4	Tap 3
ⓒ zone	Tap 4	Tap 4	Tap 3	Tap 2
ⓓ zone	Tap 3	Tap 3	Tap 2	Tap 1

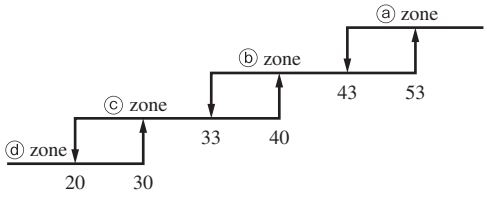
• Model 200, 250

	Ⓐ zone	Ⓑ zone	Ⓒ zone	Ⓓ zone
ⓐ zone	Tap 5	Tap 5	Tap 5	Tap 4
ⓑ zone	Tap 5	Tap 5	Tap 4	Tap 3
ⓒ zone	Tap 4	Tap 4	Tap 3	Tap 2
ⓓ zone	Tap 3	Tap 3	Tap 2	Tap 1

Note (1) Figures in ( ) are for model 71.



Ambient air temp. (˚C)



Outdoor unit heat exchanger temp. (˚C)

3) Fan tap control during heating operation

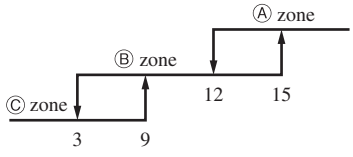
Fan taps are selected depending on the outdoor unit heat exchanger temperature (Tho-R1, R2) and the ambient air temperature (Tho-A).
Note (1) It is detected by Tho-R1 or R2, whichever the lower.

• Model 71 ~ 140

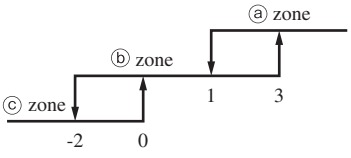
	Ⓐ zone	Ⓑ zone	Ⓒ zone
ⓐ zone	Tap 3	Tap 3	Tap 4
ⓑ zone	Tap 3	Tap 4	Tap 5
ⓒ zone	Tap 4	Tap 5	Tap 6

• Model 200, 250

	Ⓐ zone	Ⓑ zone	Ⓒ zone
ⓐ zone	Tap 3	Tap 3	Tap 4
ⓑ zone	Tap 3	Tap 4	Tap 5
ⓒ zone	Tap 4	Tap 5	Tap 6



Ambient air temp. (˚C)

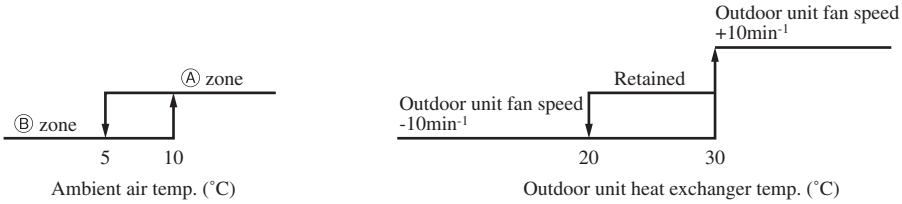


Outdoor unit heat exchanger temp. (˚C)

4) Outdoor unit fan control at cooling low outdoor air

a) When all the following conditions are established after the start of compressor, the following control is implemented. If the outdoor air temperature (Tho-A) is in the zone Ⓑ in the cooling/dehumidifying mode, it has elapsed 20 seconds from the start of outdoor unit fan and the outdoor unit fan is at the tap 1 speed, the outdoor unit fan speed is controlled according to the outdoor unit heat exchanger temperature (Tho-R1, R2).

Note (1) It is detected with Tho-R1 or R2, whichever the higher.



b) The outdoor unit heat exchanger temperature is detected always and, when the number of revolutions of the outdoor fan speed has been increased or decreased, there is no change of fan speed for 20 seconds.

c) Rage of the outdoor unit fan speed under this control is as follows.

① Lower limit: 130rpm

② Upper limit: 500rpm

d) As any of the following conditions is established, this control terminates.

i) When the outdoor air temperature is in the zone Ⓐ and the outdoor unit heat exchanger temperature at 30°C or higher is established for 40 seconds or more continuously.

ii) When the outdoor fan speed is 500rpm and the outdoor unit heat exchanger temperature at 30°C or higher is established for 40 seconds or more continuously.

iii) When the outdoor unit heat changer temperature at 45°C or higher is established for 40 seconds or more.

5) Outdoor unit fan control by the power transistor radiator fin temperature

When all the following conditions are established later than 3 minutes after the start of compressor, the following control is implemented.

a) Cooling/dehumidifying

① Ambient air temperature Tho-A ≧ 33°C

② Compressor's actual frequency ≧ **A** rps

③ Power transistor radiator fin temperature ≧ **C** °C

b) Heating

① Ambient air temperature Tho-A ≥ 16°C

② Compressor's actual frequency ≧ **B** rps

③ Power transistor radiator fin temperature ≧ **C** °C

c) Control contents

i) Raises the outdoor unit fan tap by 1 tap.

ii) When the sampling is for 60 minutes and the value of power transistor radiator fin temperature (Tho-P) is as follows.

① When the power transistor radiator fin temperature (Tho-P) ≧ **C** °C, the outdoor unit fan tap is raised by 1 speed further.

② When **C** °C > power transistor radiator fin temperature (Tho-P) ≧ **D** °C, present outdoor unit fan tap is maintained.

③ When the power transistor radiator fin temperature (Tho-P) ≧ **D** °C, the outdoor unit fan tap is dropped by 1 speed.

d) Ending conditions

When the operation under the condition of item ii), ③ above and with the outdoor unit fan tap, which is determined by the item 2) is detected 2 times consecutively.

• Compressor's frequency and power transistor radiator fin temperature

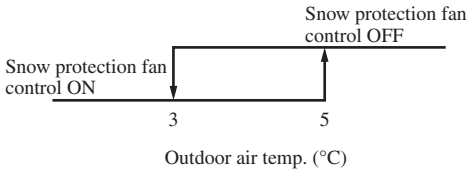
Item / Model	A	B	C	D
71	60	70	80	75
100~140	85	85	72	68
200, 250	70	70	80	75

6) Caution at the outdoor unit fan start control

When the outdoor unit fan is running at 400min^{-1} before operating the compressor, it may operate with the compressor only, without starting up the outdoor fan This is normal.

7) Snow protection fan control

If the dip switch (SW3-2) on the outdoor unit control PCB is turned ON, the outdoor unit fan is operated for 30 seconds at 4 tap speed once in every 10 minutes depending on the outdoor air temperature (detected with Tho-A) in the stop mode or anomalous stop mode.



(e) Defrosting

1) Defrosting start conditions

If all of the following defrosting conditions A or conditions B are met, the defrosting operation starts.

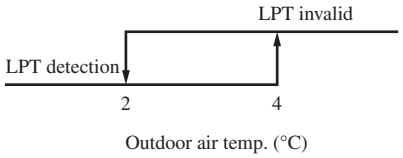
a) Defrosting conditions A

i) Cumulative compressor operation time after the end of defrosting has elapsed 37 [45] minutes, and the cumulative compressor operation time after the start of heating operation (remote controller ON) has elapsed 30 minutes.

ii) After 5 minutes from the compressor ON

iii) After 5 minutes from the start of outdoor unit fan

iv) After satisfying all above conditions, if temperatures of the outdoor unit heat exchanger temperature thermistor (Tho-R1, R2) and the outdoor air temperature thermistor (Tho-A) become lower than the defrosting start temperature as shown by the right figure for 15 seconds continuously, or the suction gas saturation temperature (SST) and the outdoor air temperature (Tho-A), which are obtained from the value detected by the low pressure sensor (LPT) stay for 3 minutes within the range below the defrosting operation start temperature as shown by the right figure. However, it excludes for 10 minutes after the start of compressor and the outdoor air temperature is as shown by the lower figure.



Note (1) Figures in [ ] are for model 71.

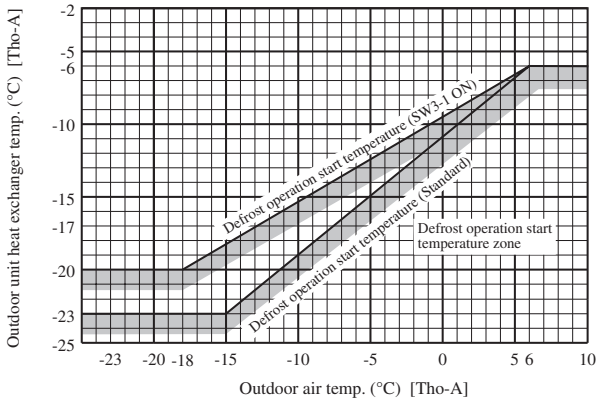
b) Defrosting conditions B

i) When previous defrosting end condition is the time out of defrosting operation and it is in the heating operation after the cumulative compressor operation time after the end of defrosting has become 30 minutes.

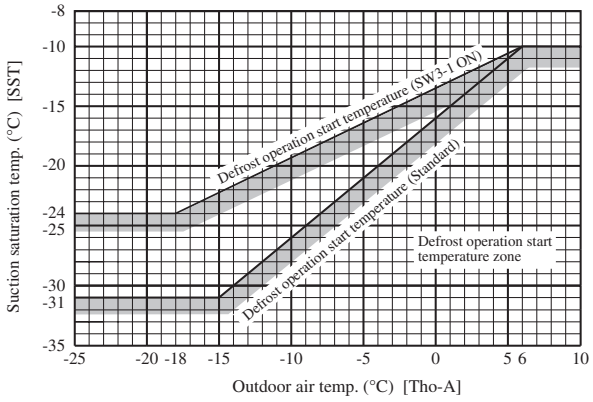
ii) After 5 minutes from the start of compressor

iii) After 5 minutes from the start of outdoor unit fan

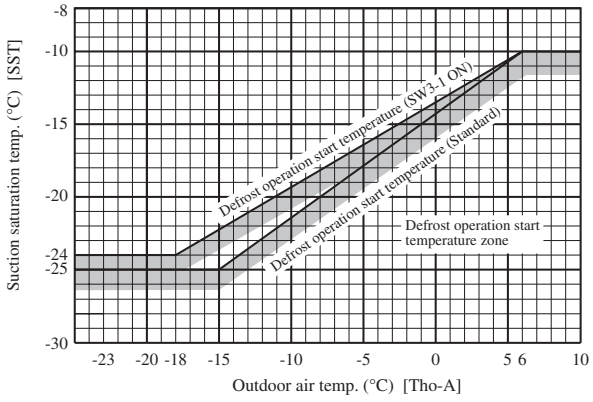
Model 71 ~ 250



Model 71



Model 100 ~ 250



2) Defrosting end conditions

When any of the following conditions is satisfied, the defrosting end operation starts.

a) When it has elapsed 8 minutes and 20 seconds after the start of defrosting. (After 10 minutes and 20 seconds for model 71, 200 and 280)

b) When the outdoor unit heat exchanger temperatures (Tho-R1, R2), whichever the lower, becomes 12°C or higher for 10 seconds continuously.

3) Switching of defrosting control with SW3-1

a) If SW3-1 on the outdoor unit control PCB is turned to ON, it becomes easier to enter the defrosting operation. Use this when installing a unit at snowing regions.

b) Control contents

i) It allows entering the defrosting operation under the defrosting condition A when the cumulative heating operation time becomes 30 minutes. It is 37 [45] minutes at SW3-1 OFF (Factory default).

ii) It allows entering the defrosting operation under the defrosting condition B when the cumulative heating operation time becomes 25 minutes. It is 30 minutes at SW3-1 OFF (Factory default).

iii) It allows the defrosting operation with the outdoor unit heat exchanger temperature (Tho-R) and suction pressure saturation temperature (SST) being higher than normal.

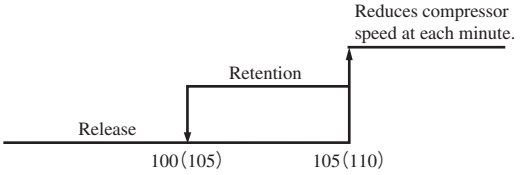
Note (1) Figures in [ ] are for model 71.

(f) Protective control/anomalous stop control by compressor's number of revolutions

1) Compressor discharge pipe temperature protection

a) Protective control

As the discharge pipe temperature (detected with Tho-D) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of discharge pipe temperature.

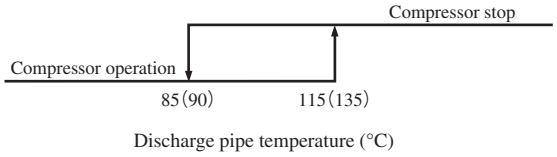


Note (1) Figures in ( ) are for model 200, 250.

b) Anomalous stop control

i) If the discharge pipe temperature (detected with Tho-D) exceeds the setting value, the compressor stops.

ii) When it is detected 2 times within 60 minutes or after continuous 60 minutes, including the stop of compressor, E36 is displayed on the remote controller and it enters the anomalous stop mode.



Note (1) Figures in ( ) are for model 200, 250.

c) Reset of anomalous stop mode

As it drops to the reset value of 85°C (90°C) or lower for 45 minutes continuously, it becomes possible to restart from the remote controller.

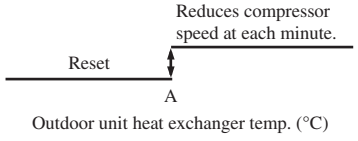
Note (1) Figures in ( ) are for model 200, 250.

2) Cooling high pressure protection

a) Protective control

i) When the outdoor air temperature (Tho-A) is 40°C or higher and the outdoor unit heat exchanger temperature (Tho-R) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of high pressure.

ii) Control value A is updated to an optimum value automatically according to the operating conditions.

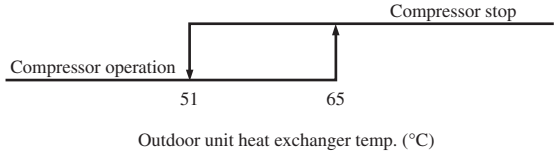


Model	Control value A
71	54~60°C
100~140	
200, 250	

b) Anomalous stop control

i) As the outdoor unit heat exchanger temperature (Tho-R) exceeds the setting value, the compressor stops.

ii) If it is detected 5 times within 60 minutes or 65°C or higher continues for 60 minutes, including the stop of compressor, E35 is displayed on the remote controller and it enters the anomalous stop mode.



c) Reset of anomalous stop mode

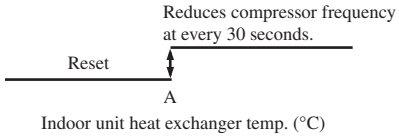
As it reaches the reset value of 51°C or lower, it becomes possible to restart from the remote controller.

3) Heating high pressure protection

a) Protective control

i) As the indoor unit heat exchanger temperature (Thı-R) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of high pressure.

ii) Control value A is updated to an optimum value automatically according to the operating conditions.



Model	Existing piping adaptation switch: SW5-1 (SW8-1: model 80)	
	OFF (Shipping)	ON
	Control value A (°C)	
71	52~58	46~52
100~140	48~54	
200, 250	52~58	

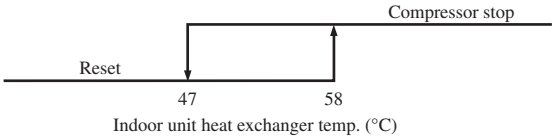
Note (1) Adaptation to existing piping is at ON.

b) Anomalous stop control

Operation control function by the indoor unit controller - See the heating overload protection, page 157.

c) Adaptation to existing piping, stop control

If the existing piping adaptation switch, SW5-1 (SW8-1: 71 type), is turned ON, the compressor stops to protect existing piping when the indoor unit heat exchanger temperature (Thı-R) exceeds the setting value.



4) Anomaly detection control by the high pressure switch (63H1)

i) If the pressure rises and operates the high pressure switch (opens at 4.15MPA/closes at 3.15MPa), the compressor stops.

ii) Under any of the following conditions, E40 is displayed and it enters the anomalous stop mode.

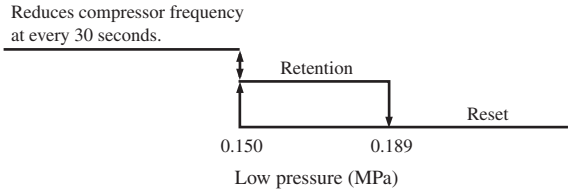
① When it occurs 5 times within 60 minutes that pressure rises and the compressor is stopped by 63H1.

② When 63H1 has been in the open state for 60 minutes continuously, including the stop of compressor.

5) Low pressure control

a) Protective control

If the value detected by the low pressure sensor (LPT) exceeds the setting value, the compressor speed (frequency) is controlled to restrain the drop of pressure.



b) Anomalous stop control

i) When a value detected by the low pressure sensor (LPT) satisfies any of the following conditions, the compressor stops to run for its protection.

① When the low pressure drops to 0.079MPa or under for 15 seconds continuously.

② At 10 minutes after the start of compressor, the suction overheat becomes 30°C and the low pressure becomes 0.15MPa or under for 60 seconds continuously.

ii) E49 is displayed under any of the following conditions and it enters the anomalous stop mode.

a) When the low pressure drops 3 times within 60 minutes and the compressor stops under any of the above conditions.

b) When a value detected with the low pressure sensor becomes 0.079MPa or under for 5 minutes, including the stop of compressor.

iii) However, when the control condition ① is established during the compressor protection start III, E49 is displayed at initial stop and it enters the anomalous stop mode.

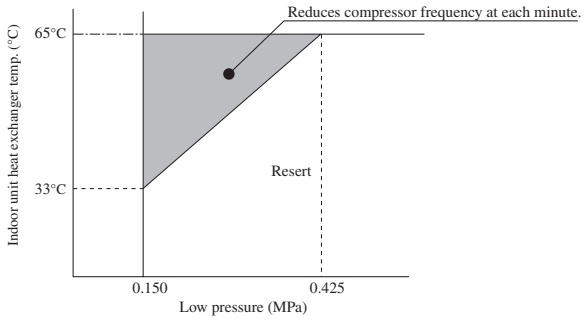
6) Compressor pressure ratio protection control

a) During heating operation, if the indoor unit heat exchanger temperature (Thı-R) and the outdoor unit heat exchanger temperature (Tho-R) exceed the setting values at 10 minutes after the start of compressor, the compressor speed (frequency) is controlled to protect the compressor.

b) This control is not performed during the outdoor fan ON and for 10 minutes from the start of outdoor unit fan.

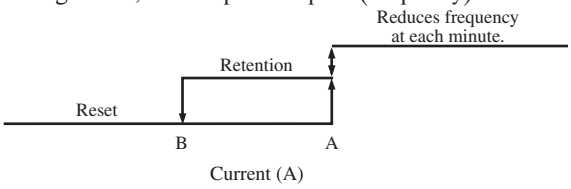
c) This control is not performed during defrosting operation and at 10 minutes after the reset of defrosting operation.

d) When there are 3 indoor unit heat exchanger temperatures (Thı-R), the highest temperature is detected.

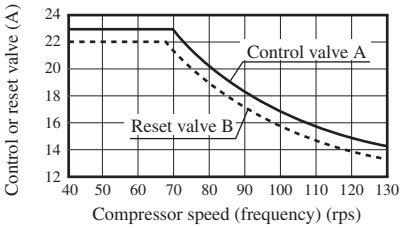


7) Over-current protection current safe controls I, II

Detecting the outdoor unit inverter input (primary) current and the output (secondary) current, if the current values exceed setting values, the compressor speed (frequency) is controlled to protect the inverter.



(Fig. C) The control value "A" and the reset value vary depending on the compressor speed.



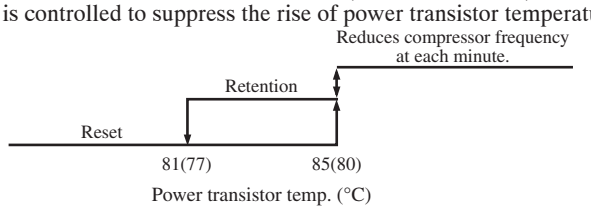
Model		Cooling		Heating	
		Control value A	Reset value B	Control value A	Reset value B
Primary current side	71	15.0	14.0	16.0	15.0
	100	13.5 (23.0)	12.5 (22.0)	13.5 (23.0)	12.5 (22.0)
	125, 140	13.5 (23.0)	12.5 (22.0)	13.5 (23.0)	12.5 (22.0)
	200	17.0	16.0	17.0	16.0
	250	20.0	19.0	20.0	19.0
Secandary current side	71	13.0	12.0	13.0	12.0
	100	13.0 (Fig.C)	12.0 (Fig.C)	13.0 (Fig.C)	12.0 (Fig.C)
	125, 140	13.0 (Fig.C)	12.0 (Fig.C)	13.0 (Fig.C)	12.0 (Fig.C)
	200	Not implemented			
	250				

Note (1) Figures in ( ) are for single phase models.

8) Power transistor temperature protection

a) Protective control

If the power transistor temperature (detected with TIP) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of power transistor temperature.



Note (1) Figures in ( ) are for single phase model 100~140.

b) Anomalous stop control (model 200, 250 only)

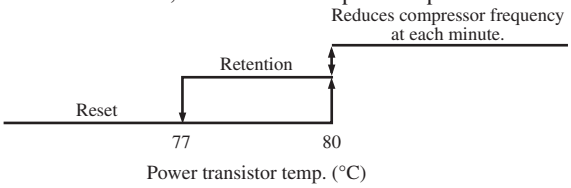
i) If the power transistor temperature rises further, the protective switch in the power transistor operates to protect the compressor and the power transistor.

ii) Under any of the following condition, E41 is displayed and it enters the anomalous stop mode.

① When the protective switch in the power transistor operates 5 times within 60 minutes and the compressor stops.

9) Power transistor temperature control (Single phase models 100~140 only)

This control monitors the power transistor temperature from the start of compressor operation and, when the following condition is established, controls the compressor speed.



10) Anomalous power transistor current

a) Prevents over-current on the inverter. If the current value in the power transistor exceeds the setting value, the compressor stops.

b) If the current value in the power transistor exceeds the specified value and the compressor stops 4 times within 30 minutes, E42 is displayed on the remote controller and it enters the anomalous stop mode.

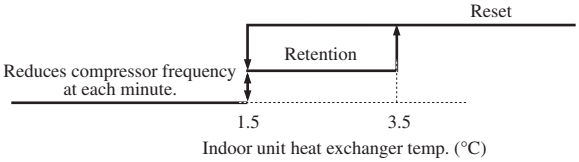
11) Anomalous inverter PCB

If the power transistor detects any anomaly for 15 minutes, including the stop of compressor, E51 is displayed on the remote controller and it enters the anomalous stop mode.

12) Anti-freeze control by the compressor frequency control

a) If the indoor unit heat exchanger temperature (detected with Thı-R) exceeds the setting value at 4 minutes after the start of compressor, the compressor speed (frequency) is controlled to initiate the anti-freeze control of indoor unit heat exchanger.

b) When there are 3 indoor unit heat exchanger temperatures (Thı-R), the lowest temperature is detected.



c) Regarding the anti-freeze control by the operation stop, refer to the operation control function by the indoor unit controller and the cooling, dehumidifying frost prevention of page 157.

13) Dewing prevention control

[Control condition] During cooling and dehumidifying operation, if all the following conditions are established, the compressor speed (frequency) is reduced to prevent dewing and water splash.

① Cooling electronic expansion valve aperture (EEVC) is 500 pulses.

② Suction overheat is 10°C or higher.

③Compressor speed (frequency) is **A** rps or higher.

[Control contents] ① When the suction overheat is 10°C or higher, the compressor speed (frequency) is reduced at each 1 minute.

② Compressor speed (frequency) does not rise till the cooling expansion valve becomes 460 pulses.

③ This control takes **A** rps as its lower limit so that compressor speed is not controlled when it is less than **A** rps.

Model	**A** rps
71	42
100~140	60
200, 250	60

14) Refrigerant quantity shortage protection

Under the compressor protection start III control during cooling and dehumidifying operations, the following control is performed by detecting the indoor unit heat exchanger temperature (Thı-R) and the indoor unit return air temperature (Thı-A).

[Control condition] When the state that the indoor unit heat exchanger temperature (Thı-R) does not become lower than the indoor unit return air temperature (Thı-A) by 4°C or more continues for 1 minute.

[Control contents] It judges that the flowing of refrigerant in to the indoor unit is insufficient so that the compressor is stopped and E57 is displayed on the remote controller.

15) Broken wire detection on temperature thermistor and low pressure sensor

a) Outdoor unit heat exchanger thermistor, outdoor air thermistor and low pressure sensor

If the following is detected for 5 second continuously within 2 minutes to 2 minutes and 20 seconds after the compressor ON, the compressor stops. After a delay of 3 minutes, it restarts but, if the same is detected repeatedly 3 times within 40 minutes, the compressor stops with the anomalous stop.

Note (1) During defrosting and for 3 minutes after the end of defrosting, it is not detected.

- Outdoor unit heat exchanger thermistor: -50°C or lower
- Outdoor air temperature thermistor: -30 or lower
- Low pressure sensor: 0V or under or 3.49V or over

b) Discharge pipe temperature thermistor, suction pipe temperature thermistor and underneath temperature thermistor (model 200, 250 only)

If the following is detected for 5 second continuously within 10 minutes to 10 minutes and 20 seconds after the compressor ON, the compressor stops. After a delay of 3 minutes, it restarts but, if the same is detected repeatedly 3 times within 40 minutes, the compressor stops with the anomalous stop.

Note (1) During defrosting and for 3 minutes after the end of defrosting, it is not detected.

- Discharge pipe temperature thermistor: -10°C or lower
- Suction pipe temperature thermistor: -50 or lower
- Underneath temperature thermistor: -50°C or lower

16) Open phase protection (3-phase models only)

When 0V is detected on any of L1, L2 or L3 phase for 5 seconds continuously after the power ON, it judges the state of open phase on the power supply and activates the anomalous stop (E34) 1 second later.

17) Fan motor error

a) If the fan speed of 100rpm or under is detected for 30 second continuously under the outdoor unit fan control (with the operation command of fan tap at ① speed or higher), the compressor stops.

b) When the fan motor speed drops to 100rpm or under 5 times within 60 minutes and the compressor stops, it enters the anomalous stop mode with E48 displayed on the remote controller.

18) Anomalous stop by the compressor start stop

1) When it fails to shift to the compressor DC motor's rotor position defection operation at 5 seconds after establishing the compressor start condition, the compressor stops temporarily and restarts 3 minutes later.

2) If it fails to shift to the position detection operation again at second time, it judges the anomalous compressor start and stops the compressor by the anomalous stop (E59).

19) Anomalous compressor rotor lock (model 200, 250 only)

After shifting to the compressor rotor's position detection operation, if fails again to detect the rotor position, the compressor stops.

Compressor restarts 3 minutes later but, if it is operated 4 times within 15 minutes, the anomalous stop (E60) occurs.

(g) Silent mode

1) As “Silent mode start” signal is received from the remote controller, it operates by dropping the outdoor unit fan tap and the compressor speed (frequency).
2) For details, refer to items (a) and (d) above.

(h) Test run

1) It is possible to operate from the outdoor unit using the dip switch on the outdoor unit control PCB.

SW3-3 (SW5-3)	ON	SW3-4 (SW5-4)	OFF	Cooling test run
			ON	Heating test run
	OFF	Normal and end of test run		

Make sure to turn SW3-3 (SW5-3) to OFF after the end of operation.

Note (1) ( ) is for model 71.

2) Test run control

a) Operation is performed at the maximum compressor speed (frequency), which is determined for each model.
b) Each protective control and error detection control are effective.
c) If SW3-4 (SW5-4) is switched during test run, the compressor is stoped for once by the stop control and the cooling/heating operation is switched.
Note (1) Figures in ( ) are for model 71.
d) Setting and display of remote controller during test run

Mode \ Model	Contents of remote controller setting/display
Cooling test run	Setting temperature of cooling is 5°C.
Heating test run	Setting temperature of heating (preparation) is 30°C.

(i) Pump-down control

Turning ON the pump-down switch SW1 (SW9) for 2 seconds during the operation stop or anomalous stop (excluding the thermostat OFF), the pump-down operation is performed. (This is invalid when the indoor unit is operating. This is effective even when the indoor unit is stopped by the anomalous stop or the power supply is turned OFF.)

1) Control contents

a) Close the operation valve at the liquid side. (It is left open at the gas side.)
b) Compressor is started with the target speed (frequency) at 55 (62) rps in the cooling mode.
Note (1) Figures in ( ) are for model 71.
c) Red and green lamps (LED) flash continuously on the outdoor unit control PCB.
d) Each of protection and error detection controls, excluding the low pressure control, anti-frost control and dewing prevention control, is effective.
e) Outdoor unit fan is controlled as usual.
f) Electronic expansion valve is fully opened.
g) Solenoid valve (SV1) of model 71 is fully opened during the control.

2) Control ending conditions

Stop control is initiated depending on any of the following conditions.

a) Low pressure of 0.087MPA or lower is detected for 5 seconds continuously.
i) Red LED: Light, Green LED: Flashing, Remote controller: Displays stop.
ii) It is possible to restart when the low pressure is 0.087MPa or higher.
iii) Electronic expansion valve (cooling/heating) is kept fully open.
b) Stop by the error detection control
i) Red LED: Flashing, Green LED: Flashing
ii) Restart is prohibited. To return to normal operation, reset the power supply.
iii) Electronic expansion valve (cooling/heating) is left fully open.
c) When the cumulative operation time of compressor under the pump-down control becomes 5 minutes.
i) Red LED: OFF, Green LED: Flashing, Remote controller: Stop
ii) It is possible to pump-down again.
iii) Electronic expansion valve (cooling/heating) is left fully open.
Note (1) After the stop of compressor, close the operation valve at the gas side.

Caution: Since pressing the pump-down switch cancels communications with the indoor unit, the indoor unit and the remote controller display “Transmission error – E5”. This is normal.

1.5 APPLICATION DATA

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, ⚠WARNING and ⚠CAUTION.
  ⚠WARNING : Wrong installation would cause serious consequences such as injuries or death.
  ⚠CAUTION : Wrong installation might cause serious consequences depending on circumstances.
  Both mentions the important items to protect your health and safety so strictly follow them by any means.
- After completing the installation, do commissioning to confirm there are no abnormalities, and explain to the customers about "SAFETY PRECAUTIONS", correct operation method and maintenance method (air filter cleaning, operation method and temperature setting method) with userís manual of this unit.
  Ask your customers to keep this installation manual together with the userís manual. Also, ask them to hand over the user,s manual to the new user when the owner is changed.

⚠ WARNING

- **Installation should be performed by the specialist.**
  If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Install the system correctly according to these installation manuals.**
  Improper installation may cause explosion, injury, water leakage, electric shock, and fire.
- **Consider measurement not to exceed the limit of the density of refrigerant in the event of leakage especially when it is installed in a small room.**
  Consult the specialist about the measure. If the density of refrigerant exceeds the limit in the event of the leakage, serious accidents may occur due to lack of oxygen.
- **Use the genuine accessories and the specified parts for installation.**
  If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Ventilate the working area well in case the refrigerant leaks during installation.**
  If the refrigerant contacts the fire, toxic gas is produced.
- **Install the unit in a location that can hold heavy weight.**
  Improper installation may cause the unit to fall leading to accidents.
- **Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes.**
  Improper installation may cause the unit to fall leading to accidents.
- **Do not mix air in to the cooling cycle on installation or removal of the air conditioner.**
  If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries.
- **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
  Power source with insufficient capacity and improper work can cause electric shock and fire.
- **Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.**
  Loose connections or hold could result in abnormal heat generation or fire.
- **Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel property.**
  Improper fitting may cause abnormal heat and fire.
- **Check for refrigerant gas leakage after installation is completed.**
  If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced.
- **Use the specified pipe, flare nut, and tools for R410A.**
  Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle.
- **Tighten the flare nut according to the specified method by with torque wrench.**
  If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period.

- **Make sure there is no dust or clogging on both the plug and the socket nor loose connection of the socket before plugging, and plug in securely to the end of the blade.**
  Accumulation of dust, clogging on the socket or plug, or loose installation of the socket could cause electric shock and fire. Replace the socket if it is loose.

- **Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.**
  If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due to abnormal high pressure in the system.

- **Stop the compressor before removing the pipe on pump down work.**
  If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle.

- **Use the genuine optional parts. And installation should be performed by a specialist.**
  If you install the unit by yourself, it could cause water leakage, electric shock and fire.

- **Do not repair by yourself. And consult with the dealer about repair.**
  Improper repair may cause water leakage, electric shock or fire.

- **Consult the dealer or a specialist about removal of the air conditioner.**
  Improper installation may cause water leakage, electric shock or fire.

- **Turn off the power source during servicing or inspection work.**
  If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.

- **Do not run the unit when the panel or protection guard are taken off.**
  Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get burned, or electric shock.

- **Shut off the power before electrical wiring work.**
  It could cause electric shock, unit failure and improper running.

⚠ CAUTION

- **Perform earth wiring surely.**
  Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock due to a short circuit.

- **Use the circuit breaker of correct capacity.**
  Using the incorrect capacity one could cause the system failure and fire.

- **Do not use any materials other than a fuse of correct capacity where a fuse should be used.**
  Connecting the circuit by wire or copper wire could cause unit failure and fire.

- **Do not install the indoor unit near the location where there is possibility of flammable gas leakages.**
  If the gas leaks and gathers around the unit, it could cause fire.

- **Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled.**
  It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire.

- **Do not use the indoor unit at the place where water splashes such as laundry.**
  Indoor unit is not waterproof. It could cause electric shock and fire.

- **Do not use the indoor unit for a special purpose such as food storage, cooling for precision instrument, preservation of animals, plants, and a work of art.**
  It could cause the damage of the items.

- **Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics.**
  Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunication equipment might influence the air conditioner and cause a malfunction and breakdown. Or the air conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jamming.

- **Do not install the remote controller at the direct sunlight.**
  It could cause breakdown or deformation of the remote controller.

- **Do not install the indoor unit at the place listed below.**
  - Places where flammable gas could leak.
  - Places where carbon fiber, metal powder or any powder is floated.
  - Place where the substances which affect the air conditioner are generated such as sulfide gas, chloride gas, acid or alkali.
  - Places exposed to oil mist or steam directly.
  - On vehicles and ships
  - Places where machinery which generates high harmonics is used.
  - Places where cosmetics or special sprays are frequently used.
  - Highly salted area such as beach.
  - Heavy snow area
  - Places where the system is affected by smoke from a chimney.
  - Altitude over 1000m

- **Do not put any valuables which will break down by getting wet under the air conditioner.**
  Condensation could drop when the relative humidity is higher than 80% or drain pipe is clogged, and it damages userís belongings.

- **Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of use.**
  It could cause the unit falling down and injury.

- **Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit.**
  If sputter entered into the unit during brazing work, it could cause damage (pinhole) of drain pan and leakage of water. To avoid damaging, keep the indoor unit packed or cover the indoor unit.

- **Install the drain pipe to drain the water surely according to the installation manual.**
  Improper connection of the drain pipe may cause dropping water into room and damaging userís belongings.

- **Do not put the drain pipe directly into the ditch where toxic gas such as sulfide gas is generated.**
  Toxic gas would flow into the room and it would cause serious damage to userís health and safety.

- **Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump system) outdoor unit.**
  Toxic exhaust gas would flow into room and it might cause serious damage (some poisoning or deficiency of oxygen) to userís health and safety.

- **For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make traps, and not to make air-bleeding.**
  Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance.

- **Ensure the insulation on the pipes for refrigeration circuit so as not to condense water.**
  Incomplete insulation could cause condensation and it would wet ceiling, floor, and any other valuables.

- **Do not install the outdoor unit where is likely to be a nest for insects and small animals.**
  Insects and small animals could come into the electronic components and cause breakdown and fire. Instruct the user to keep the surroundings clean.

- **Pay extra attention, carrying the unit by hand.**
  Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but the grabbing place, moving the unit by hand. Use protective gloves in order to avoid injury by the aluminum fin.

- **Make sure to dispose of the packaging material.**
  Leaving the materials may cause injury as metals like nail and woods are used in the package.

- **Do not operate the system without the air filter.**
  It may cause the breakdown of the system due to clogging of the heat exchanger.

- **Do not touch any button with wet hands.**
  It could cause electric shock.

- **Do not touch the refrigerant piping with bare hands when in operation.**
  The pipe during operation would become very hot or cold according to the operating condition, and it could cause a burn or frostbite.

- **Do not clean up the air conditioner with water.**
  It could cause electric shock.

- **Do not turn off the power source immediately after stopping the operation.**
  Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown.

- **Do not control the operation with the circuit breaker.**
  It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury.

1.5.1 Installation of indoor unit

(1) Ceiling cassette-4 way compact (600×600mm)-type (FDTC)

(a) Selection of installation location

1) Select location where the space above ceiling is larger than those mentioned below and perfect draining can be assured.
2) With the customer's consent, select a location with following suitable conditions.
   a) Where cool air or hot air can easily pass through.
      If the height of the location exceeds 3 m, hot air will gather in the ceiling. Suggest to the customer to also install a circulator.
   b) Where water can be completely drained. A sloping location for drainage.
   c) Where there are no wind disturbances to the air return and air supply, where the fire alarm will not be set off erroneosly, where no short circuits occur.
   d) Where there is no direct sunlight.
   e) Areas where dew point is lower than around 28°C and relative humidity is lower than 80%.

   This indoor unit is tested under the condition of ISO high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air conditioner is operated under the severer condition than mentioned above.
   If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.

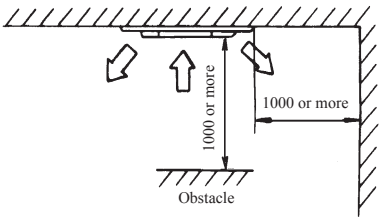
3) Consider the supporting strength of the location. If the strength is not sufficient to sustain the unit weight, use reinforcing materials.

(b) Installation space for unit

a) When a sufficient interval cannot be secured between the unit and a wall or another unit, shut up diffusers on that side to block winds and make sure that no short-circuiting is occurring. (A wind blocking material is available as an optional part)
   • Do not use the unit in the "Lo" wind mode, when winds are blown into two or three directions.

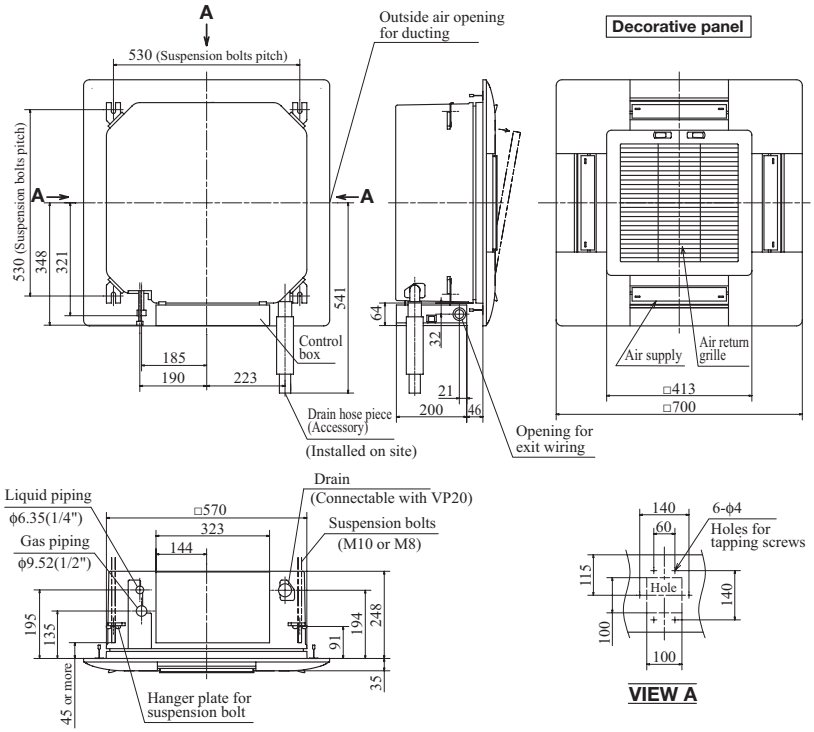
• Installtation space

Unit: mm



Note (1) If you are mounting units close together, leave a space of 4000 or greater between unit.

Unit: mm

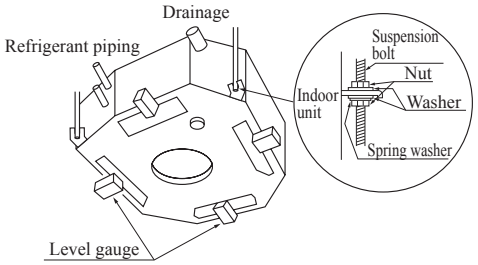


(c) Suspension

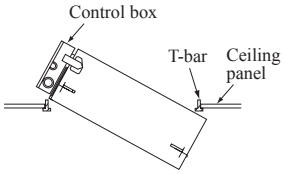
- Please arrange four sets of a suspension bolt (M10 or M8), a nut matching the bolt, a flat washers and a spring washer on the installation site.

(i) When suspension from the ceiling

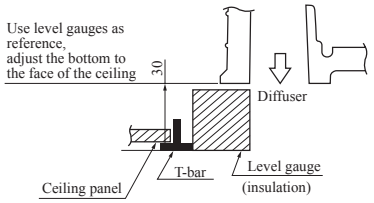
1) This unit is designed for installation on a 2 × 2 grid ceiling.
   If necessary, please detach the T bar temporarily before you install it.
   (When it is installed on a ceiling other than 2 × 2 grid ceiling, please do not fail to provide an inspection port on the control box side.)
2) Determine the positions of suspension bolts (530 × 530).
3) Use four suspension bolts, each fastened in such a manner that it can withstand pull force of 50kgf.
4) Make suspension bolts to the length that leaves approximately 45mm of them above the ceiling. In hoisting the unit main body in, temporarily fasten the four lower nuts of the suspension bolts approx. 93 mm from the ceiling and the four upper nuts at positions sufficiently far from the lower nuts so that they may not hamper installation work when the unit is hoisted in or the height is adjusted.

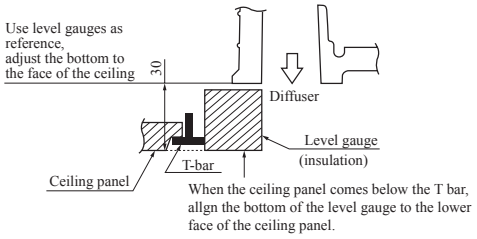


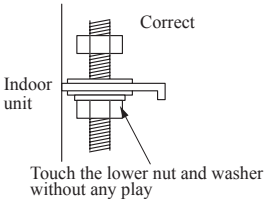
5) Put in the unit on an angle.

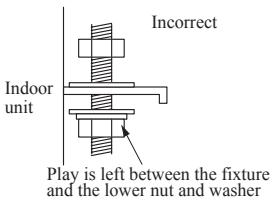


6) After hoisting in the unit, attach level gauges supplied as accessories and determine the unit position (height). To adjust height, use the four lower nuts with the four upper nuts left loose. Please make sure that the unit's four hanging fixtures touch the four lower nuts and washers evenly without any play.

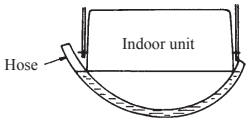








7) Please make sure that the unit main body is installed levelly. Level must be checked with a level or a clear hose filled with water. (A tolerable height difference at an end of the unit is eithin 3 mm)



8) After you have adjusted the height and level of the unit, fasten the four upper nuts to fix the unit.

Note (1) Do not adjust the height with the upper nuts. It may cause deformation due to excessive force working on the unit main body, which can result in such problems that you cannot attach the panel or noises are generated from the interfering fan.

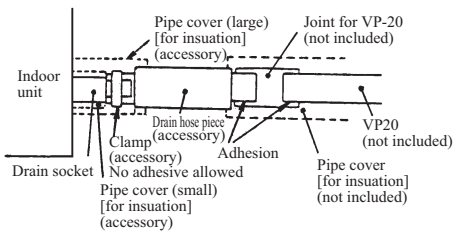
(ii) When embedded into ceiling

1) Determine the positions of hanging bolts (530 × 530).
   - The pitch center of a suspension bolt must accord with the center of the unit.
2) Use four suspension bolts, each fastened in such a manner that it can withstand pull force of 50 kgf.
3) Fix the unit as per (i) 6) and 8) above.

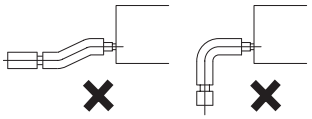
Note (1): When a suspension bolt exceeds 1.3 m in length, use an M10 bolt and give it reinforcements such as braces.

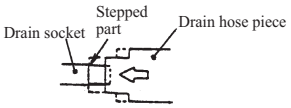
(d) Drain Piping

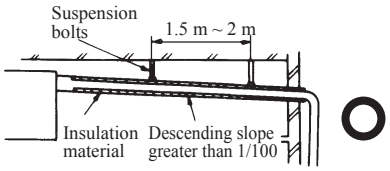
1) Glue the drain hose supplied as an accessory and a VP-20 joint before lifting the unit.
2) The drain hose is to provide a buffer to absorb a slight dislocation of the unit or the drain piping during installation work. If it is subject to abuse such as being bent or pulled deliberately, it may break, which will result in a water leak.

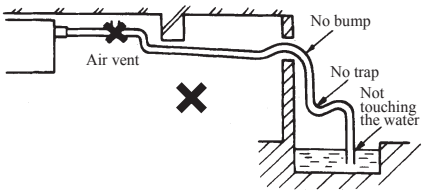


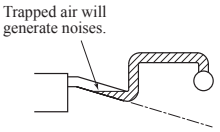
3) Care must be taken so as not to allow an adhesive to run into the drain hose. When it is hardened, it can cause a breakage of a flexible part, if the flexible part receives stress.
4) Use VP-20 general-purpose hard PVC pipes for drain piping.
5) Insert the drain hose supplied as an accessory (soft PVC end) to the stepped part of the unit's drain socket and then fasten it with the clamp also supplied as an accessory.
6) Adhesive must not be used.
   a) Glue a VP-20 joint (to be procured locally) to joint it with the drain hose (hard PVC end) and then glue a VP-20 (to be procured locally) to the joint.
   b) Give the drain piping a descending grade (1/50-1/100) and never create a bump to go over or a trap.
   c) In connecting drain pipes, care must be taken so as not to apply force to the unit side piping and fix the pipe at a point as close to the unit as possible.
   d) Do not create an air vent under any circumstances.
   e) When drain piping is implemented for more than one unit, provide a collecting main about 100 mm below the units' drain outlets from which it collects drain. Use a VP-30 or larger pipe for a collecting main.
   f) Do not fail to provide heat insulation at the following two points because they can cause dew condensation and a resultant water leak.
7) Drain socket
   After a drain test is completed, apply a pipe cover (small: accessory) onto the drain socket, cover the pipe cover (small), the clamp and part of the drain hose with a pipe cover (large: accessory) and wrap it with a tape completely without leaving any gaps.
   (Cut pipe covers into appropriate shapes)
8) Hard PVC pipes laid indoor
   a) Since a drain pipe outlet can be raised up to 600 mm from the ceiling, use elbows, etc. to install drain pipes, it there are obstacles preventing normal drain pipe arrangement. When the drain pipe is raised at a point far from a unit, it can cause an overflow due to a back flow of drain upon stoppage, so arrange piping to keep the dimensions specified in the illustration shown on the left.
   b) Install the drain pipe outlet where no odor is likely to be generated.
   c) Do not lead the drain pipe into a ditch where the generation of harmful gas such as sulfuric gas or flammable gas is expected. A failure to observe this instruction may cause such harmful or flammable gas to flow into the room.

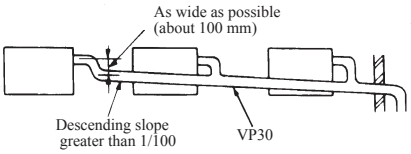


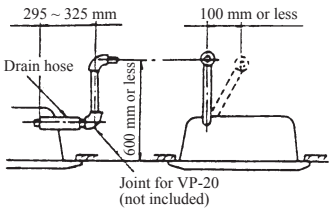






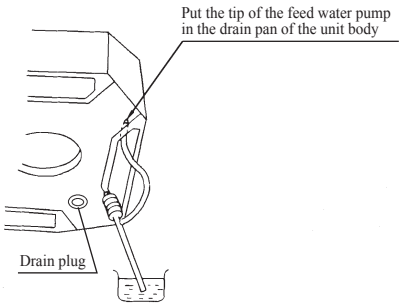






Drainage test

① Check that water is draining thoroghly during test run, and that there are no water leaks from the joints and the drain pan.
② The test has to be performed even if the unit is installed in the season when the unit is used for healting.
③ In a new house, perform the test before the ceiling is fitted.
   • Using a water pump, pour about 1000 cc of water to the drain pan through the blowing outlet.
   • Check the transparent drain-out section of the drain hose for normal flow of drainage.
     * While observing the noise from the drain motor, test drain operation.
   • Take off the drain plug to release the water. After the water is drained, place the drain pulg back where it was..
     * Be careful not to get splashed when pulling the drain plug.



Drain pump operation

○ In case electrical wiring work finished
Drain pump can be operated by remote controller (wired).
For the operation method, refer to Operation for drain pump in the installation manual for wiring work.

○ In case electrical wiring work not finished
Drain pump will run continuously when the dip switch "SW7-1" on the indoor unit PCB is turned ON, the Connector CNB is disconnected, and then the power supply (230VAC on the terminal block ① and ②) is turned ON.
Make sure to turn OFF "SW7-1" and reconnect the Connector CNB after the test.

♦ Setup from a remote controller side.

Drain pump operation from remote control unit is possible. Operate a remote control unit by following the steps described below.

1. To start a forced drain pump operation.

① Press the TEST button for three seconds or longer.
The display will change "TEST RUN"

② Press the ▼ button once and cause "DRAIN PUMP" to be displayed.

③ When the ○ (SET) button is pressed, a drain pump operation will start.
Display: "TO STOP"

2. To cancel a drain pump operation.

① If either ○ (SET) or ⏻ON/OFF button is pressed, a forced drain pump operation will stop. The air conditioning system will become OFF.

○ If two (2) remote controllers are connected to one (1) inside unit, only the master controller is available for trial operation and confirmation of operation data. (The slave remote controller is not available.)

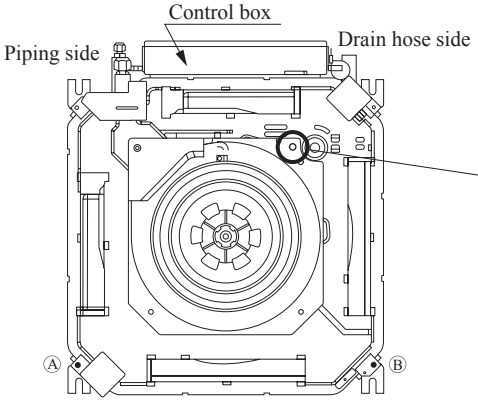
(e) Panel installation

1) Accessories (It is attach to the panel)

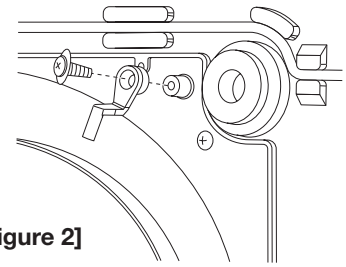
1	Hook		1 piece	For fixing temporarily
2	Chain		2 piece	
3	Screw		4 piece	For hoisting the panel
4	Screw		1 piece	For attaching a hook
5	Screw		2 piece	For attaching a chain

2) Make sure that the unit main body is positioned at the correct height and the opening on the ceiling is made to the correct dimensions with the level gauge supplied with the main body.
Remove the level gauge before you attach the panel.

3) Screw in two bolts out of the four supplied with the panel by about slightly less than 5mm. (●mark ⒶⒷ) [Figure 1]



[Figure 1]

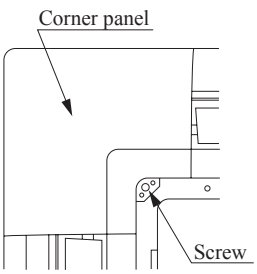


[Figure 2]

4) Attach the hook supplied with the panel to the main body with the hook fixing screw (1 screw). [Figure 2]

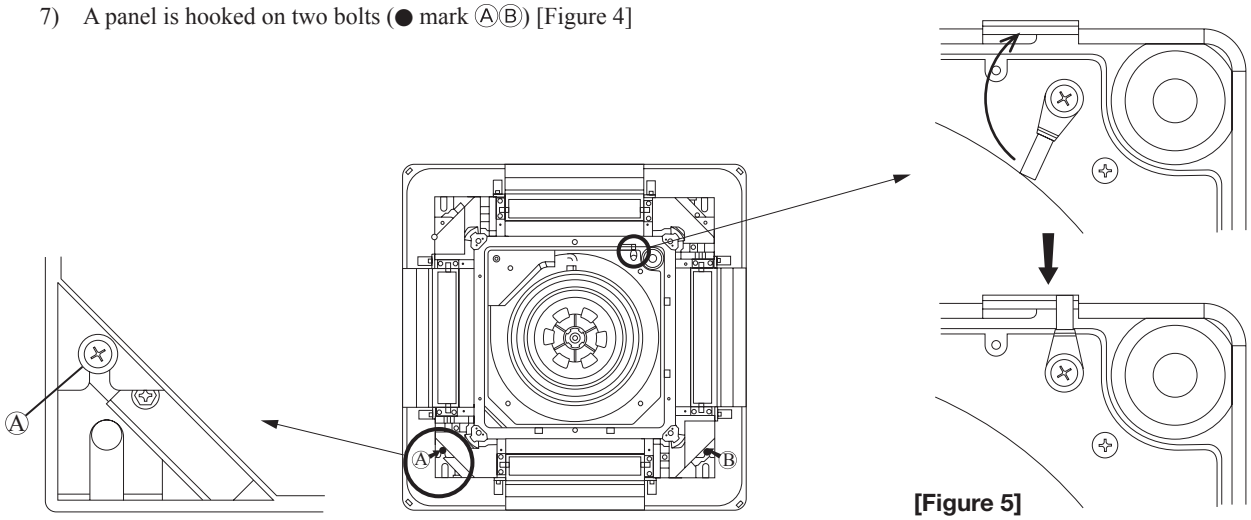
5) Open the air inlet grille.

6) Please remove the screw of a corner panel and remove a corner panel. (four places) [Figure 3]



[Figure 3]

7) A panel is hooked on two bolts (● mark ⒶⒷ) [Figure 4]



[Figure 4]

[Figure 5]

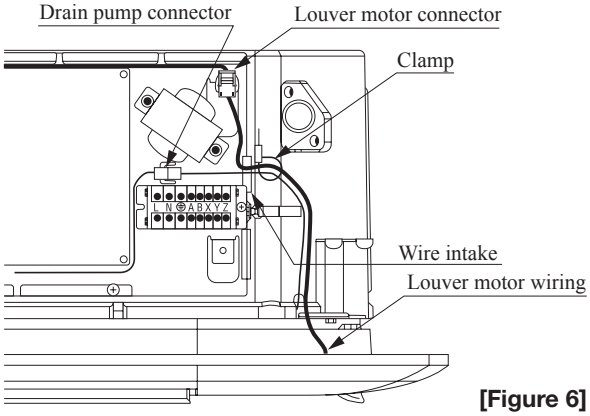
8) Please rotate a hook, put in the slot on the panel, and carry out fixing the panel temporarily. [Figure 5]

9) Tighten the two bolts used for fixing the panel temporarily and the other two.

10) Please open the lid of a control box.

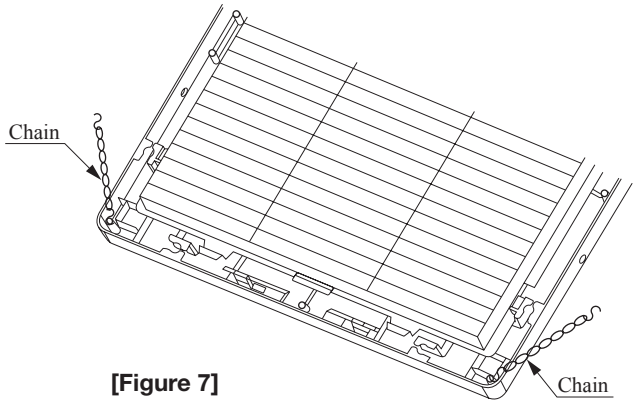
11) Like drain pump wiring, please band together by the clamp and put in louver motor wiring into a control box. [Figure 6]

12) Please connect a louver motor connector. [Figure 6]



[Figure 6]

13) Attach two chains to the air return grille with two screws. [Figure 7]



[Figure 7]

14) Replace the corner panels. Please also close a chain with a screw together then.

15) Close the air return grille.

(2) Ceiling cassette-4way-type (FDT)

(a) Selection of installation location for the indoor unit

① Select the suitable areas to install the unit under approval of the user.

- Areas where the indoor unit can deliver hot and cold wind sufficiently. Suggest to the user to use a circulator if the ceiling height is over 3m to avoid warm air being accumulated on the ceiling.
- Areas where there is enough space to install and service.
- Areas where it can be drained properly. Areas where drain pipe descending slope can be taken.
- Areas where there is no obstruction of airflow on both air return grille and air supply port.
- Areas where fire alarm will not be accidentally activated by the air conditioner.
- Areas where the supply air does not short-circuit.
- Areas where it is not influenced by draft air.
- Areas not exposed to direct sunlight.
- Areas where dew point is lower than around 28ºC and relative humidity is lower than 80%.

  This indoor unit is tested under the condition of ISO high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air conditioner is operated under the severer condition than mentioned above.
  If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.

- Areas where TV and radio stays away more than 1m. (It could cause jamming and noise.)
- Areas where any items which will be damaged by getting wet are not placed such as food, table wares, server, or medical equipment under the unit.
- Areas where there is no influence by the heat which cookware generates.
- Areas where not exposed to oil mist, powder and/or steam directly such as above fryer.
- Areas where lighting device such as fluorescent light or incandescent light doesnít affect the operation.
  (A beam from lighting device sometimes affects the infrared receiver for the wireless remote controller and the air conditioner might not work properly.)

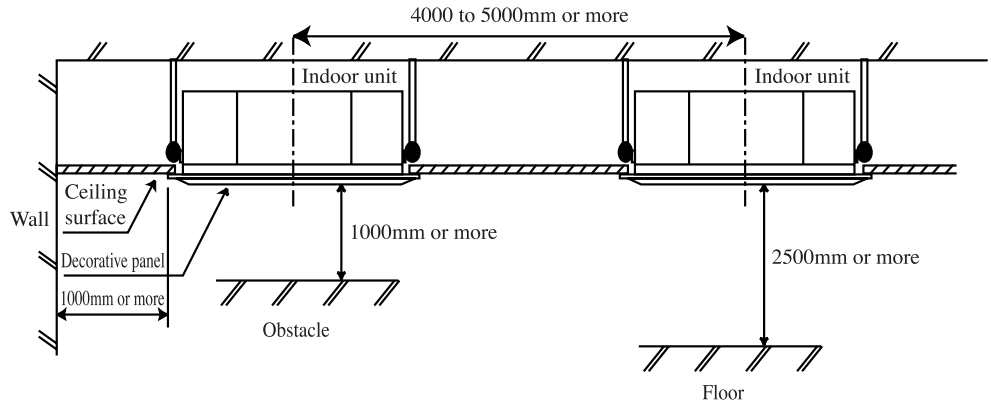
② Check if the place where the air conditioner is installed can hold the weight of the unit. If it is not able to hold, reinforce the structure with boards and beams strong enough to hold it. If the strength is not enough, it could cause injury due to unit falling.

③ If there are 2 units of wireless type, keep them away for more than 6m to avoid malfunction due to cross communication.

④ When plural indoor units are installed nearby, keep them away for more than 4 to 5m.

Space for installation and service

- When it is not possible to keep enough space between indoor unit and wall or between indoor units, close the air supply port where it is not possible to keep space and confirm there is no short circuit of airflow.
- Install the indoor unit at a height of more than 2.5m above the floor.



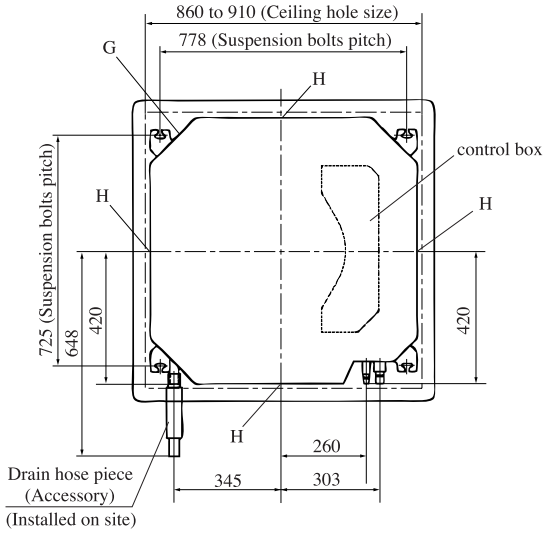
Set blow-out pattern

- Select the most proper number of blow-out air supply port direction from 4 way, 3 way or 2 way according to the shape of the room and installation position. (1 way is not available.)
- If it is necessary to change the number of air supply port, prepare the covering materials. (sold as accessory)
- Instruct the user not to use low fan speed when 2way or 3way air supply is used.
- Do not use 2way air supply port under high temperature and humidity environment. (Otherwise it could cause condensation and leakage of water.)
- It is possible to set the airflow direction port by port independently. Refer to tne userís manual for details.

(b) Preparation before installation

- If suspension bolt becomes longer, do reinforcement of earthquake resistant.
  - ○ For grid ceiling
    When suspension bolt length is over 500mm, or the gap between the ceiling and roof is over 700mm, apply earthquake resistant brace to the bolt.
  - ○ In case the unit is hanged directly from the slab and is installed on the ceiling plane which has enough strength.
    When suspension bolt length is over 1000mm, apply the earthquake resistant brace to the bolt.
- Prepare four (4) sets of suspension bolt, nut and spring washer (M10 or M8) on site.

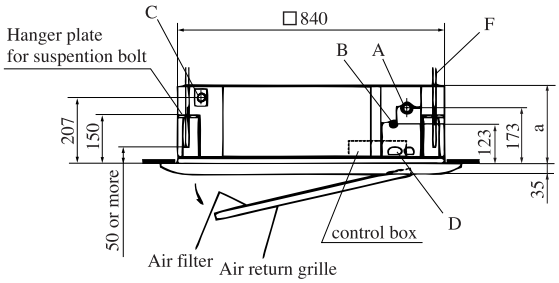
Ceiling opening, Suspension bolts pitch, Pipe position

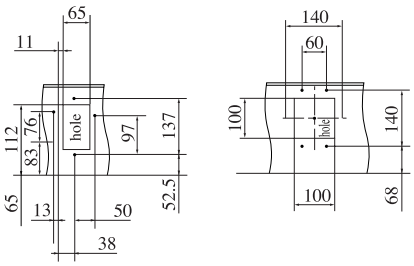


(mm)

Series	Type	a
Single Split (PAC) series	40 to 71 type	246
	100 to 140 type	298

Symbol	
A	Gas piping
B	Liquid piping
C	Drain piping
D	Hole for wiring
F	Suspension bolts
G	Outside air opening for ducting
H	Air outlet opening for ducting



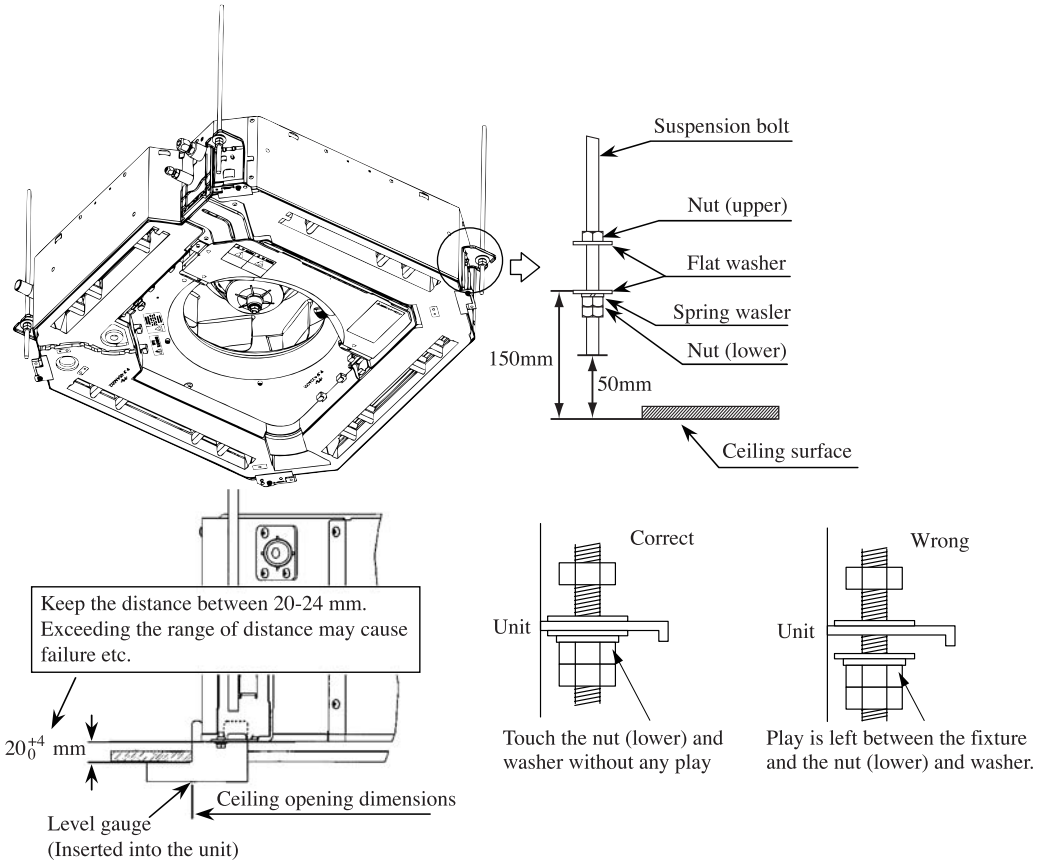


G **H**

(c) Installation of indoor unit

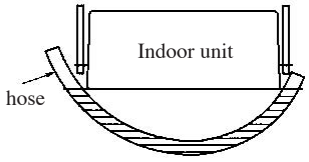
Work procedure

1) Prepare a ceiling hole with the size of from 860mm × 860mm to 910mm × 910mm referring to the template attached in the package.
2) Arrange the suspension bolt at the right position (725mm × 778mm).
3) Make sure to use four suspension bolts and fix them so as to be able to hold 500N load.
4) Ensure that the lower end of the suspension bolt should be 50mm above the ceiling plane. Temporarily put the four lower nuts 150mm above the ceiling plane and the upper nuts on distant place from the lower nuts in order not to obstruct hanging the indoor unit or adjust the indoor unit position, and then hang the indoor unit.
5) Adjust the indoor unit position after hanging it by inserting the level gauge attached on the package into the air supply port and checking if the gap between the ceiling plane and the indoor unit is appropriate. In order to adjust the indoor unit position, adjust the lower nuts while the upper nuts are put on distant place. Confirm there is no backlash between the hanger plate for suspension bolt and the lower nut and washer.



(d) Installation of indoor unit (continued)

1) Make sure to install the indoor unit horizontally. Confirm the levelness of the indoor unit with a level gauge or transpar-ent hose filled with water. Keep the height difference at both ends of the indoor unit within 3mm.
2) Tighten four upper nuts and fix the unit after height and levelness adjustment.



Caution

- Do not adjust the height by adjusting upper nuts. It will cause unexpected stress on the indoor unit and it will lead to deformation of the unit, failure of attaching a panel, and generating noise from the fan.
- Make sure to install the indoor unit horizontally and set the gap between the unit underside and the ceiling plane properly. Improper installation may cause air leakage, dew condensation, water leakage and noise.
- Even after decorative panel attached, still the unit height can be adjusted finely. Refer to the installation manual for decorative panel for details.
- Make sure there is no gap between decoration panel and ceiling surface, and between decora-tion panel and the indoor unit. The gap may cause air leakage, dew condensation and water leakage.
- In case decorative panel is not installed at the same time, or ceiling material is installed after the unit installed, put the cardboard template for installation attached on the package (packing material of cardboard box) on the bottom of the unit in order to avoid dust coming into the indoor unit.

(e) Refrigerant pipe

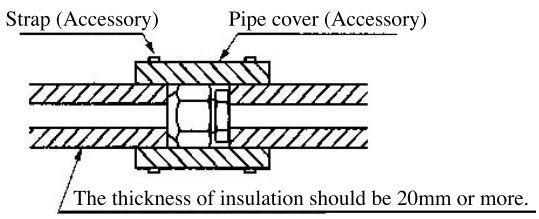
Caution

- Use the new refrigerant pipe.
  When re-using the existing pipe system for R22 or R407C, pay attention to the following items.
  - Change the flare nuts with the attached ones (JIS category 2), and reprocess the flare parts.
  - Do not use thin-walled pipes.
- Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H3300) for refrigeration pipe installation. In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes.
- Do not use any refrigerant other than R410A.
  Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.
- Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc.
- Use special tools for R410 refrigerant.

Work procedure

1) Remove the flare nut and blind flanges on the pipe of the indoor unit.
   ❉ Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
   (Gas may come out at this time, but it is not abnormal.)
   - Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
2) Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit.
   ❉ Bend the pipe with as big radius as possible and do not bend the pipe repeatedly. In addition, do not twist and crush the pipes.
   ❉ Do a flare connection as follows:
   - Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
   - When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table below. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
3) Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps.
   - Make sure to insulate both gas pipes and liquid pipes completely.
   ❉ Incomplete insulation may cause dew condensation or water dropping.
4) Refrigerant is charged in the outdoor unit.
   As for the additional refrigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit.

Pipe diameter	Tightening torque N·m
ϕ6.35	14 to 18
ϕ9.52	34 to 42
ϕ12.7	49 to 61
ϕ15.88	68 to 82
ϕ19.05	100 to 120



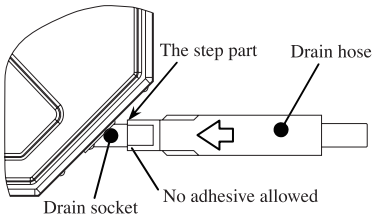
(f) Drain pipe

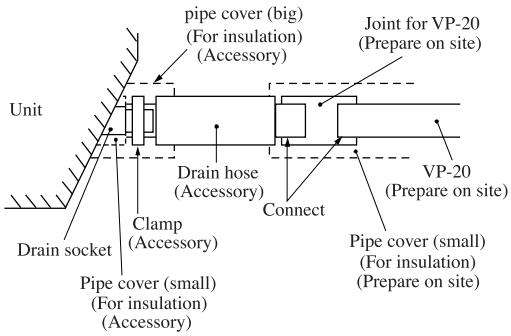
Caution

- Install the drain pipe according to the installation manual in order to drain properly.
  Imperfection in draining may cause flood indoors and wetting the household goods, etc.
- Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful andinflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to userís health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell.
- Connect the pipe securely to avoid water leakage from the joint.
- Insulate the pipe properly to avoid condensation drop.
- Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.
- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance.

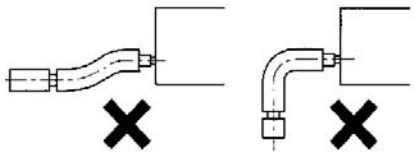
Work procedure

1) Insert the supplied drain hose (the end made of soft PVC) to the step of the drain socket on the indoor unit and fix it securely with the clamp.
   - Do not apply adhesives on this end.

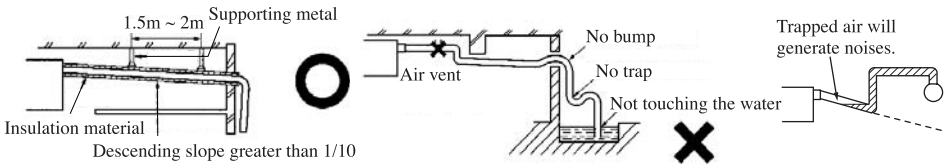




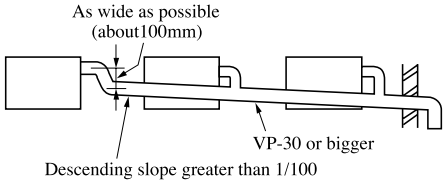
2) Prepare a joint for connecting VP-20 pipe, adhere and connect the joint to the drain hose (the end made of rigid PVC), and adhere and connect VP-20 pipe (prepare on site).
   ❊ As for drain pipe, apply VP-20 made of rigid PVC which is on the market.
   - Make sure that the adhesive will not get into the supplied drain hose.
     It may cause the flexible part broken after the adhesive is dried up and gets rigid.
   - The flexible drain hose is intended to absorb a small difference at installation of the unit or drain pipes. Intentional bending, expanding may cause the flexible hose broken and water leakage.



3) Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway.
   - Pay attention not to give stress on the pipe on the indoor unit side, and support and fix the pipe as close place to the unit as possible when connecting the drain pipe.
   - Do not set up air vent.



   - When sharing a drain pipe for more than one unit, lay the main pipe 100mm below the drain outlet of the unit. In addition, select VP-30 or bigger size for main drain pipe.

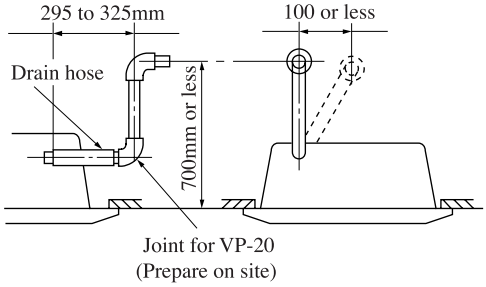


4) Insulate the drain pipe.
- Be sure to insulate the drain socket and rigid PVC pipe installed indoors otherwise it may cause dew condensation and water leakage.

❊ After drainage test implementation, cover the drain socket part with pipe cover (small size), then use the pipe cover (big size) to cover the pipe cover (small size), clamps and part of the drain hose, and fix and wrap it with tapes to wrap and make joint part gapless.

Drain up

- The position for drain pipe outlet can be raised up to 700mm above the ceiling. Use elbows for installation to avoid obstacles inside ceiling. If the horizontal drain pipe is too long before vertical pipe, the backflow of water will increase when the unit is stopped, and it may cause overflow of water from the drain pan on the indoor unit. In order to avoid overflow, keep the horizontal pipe length and offset of the pipe within the limit shown in the figure below.

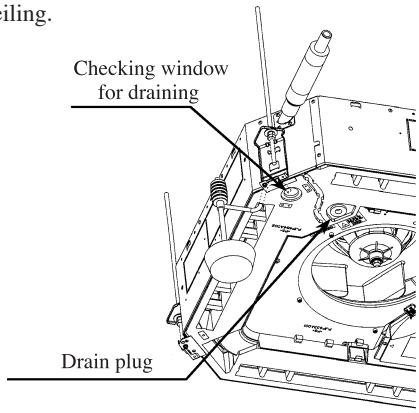


(g) Drain pipe (continued)

Drain test

- After installation of drain pipe, make sure that drain system work in good condition and no water leakage from joint and drain pan. Check if the motor sound of drain pump is normal or not.
- Do drain test even if installation of heating season.
- For new building cases, make sure to complete the test before hanging the ceiling.

1) Pour water of about 1000cc into the drain pan in the indoor unit by pump so as not to get the electrical component wet.
2) Make sure that water is drained out properly and there is no water leakage from any joints of the drain pipe at the test.
   Confirm that the water is properly drained out while the drain motor is operating. At the drain socket (transparent), it is possible to check if the water is drained out properly.
3) Unplug the drain plug on the indoor unit to remove remaining water on the drain pan after the test, and re-plug it. And insulate the drain pipe properly finally.



Drain pump operation

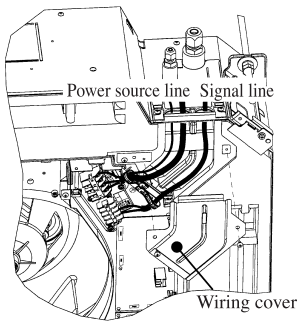
○ In case electrical wiring work finished
Drain pump can be operated by remote controller (wired).
For the operation method, refer to Operation for drain pump in the installation manual for wiring work.

○ In case electrical wiring work not finished
Drain pump will run continuously when the dip switch "SW7-1" on the indoor unit PCB is turned ON, the Connector CNB is disconnected, and then the power supply (230VAC on the terminal block ① and ②) is turned ON.
Make sure to turn OFF "SW7-1" and reconnect the Connector CNB after the test.

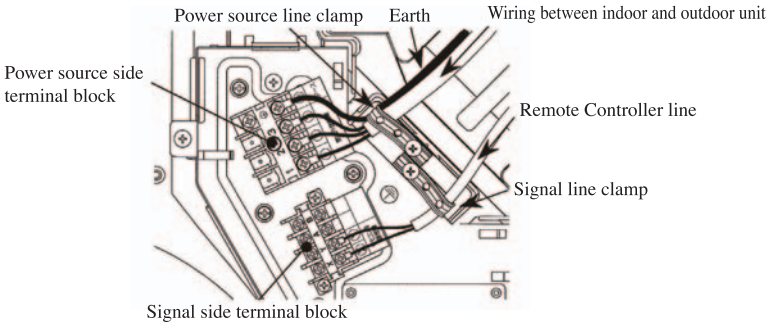
(h) Wiring-out position and wiring connection

- Electrical installation work must be performed according to the installation manual by an electrical installation service provider qualified by a power provider of the country, and be executed according to the technical standards and other regulations applicable to electrical installation in the country.
  Be sure to use an exclusive circuit.
- Use specified cord, fasten the wiring to the terminal securely, and hold the cord securely in order not to apply unexpected stress on the terminal.
- Do not put both power source line and signal line on the same route. It may cause miscom-munication and malfunction.
- Be sure to do D type earth work.
- For the details of electrical wiring work, see attached instruction manual for electrical wiring work.

1) Remove a lid of the control box (3 screws) and the wiring cover (2 screws).
2) Hold each wiring inside the unit and fasten them to terminal block securely.
3) Fix the wiring with clamps.
4) Install the removed parts back to original place.



Single Split (PAC) series

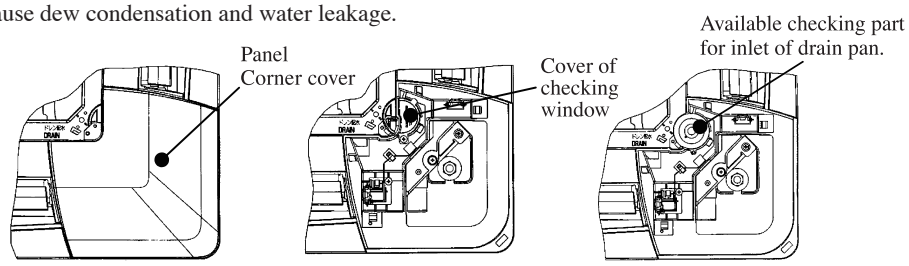


(i) How to check the dirt of drain pan (Maintenance)

The method of checking the dirt of drain pan

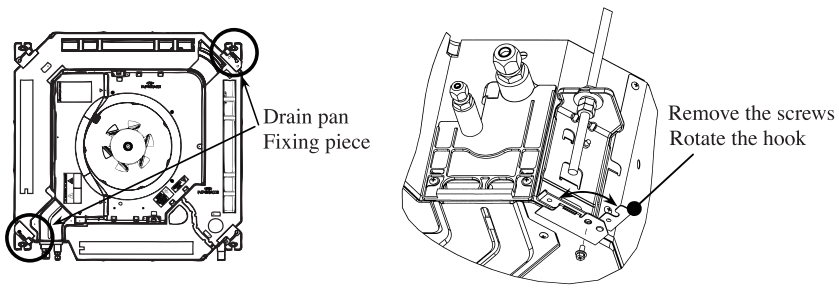
- It is possible to check the dirt for inlet of drain pan without detaching the panel.
  (Inspection is not possible when the high efficient filter and option spacer is installed.)

1) Open the air return grille and remove the panel corner cover on drain pan side.
2) Remove the cover of inspection window. (1screw)
3) Check the drain pan from the inspection window.
   If the drain pan is very dirty, remove the drain pan and clean it.
4) After checking of the dirty of drain pan, restore the cover of the inspection window securely. Improper restoration of the cover may cause dew condensation and water leakage.



Attention for removing drain pan

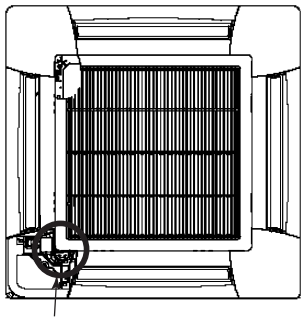
- The fixing components have been attached the with drain pan. Pay attention to these components during installation and removing. Take off the hanging hook after removing four screws. During the installation of drain pan, fix the drain pan firmly by using four screws after hanging it up with the fixing hook.



(j) Panel installation

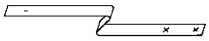
1) Before installation

- Follow installation manual carefully, and install the panel properly.
- Check the following items.
  - ○ Accessories



Accessories holding position

Accessories

Bolt		4 pieces	For panel installation
Strap		4 pieces	For avoiding the corner panel from falling

Note: Accessories are laid in the position removing the corner panel.

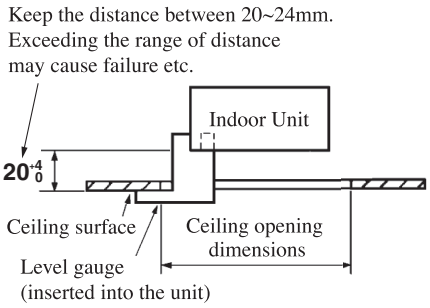
2) Checking the indoor unit installation position

- Read this manual together with the air conditioner installation manual carefully.
- Check if the opening size for the indoor unit is correct with the level gauge supplied in the indoor unit.
- Check if the gap between the ceiling plane and the indoor unit is correct by inserting the level gauge into the air outlet port of the indoor unit. (See below drawing)
- Adjust the installation elevation if necessary.

Caution

If there is a height difference beyond the design limit between the installation level of the indoor unit and the ceiling plane, the panel may be subject to excessive stress during installation, it may cause distortion and damage.

- The installation level of the indoor unit can be adjusted finely from the opening provided on the corner, even after panel is attached. (Refer **6) Attaching the panel** to for details.)

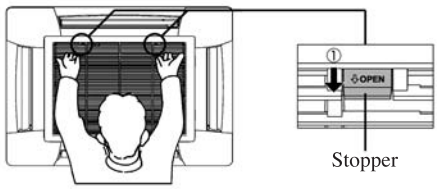


3) Removing the air return grille

a) Hold the stoppers on the air return grille (2 pieces) toward OPEN direction, open the air return grille.

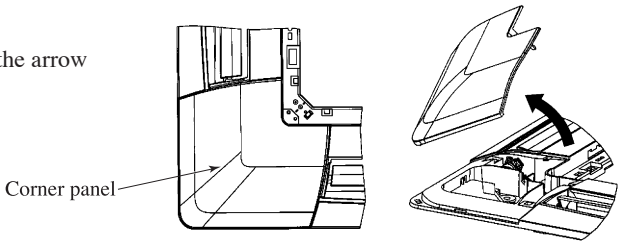
b) Remove the hooks of the air return grille from the decorativepanel while it is in the open position.

<Removal>



4) Removing a corner panel

- Pull the corner panel toward the direction indicated by the arrow and remove it. (Same way for all four corner panels)



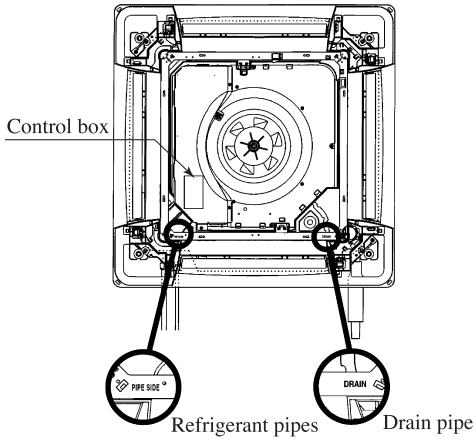
5) Orientation of the panel installation

Take note that there is an orientation to install the panel.

- Attach the panel with the orientation shown on the right.
- Align the “PIPE SIDE” mark (on the panel) with the refrigerant pipes on the indoor unit.
- Align the “DRAIN” mark (on the panel) with the drain pipe on the indoor unit.

Caution

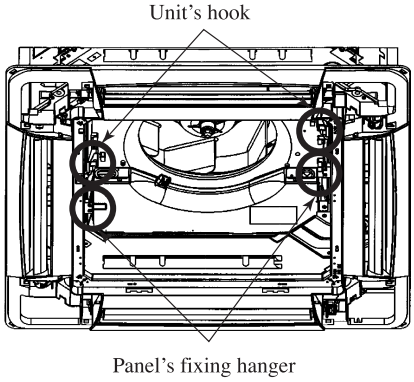
In case the orientation of the panel is not correct, it will lead to air leakage and also it is not possible to connect the louver motor wiring.

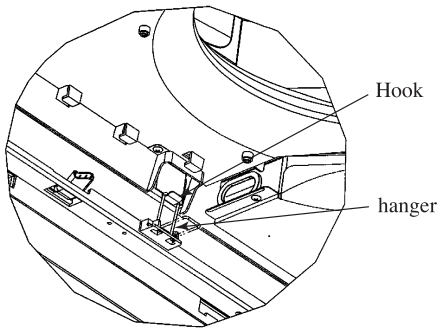


6) Attaching the panel

a) Temporary attaching

- Lift up the hanger (2 places) on the panel for temporary support.
- Hang the panel on the hook on the indoor unit.



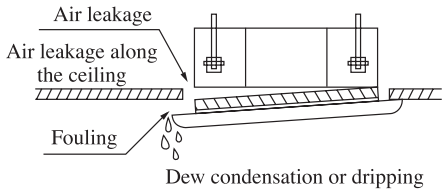


b) Fix the panel on the indoor unit

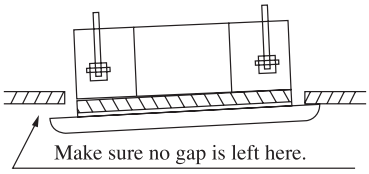
- Fasten the panel on the indoor unit with the four bolts supplied with the panel.

Caution

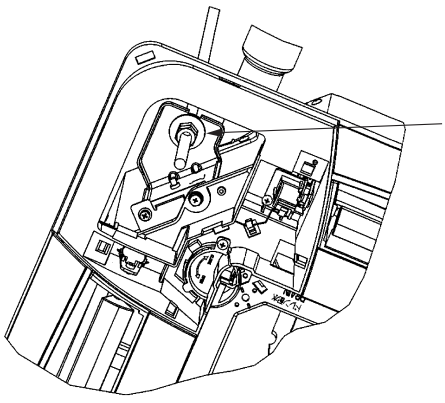
- Improperly tightened hanging bolts can cause the problems listed below, so make sure that you have tightened them securely.



- If there is a gap remaining between the ceiling and the decorative panel even after the hanging bolts are tightened, adjust the installation level of the indoor unit again.



- It is possible to adjust the installation height of the indoor unit with the panel attached as long as there is no influence on the drain pipe inclination and/or the indoor unit levelness.



To adjust finely, please turn a nut fastening the indoor unit using a spanner or similar tool from the opening on the corner

Caution

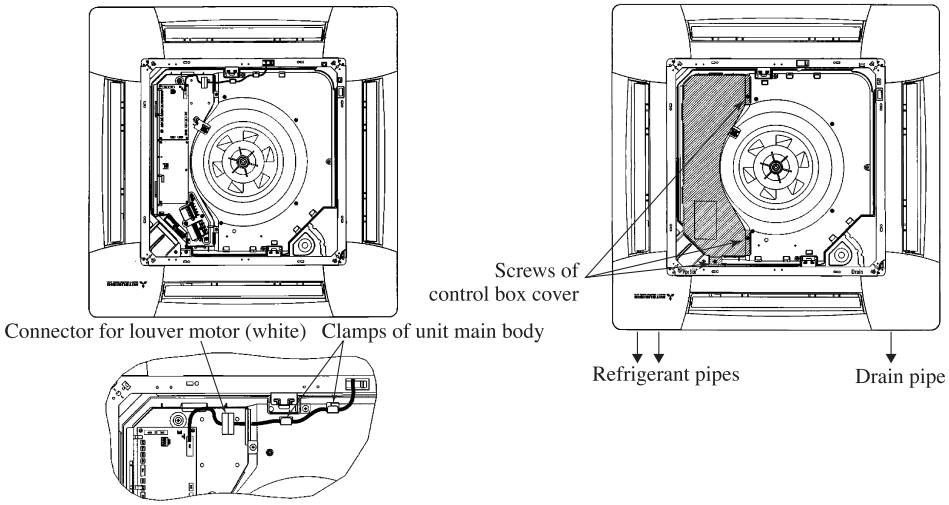
Make sure there is no stress given on the panel when adjusting the height of the indoorunit to avoid unexpected distortion. It may cause the distortion of panel or failing to close the air return grille.

7) Electrical wiring

a) After removing three screws of control box, detach the cover of control box (the hatched part).

b) Connect the connector for louver motor (white 20P).

- Hold the wiring by using the clamps of the indoor unit.
- Hold the connector inside the control box.

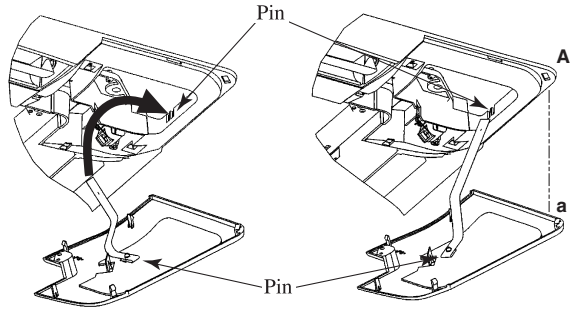


8) Attaching a corner panel

a) To avoid unexpected falling of the corner panel, put the strap onto the corner panel's pin with turning the strap up.

b) Then hang the strap of a corner panel onto the decorative panel's pin.

c) First insert the part "a" of a corner panel into the part "A" of the decorative panel, and then engage four hooks.

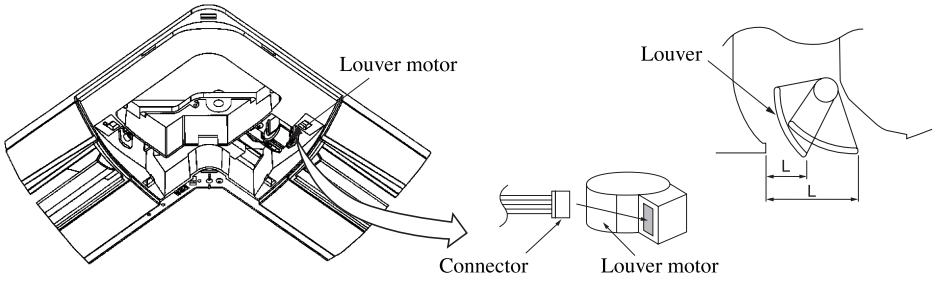


9) If it is necessary to fix the louver position manually, follow the procedure mentioned below.

a) Shut off the main power switch.

b) Unplug the connector of the louver motor which you want to fix the position. Make sure to insulate unplugged connectors electrically with a vinyl tape.

c) Adjust the louver position slowly by hand so as to be within the applicable range mentioned below table.



<Range of louver setting>

Vertical airflow direction	Horizontal 0˚	Downwards 45˚
Dimension L (mm)	43	26

❉ It can be set between 26 ~ 43mm freely.

Caution

- Any automatic control or operation from the remote controller will be disabled on the louver whose position is fixed in the above way.
- Do not set a louver beyond the specified range. Failure to observe this instruction may result in dripping, dew condensation, the fouling of the ceiling and the malfunctioning of the unit.

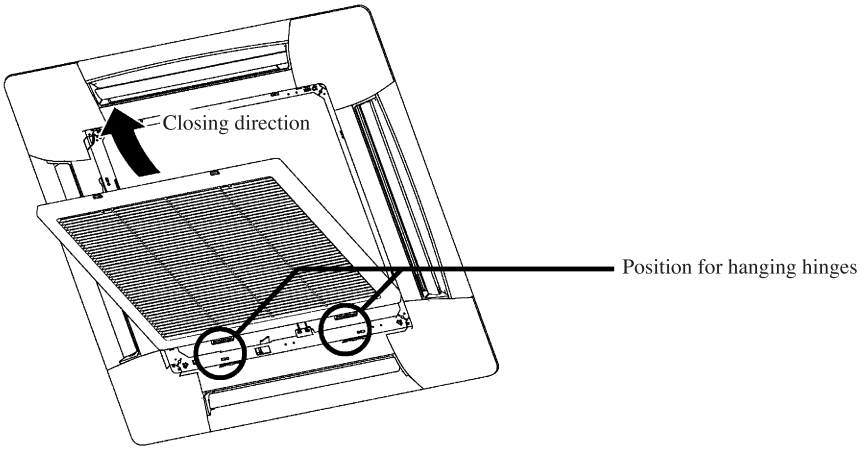
10) Attaching the air return grille

There is no orientation on attaching the air return grille onto the panel.

To attach the air return grille, follow the procedure described in **3 Removing the air return grille** in the reverse order.

1. Hang the hooks of the air return grille in the hole of the panel. (The hooks of the grille can be hanged in any four side of the panel.)
2. After the grille is hanged, close the grille while the stoppers on the grille (2 pieces) are kept pressed to "OPEN" direction. When the grille comes to the original position, release the stoppers to hold the grille. Make sure to hear the sound of "CLICK" in both stoppers.

<Installation>



Caution

- Attaching the air return grille from the hinge side.
- Be careful in air return grille attaching, unstable attaching may cause grille falling.
- Repair or replace the distorted, broken stopper at once, or the grille falling may occur.

(3) Ceiling suspended type (FDEN)

(a) Selection of installation location

1) A place where good air circulation and delivery can be obtained.

Cold air throw Unit : m

Model	FDEN40, 50	FDEN60, 71	FDEN100, 125, 140
Air throw	7.5	8	9

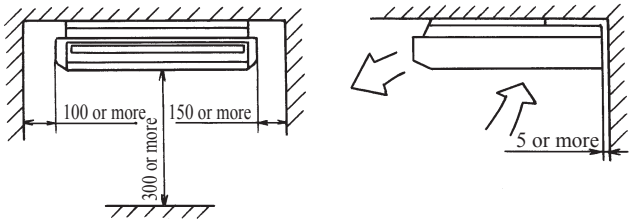
Conditions

(1) Installation height: 2.4 ~ 3.0 m above the floor
(2) Fan speed: Hi
(3) Location: Free space without obstacles
(4) Distance of reach indicates the horizontal distance after the wind touched down the floor.
(5) Air velocity at the throw: 0.5 (m/sec.)

2) A place where ceiling has enough strength to support the unit.
3) A place where there is no obstruction to the return air return and supply air supply ports.
4) Places exposed to oil splashes or steam (e.g. kitchens and machine plants).
Installation and use at such places will incur deteriorations in the performance or corrosion with the heat exchanger or damage in molded synthetic resin parts.
5) A place where the space shown below may be secured.

Ceiling mouting installation

Unit : mm



Note (1) In the case of neighboring installations, separate the units by the following dimensions or greater.

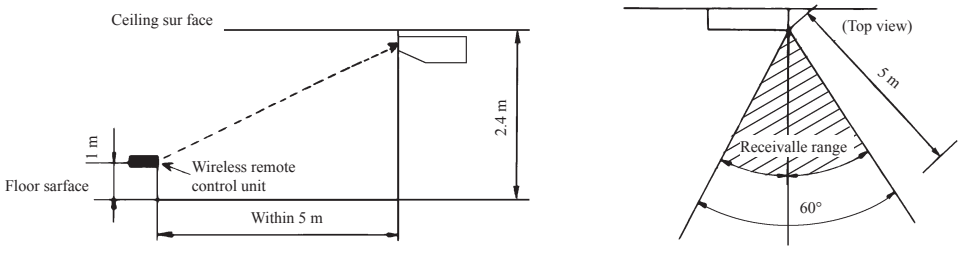
Item / Model	Dimensions
FDEN40, 50	4000
FDEN60, 71	4500
FDEN100, 125, 140	5000

6) This unit uses a microcomputer as a control device. Therefore avoid installing the unit near the equipment that generates strong electromagnetic waves and noise.

(b) Wireless remote control unit operation distance.

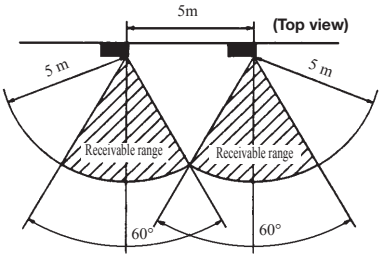
1) Standard signal receiving range.

[Condition] Illuminance at the recelver area: 360 lux.
(When no lighting fixture is located with in 1 m of indoor unit in an ordinary office)



2) Points for attention in connecting a plural number of indoor units.

[Condition] Illuminance at the recelver area: 360 lux.
(When no lighting fixture is located within 1 m of indoor unit in an ordinary office)
When the remote control unit is used with the aforementioned interference-prevention setting, a minimum distance guaranteeing the prevention of unintended unit responses is 5 m.

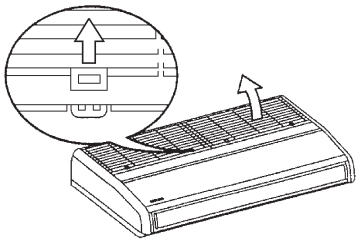


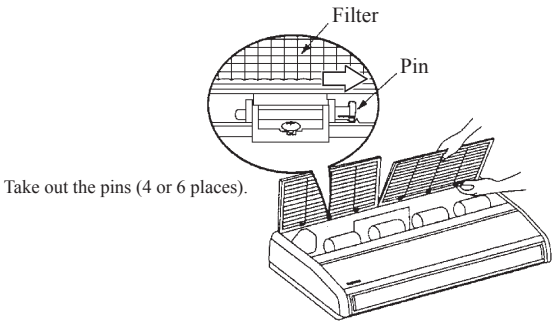
a) Please operate remote control unit switches with the unit faced correctiy toward the indoor unit's receiver section.
b) Effective operation distance can vary with the luminance around the receiver and the reflection from walls of the room.
c) When the receiver is exposed to intensive light such as from the direct sun or a strong light, it may become operable only from a short distance or unable to receive signals at all.

(c) Installation preparation

1) Remove the air return grille.

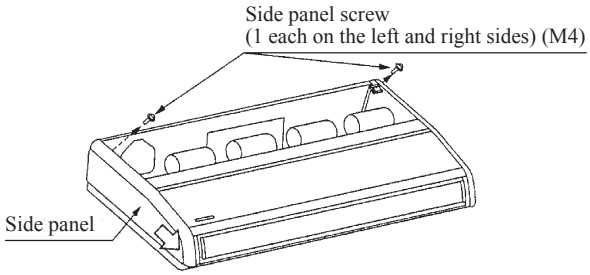
Slide the stoppers (4 places).





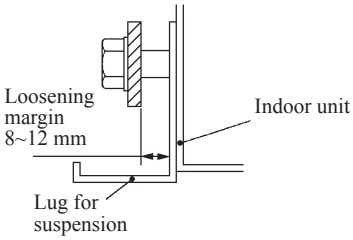
2) Remove the side panels.

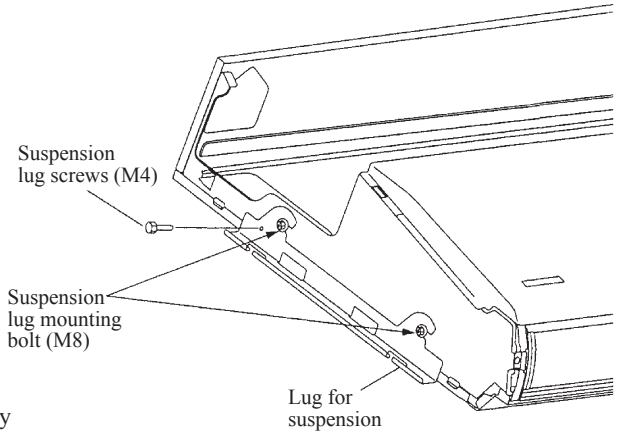
Take out the screws, then slide the side panels in the arrow direction to remove them.



3) Remove the suspension lug.

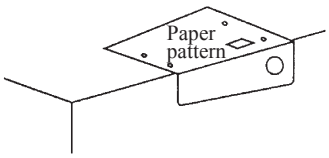
Take out the screws, then loosen the installation bolt.



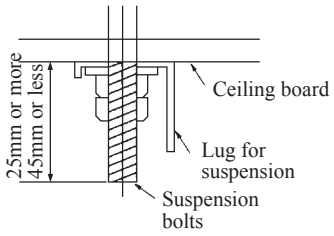


4) Suspension bolt position

a) Using the paper pattern supplied as an accessory as a criterion, select suspension bolt positions and piping hole positions, then install the suspension bolts and make holes for piping. After positioning, remove the paper pattern.

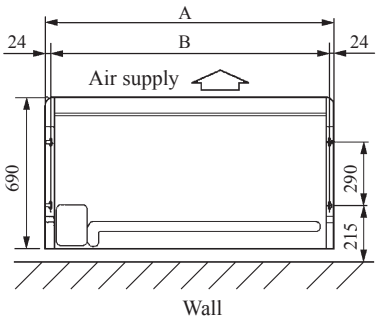


b) Keep strictly to the suspension bolt lengths specified below.



Unit : mm

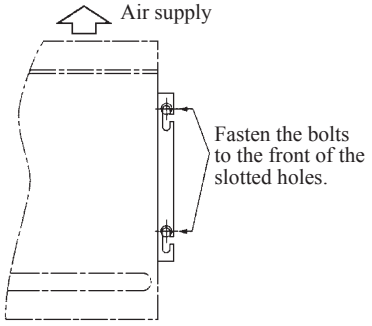
Model	A	B
FDEN40, 50	1070	1022
FDEN60, 71	1320	1272
FDEN100, 125, 140	1620	1572

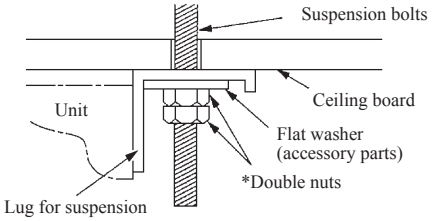


(d) Installation

1) Fasten the suspension lugs to the suspension bolts.

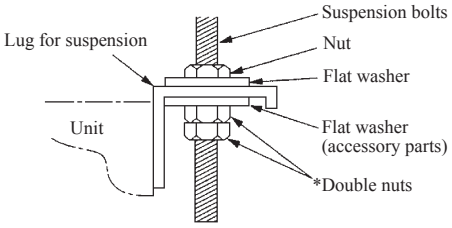
<If there is ceiling material>





*Fasten it securely with double nuts.

<If there is no ceiling material>

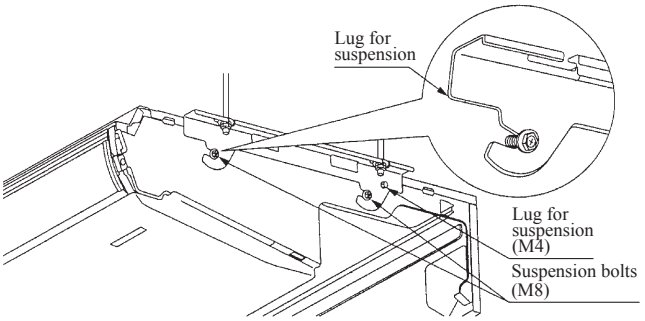


2) Attach the unit to the suspension lugs.

① Slide the unit onto the suspension lugs from the front, hanging it on the bolts.

② Fasten the unit securely on the left and right sides with 4 suspension bolts (M8).

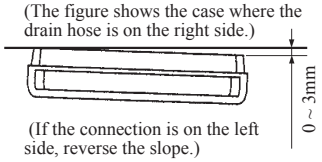
③ Tighten the 2 screws (M4) on the left and right sides.



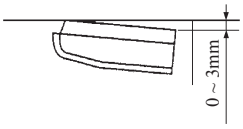
⚠ After sliding the side panels on from the front to rear, fasten them securely with the screws.

3) In order to make it easier for water to drain out, install the unit so that the water drain side slopes downward.

• Left-right direction



• Front-rear direction

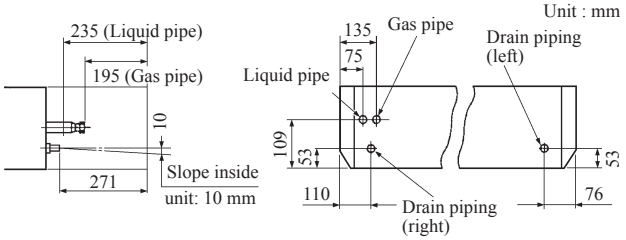


⚠ If the slope is reversed, there is danger of water leaking out.

(e) Refrigerant piping

1) Piping position

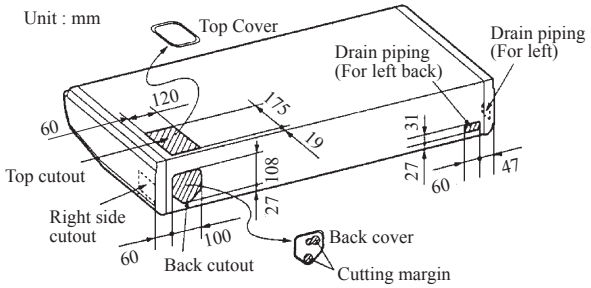
Unit : mm



2) Piping connection position

Piping can be connection from 3 different directions. Remove the cutout from hole where the piping will be connected using side cutters or similar tool. Cut a hole for the piping connection in the back cover according to the cutting margin shown. Cut a hole in the ceiling side in accordance with the position of the piping. Also, after the piping is installed, seal the space around the piping with putty, etc. to keep dust from getting inside the unit.

(In order to prevent damage to wires from the edges, be sure to use the back cover.)



(f) Drain piping

1) Drain piping can be connected from the back, right and left sides.

2) When installing drain piping, be sure to use the insulating material supplied for the drain hose and drain hose clamp.

a) Connect the drain hose fully all the way to the base of the fitting.

b) Fasten the hose securely with the drain hose clamp.

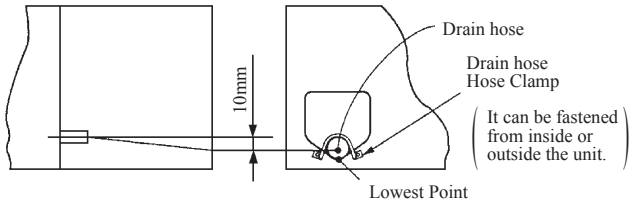
c) Keep strictly within the lengths specified below for the suspension bolts.

3) If drain piping is installed on the left side, change the rubber plug and insulating material (tubular) from the left side piping connection port to the right side.

⚠ Be careful that water doesn't pour out when the drain plug is removed.

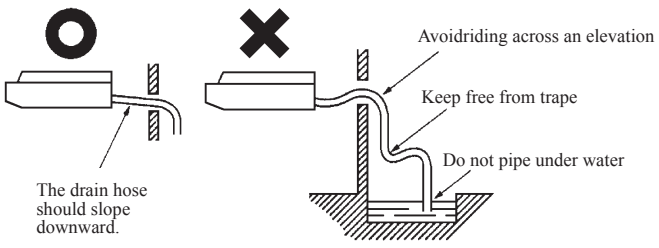
⚠WARNING

Use the fitting supplied with the unit to connect the drain hose, fastening it at the lowest point so that there is no slack, and establishing a 10 mm drain slope. * Keep electrical wiring from running beneath the drain hose.



⚠ Be sure to fasten the drain hose down with a clamp.

There is danger of water overflowing the drain hose.



After piping has been installed, check to make sure water drains well and that there is no overflow.

(4) Duct connected-Middle static pressure-type (FDUM)

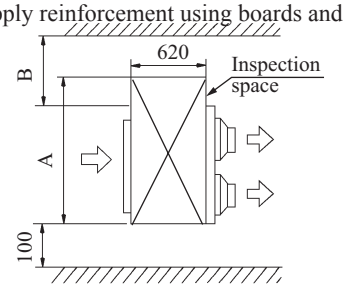
(i) Selection of installation location

1) Avoid installation and use at those places listed below.
   a) Places exposed to oil splashes or steam (e.g. kitchens and machine plants).
      Installation and use at such places will incur deteriorations in the performance or corrosion with the heat exchanger or damage in molded synthetic resin parts.
   b) Places where corrosive gas (such as sulfurous acid gas) or inflammable gas (thinner, gasoline, etc.) is gnerated or remains.
      Installation and use at such places will cause corrosion in the heat exchanger and damage in molded synthetic resin parts.
   c) Places adjacent to equipment generating electromagnetic waves or high-frequency waves such as in hospitals. Generated noise may cause malfunctioning of the controller.

2) Select places for installation satisfying the following conditions and, at the same time, obtain the consent on the part of your client user,
   a) Places where chilled or heated air circulates freely. When the installation height exceeds 3m, warmed air stays close to the ceiling. In such cases, suggest your client users to install air circulators.
   b) Places where perfect drainage can be prepared and sufficient drainage gradient is available.
   c) Places free from air disturbances to the return air port and supply hole of the indoor unit, places where the fire alarm may not malfunction to short circuit.
   d) Areas where dew point is lower than around 28°C and relative humidity is lower than 80%.

   (This indoor unit is tested under the condition of ISO high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air conditioner is operated under the severer condition than mentioned above.
   If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.)

3) Check if the selected place for installation is rigid enough to stand the weight of thew unit.
   Otherwise, apply reinforcement using boards and beams before starting the installation work.

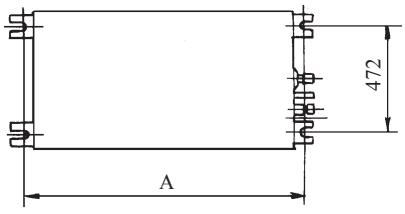


Unit : mm

Mark / Models	A	B
FDUM50V	1100	600
FDUM60V, 71V	1300	600
FDUM100V ~ 140V	1720	600

(ii) Suspension

Be sure to observe the finished length of the suspension bolts given below.

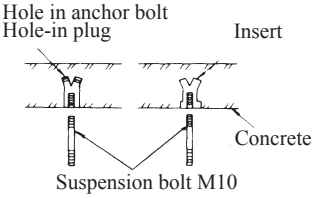


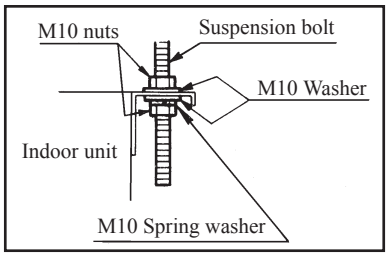
Unit : mm

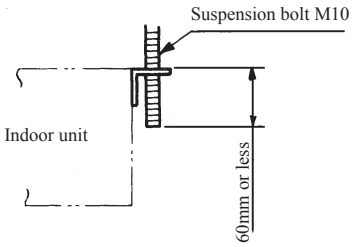
Mark / Models	A
FDUM50V	786
FDUM60V, 71V	986
FDUM100V ~ 140V	1406

1) Fixing the suspension bolt (customer ordered parts M10)

Securely fix the suspension bolt as illustrated below or in another way.



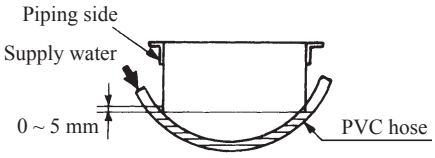




2) Adjusting the unit's levelness

a) Adjust the out-levelness using a level vial or by the following method.

- Make adjustment so that the relation between the lower surface of the indoor unit proper and water level in the hose becomes given below.



Bring the piping side slightly lower

b) Unless the levelness is adjusted properly, the malfunction of the float switch will occur.

3) Blower fan tap switch

The following two methods are available in switching the blower fan tap. Switch to the high-speed tap with one of these methods.

SW9-4	ON	Fan control,high speed (High ceiling)
	OFF	Fan control,standard

① Set SW9-4 provided on the indoor unit PCB to ON.

② By means of function setting from the remote control unit, set the setting Ⓒ of "I/U FUNCTION ▲" (indoor unit function) to "Hi CEILING 1 " (high-speed tap) as shown right.

Function numberⒶ	Function descriptionⒷ	SettingⒸ
01	Hi CEILING SET	Hi CEILING 1

For the details of operating procedures, please refer to the installation manual of your remote control unit.

(iii) Duct work

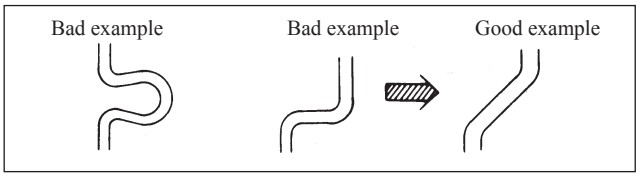
① **Supply air duct**

- 2-spot, 3-spot and 4-spot with ø200 type duct are the standard specifications. Determine the number of spots based on following table.

FDUM50V	FDUM60V, 71V	FDUM100V ~ 140V
2-spot	2 ~ 3-spot (1)	3 ~ 4-spot (2)

Notes (1) Shield the central supply air port for 2-spot.
(2) Shield the supply air port around the center for 3-spot.

- Limit the difference in length between spots at less than 2:1.
- Reduce the length of duct as much as possible.
- Reduce the number of bends as much as possible. (Corner R should be as larger as possible.)



2 Access door

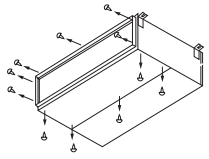
Access door must be provided without fail.

- **Dimensions of access door and service space**

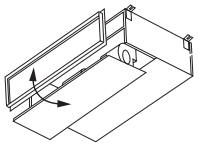
(See exterior dimensions in page 93 to 95.)

③ **Return air port**

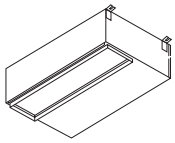
- When shipped, the return air port lies on the back.
- When connecting the duct to the return air port, remove the air filte if it is fitted to return air port.
- When placing the return air port to carry out suction from the bottom side, use the following procedure to replace the return air duct joint and the bottom plate.



• Remove the screws which fasten the bottom plate and the duct joint on the return air port of the unit.



• Replace the removed bottom plate and duct joint.

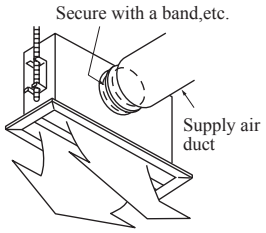


• Fit the duct joint with a screw, fit the bottom plate.

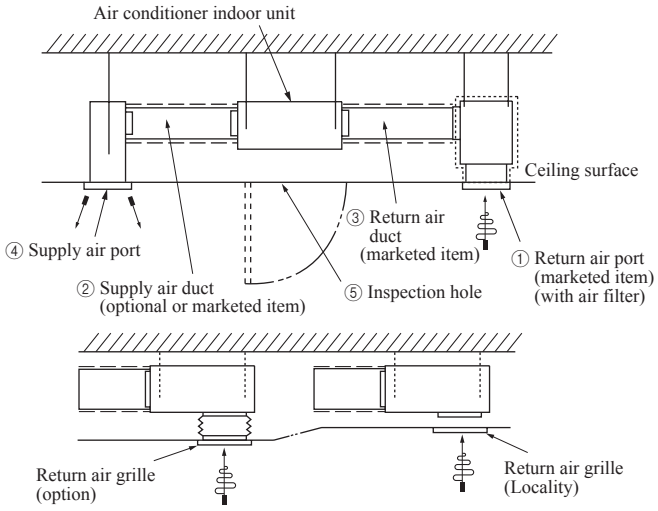
- Make sure to insulate the duct to prevent dewing on it.

④ Install the specitic supply air duct in a location where the air will circulate to the entire room.

- The duct connection is specific to the 200 circular duct.
- Conduct the installation of the specific supply air hole and the connection of the duct before attaching them to the ceiling.
- Insulate the area where the duct is secured by a band for dew condensation prevention.



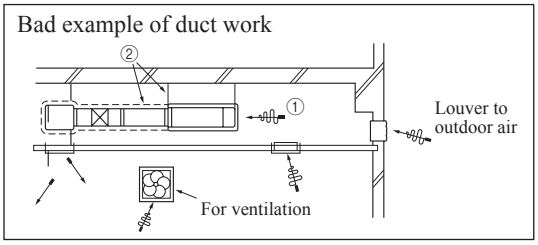
⑤ Make sure provide an inspection hole on the ceiling. It is indispensable to service electric equipment, motor, functional components and cleaning of heat exchanger.



⑥ If a duct is not provided at the return air side but it is substituted with the space over the ceiling, humidity in the space will increase by the influence of capacity of ventilation fan, strength of wind blowing againat the outdoor air louver, weather (rainy day) and others.

- Moisture in air is likely to condense over the external plates of the unit and to drip on the ceiling. Unit should be operated under the conditions as listed in the above table and within the limitation of wind volume. When the building is a concrete strucially immediately after the construction, humidity tends to rise if the space over the ceiling is not substitued in place of a duct. In such occasion, it is necessary to insulate the entire unit with glass wool (25mm). (Use a wire net or equivalent to hold glass wool in place.)
- It may run out the allowable limit of unit operation (Example: When ambient air temperature is 35ºCD.B, return air temperature is 27ºCW.B) and it could result in such troubles as compressor overload, etc..

• There is a possibility that the supply air volume may exceed the allowable range of operation due to the capacity of ventilation fan or strength of wind blowing against external air louver so that drainage from be heat exchanger may fail to reach the drain pan leak outside (e.g. drip on to the with consequential water leakage in the room.)



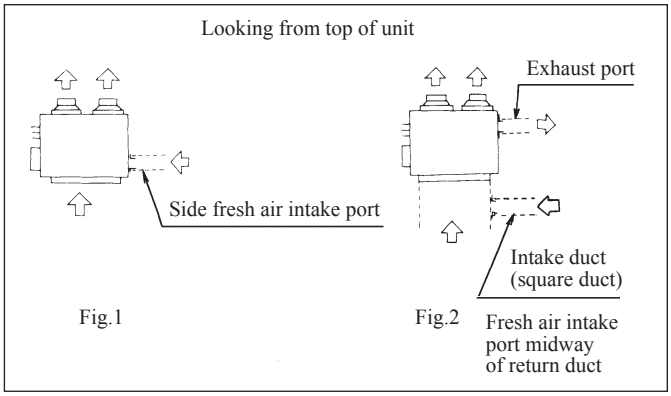
Notice: Aspecific cover plate is available when changing the 4 spot to the 3 spot, or when changing the 3 spot to the 2 spot.

Note (1) Do not change from 2 spot to 1 spot.

⑦ Return air duct: Use square duct.

⑧ Return air port with canvas duct

1) Connection of intake and exhaust ducts.



2) Duct connecting position.

< Fresh air intake >

a) Use side air intake port.

b) In case of simultaneous intake and exhaust, the side air intake port cannot be used, therefore, take air from the midway air intake port along the intake duct.

< Exhaust > Make sure to use suction as well.

c) Use a side exhaust port.

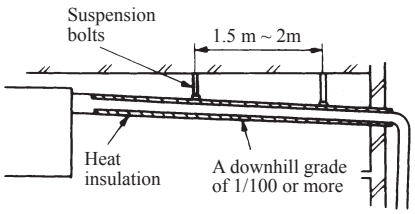
3) Duct connection

Use intake and exhaust duct flange of separately sold (for connection of ø125mm round duct) to connect ø125mm round duct. The duct clamped by bands must be thermally insulated to prevent dew condensation.

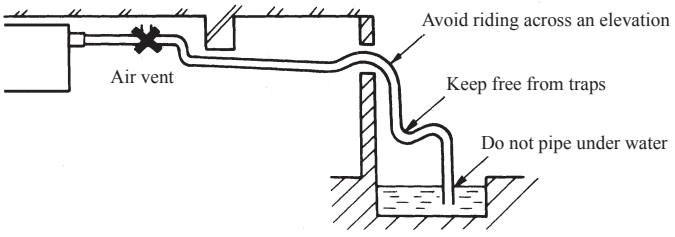
(iv) Drain piping

1) Drain piping should always be in a downhill grade (1/50-1/100) and avoid riding across an elevation or making traps.

• Good piping

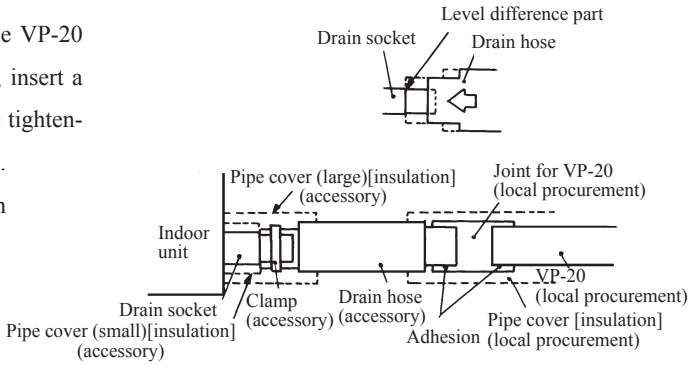


• Improper piping

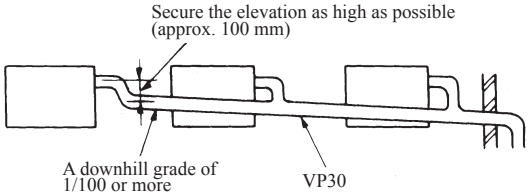


2) When connecting the drain pipe to the unit, pay sufficient attention not to apply excess force to the piping on the unit side. Also, fix the piping at a point as close as possible to the unit.

3) For drain pipe, use hard PVC general purpose pipe VP-20 which can be purchased locally. When connecting, insert a PVC pipe end securely into the drain socket before tightening securely using the attached drain hose and clamp. Adhesive must not be used connection of the drain socket and drain hose (accessory).



4) When constructing drain piping for several units, position the common pipe about 100 mm below the drain outlet of each unit as shown in the sketch below. Use VP-30 or thicher pipe for this purpose.

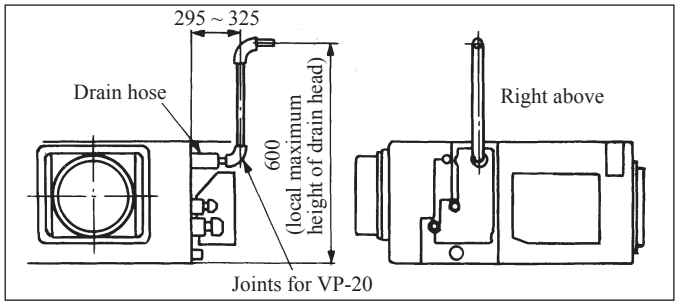


5) Be sure to provide heat insulation to hard PVC pipes of indoor placement.

6) Do not ever provide an air vent.

7) The height of the drain head may be elevated up to a point 600 mm from the bottom of unit and, when an obstacle exists in the ceiling space, elevate the piping to avoid the obstacle using an elbow or corresponding gadget. When doing this, if the stretch for the needed height is too high, the back-flow quantity of drain at the time of interruption of the operation gets too much and it may cause overflow at the drain pan. Therefore, make the height of the drain pipe within the distance given in the drawing below.

Unit : mm



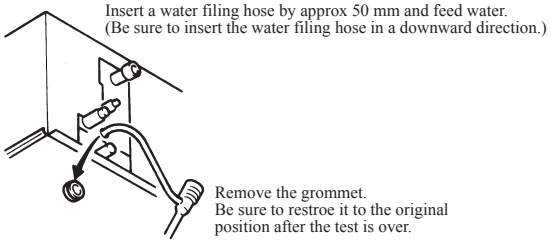
8) Avoid positioning the drain piping outlet at a place where generation of odor may stimulated. Do not lead the drain piping direct into a sewer from where sulfur gas may generate.

9) Drainage test

a) During trial operation, make sure that drainage is properly execued and check that leakage is not found at connections.

b) Be sure to carry out a drainage test when installing the system during a heating season.

c) When installing the system in a building under construction, carry out the drainage test before ceiling tiles are installed.



① Supply approx 1000cc of water through the outlet of the unit using a feed water pump.

② Make sure that drainage is proceeding properly at the see-through outlet of the unit.

* Also confirm the revolving sound of the condensate motor when checking the drainage.

③ Then remove the drain plug at lower section of the unit to drain water off. After making sure water is not left, restore the drain plug to the original position.

Forced drain pump operation

♦ Setup from a unit side.

○ In case electrical wiring work finished
Drain pump can be operated by remote controller (wired).
For the operation method, refer to Operation for drain pump in the installation manual for wiring work.

○ In case electrical wiring work not finished
Drain pump will run continuously when the dip switch "SW7-1" on the indoor unit PCB is turned ON, the Connector CNB is disconnected, and then the power supply (230VAC on the terminal block ① and ②) is turned ON.
Make sure to turn OFF "SW7-1" and reconnect the Connector CNB after the test.

♦ Setup from a remote controller side.

Drain pump operation from remote control unit is possible. Operate a remote control unit by following the steps described below.

1. To start a forced drain pump operation.

① Press the TEST button for three seconds or longer.
The display will change " TEST RUN "

② Press the ▼ button once and cause " DRAIN PUMP " to be displayed.

③ When the ○ (SET) button is pressed, a drain pump operation will start.
Display: " TO STOP "

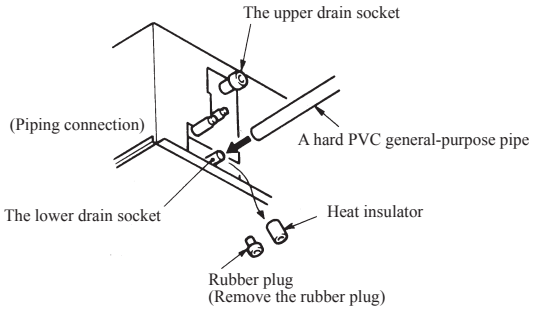
2. To cancel a drain pump operation.

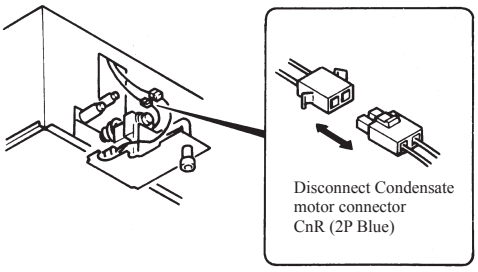
① If either ○ (SET) or ①ON/OFF button is pressed, a forced drain pump operation will stop. The air conditioning system will become OFF.

○ If two (2) remote controllers are connected to one (1) inside unit, only the master controller is available for trial operation and confirmation of operation data. (The slave remote controller is not available.)

10) Drainage from the lower drain socket

Only if the drain pipe can be installed in a downhill grade (1/50-1/100), the lower drain socket can be used for connecting to the drain pipe as illustrated.
(Disconnect the connector for the drain motor)
As shown in the sketch to the right, disconnect the drain motor connector CnR (blue color coding).
If the system is started with this connector connected as is, drain water is discharged out of the upper drain socket causing a heavy water lekage.





(5) Duct connected-High static pressure-type (FDU)

♦ **Model FDU 71V ~ 140V**

(a) Selection of installation location

1) Select the suitable areas to install the unit under approval of the user.
   - Areas where the indoor unit can deliver hot and cold wind sufficiently. Suggest to the user to use a circulator if the ceiling height is over 3m to avoid warm air being accumulated on the ceiling.
   - Areas where there is enough space to install and service.
   - Areas where it can be drained properly. Areas where drain pipe descending slope can be taken.
   - Areas where there is no obstruction of airflow on both air return grille and air supply port.
   - Areas where fire alarm will not be accidentally activated by the air conditioner.
   - Areas where the supply air does not short-circuit.
   - Areas where it is not influenced by draft air.
   - Areas not exposed to direct sunlight.
   - Areas where dew point is lower than around 28°C and relative humidity is lower than 80%.

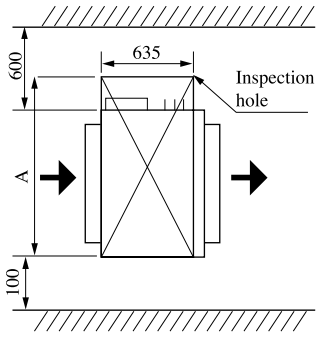
     This indoor unit is tested under the condition of ISO high humid-ity condition and confirmed there is no problem. However, there is some risk of condensa-tion drop if the air conditioner is operated under the severer condition than mentioned above.
     If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.
   - Areas where TV and radio stays away more than 1m. (It could cause jamming and noise.)
   - Areas where any items which will be damaged by getting wet are not placed such as food, table wares, server, or medical equipment under the unit.
   - Areas where there is no influence by the heat which cookware generates.
   - Areas where not exposed to oil mist, powder and/or steam directly such as above fryer.
   - Areas where lighting device such as fluorescent light or incandescent light doesnít affect the operation.
     (A beam from lighting device sometimes affects the infrared receiver for the wireless remote controller and the air conditioner might not work properly.)
2) Check if the place where the air conditioner is installed can hold the weight of the unit. If it is not able to hold, reinforce the structure with boards and beams strong enough to hold it. If the strength is not enough, it could cause injury due to unit falling.

Space for installation and service

- Make installation altitude over 2.5m.

(Indoor Unit)

Installation Space



Unit: mm

Mark \ Model	71	100, 125, 140
A	1200	1720

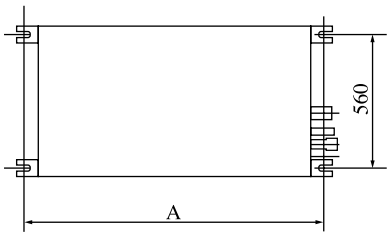
(b) Preparation before installation

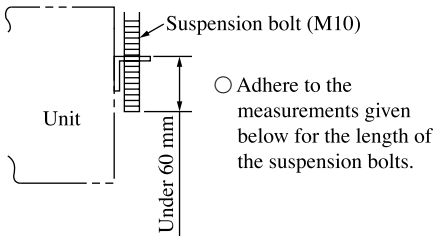
- If suspension bolt becomes longer, do reinforcement of earthquake resistant.
  - ○ For grid ceiling
    When the suspension bolt length is over 500mm, or the gap between the ceiling and roof is over 700mm, apply earthquake resistant brace to the bolt.
  - ○ In case the unit is hanged directly from the slab and is installed on the ceiling plane which has enough strength.
    When suspension bolt length is over 1000mm, apply the earthquake resistant brace to the bolt.
- Prepare four (4) sets of suspension bolt, nut and spring washer (M10) on site.

Suspension bolt location

Unit: mm

Mark \ Model	71	100, 125, 140
A	986	1406

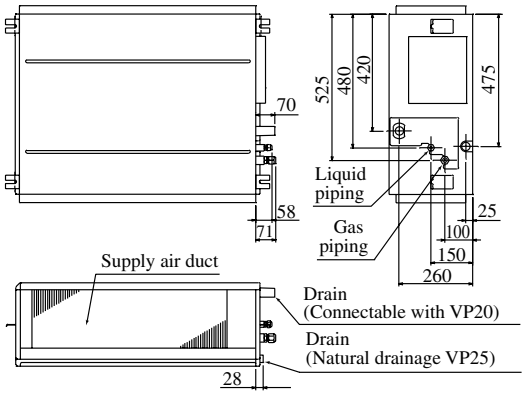




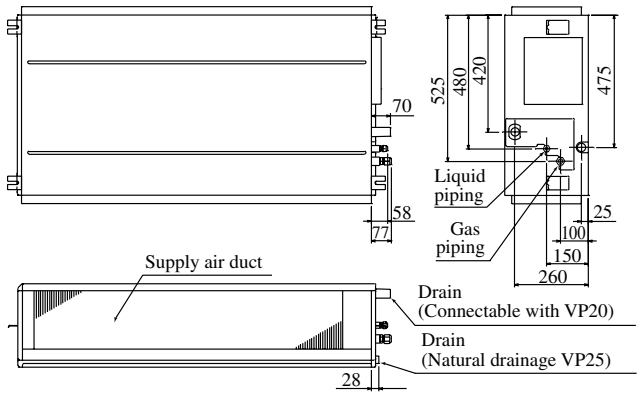
○ Adhere to the measurements given below for the length of the suspension bolts.

Pipe locations Unit: mm

Model: FDU71V



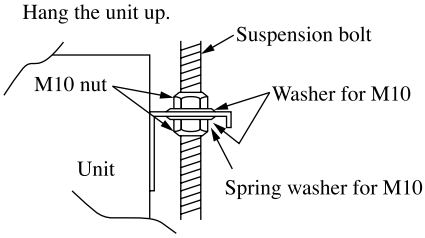
Models: FDU100V ~ 140V

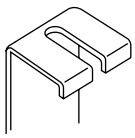


(c) Installation of indoor unit

Installation

[Hanging]
Hang the unit up.



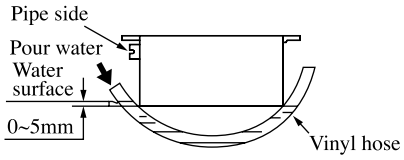


If the measurements between the unit and the ceiling hole do not match upon installation, it may be adjusted with the long holed installation tool.

Adjustment for horizontality

○ Either use a level vial, or adjust the level according to the method below.

● Adjust so the bottom side of the unit will be leveled with the water surface as illustrated below.



Let the pipe side be slightly sloped.

○ If the unit is not leveled, it may cause malfunctions or inoperation of the float switch.

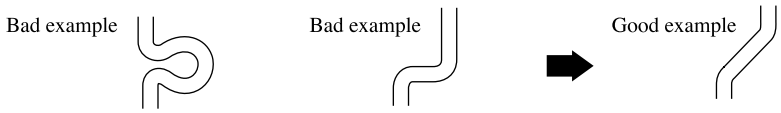
(d) Duck Work

A corrugated board (for preventing sputtering) is attached to the main body of the air conditioner (on the outlet port). Do not remove it until connecting the duct.

① The air conditioner main unit does not have an air filter. Incorporate it into the easy-to-clean return air grille.

② Supply air duct

- The ducts should be at their minimum lengths.
- Keep the bends to a minimum. (The bending radius should be as large as possible.)



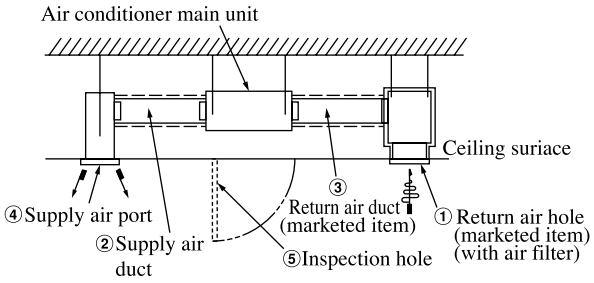
- Conduct the duct work before ceiling attachment.

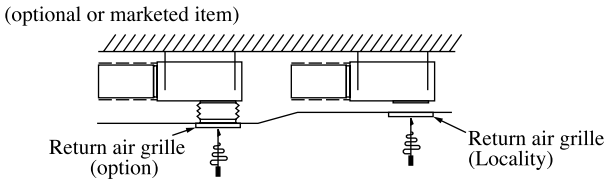
③ Return air duct

- Make sure to insulate the duct to prevent dewing on it.

④ Location and form of blow outlet should be selected so that air from the outlet will be distributed all over the room, and equipped with a device to control air volume.

⑤ Make sure provide an inspection hole on the ceiling. It is indispensable to service elecric equipment, motor, functional components and cleaning of heat exchanger.





Bad example of duct work

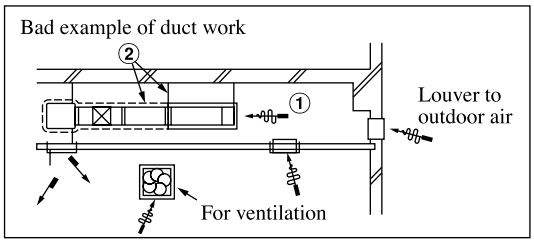
① If a duct is not provided at the suction side but it is substituted with the space over the ceiling, humidity in the space will increase by the influence of capacity of ventilation fan, strength of wind blowing against the outdoor air louver, weather (rainy day) and others.

a) Moisture in air is likely to condense over the external plates of the unit and to drip on the ceiling. Unit should be operated under the conditions as listed in the above table and within the limitation of wind volume. When the building is a concrete structure, especially immediately after the construction, humidity tends to rise even if the space over the ceiling is not substituted in place of a duct. In such occasion, it is necessary to insulate the entire unit with glass wool (25mm). (Use a wire net or equivalent to hold the glass wool in place.)

b) It may run out the allowable limit of unit operation (Example: When return air temperature is 35°C DB, supply air temperature is 27°C WB) and it could result in such troubles as compressor overload, etc..

c) There is a possibility that the blow air volume may exceed the allowable range of operation due to the capacity of ventilation fan or strength of wind blowing against external air louver so that drainage from be heat exchanger may fall to reach the drain pan but leak outside (Example: drip on to the ceiling) with consequential water leakage in the room.

② If vibration damping is not conducted between the unit and the duct, and between the unit and the slab, vibration will be transmitted to the duct and vibration noise may occur. Also, vibration may be transmitted from the unit to the slab. Vibration damping must be performed.

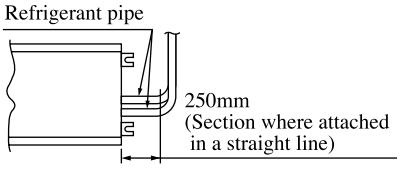


(e) Refrigerant pipe

Caution

- Use the new refrigerant pipe.
  When re-using the existing pipe system for R22 or R407C, pay attention to the following items.
  • Change the flare nuts with the attached ones (JIS category 2), and reprocess the flare parts.
  • Do not use thin-walled pipes.
- Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H3300) for refrigeration pipe installation. In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes.
- Do not use any refrigerant other than R410A.
  Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.
- Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc.
- Use special tools for R410 refrigerant.

Piping work



When conducting piping work, make sure to allow the pipes to be aligned in a straight line for at least 250 mm, as shown in the left illustration. (This is necessary for the drain pump to function)

Work procedure

1) Remove the flare nut and blind flanges on the pipe of the indoor unit.
   * Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
   (Gas may come out at this time, but it is not abnormal.)
   - Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
2) Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit.
   * Bend the pipe with as big radius as possible and do not bend the pipe repeatedly. In addition, do not twist and crush the pipes.
   * Do a flare connection as follows:
   - Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
   - When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table below. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
3) Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps.
   - Make sure to insulate both gas pipes and liquid pipes completely.
   * Incomplete insulation may cause dew condensation or water dropping.

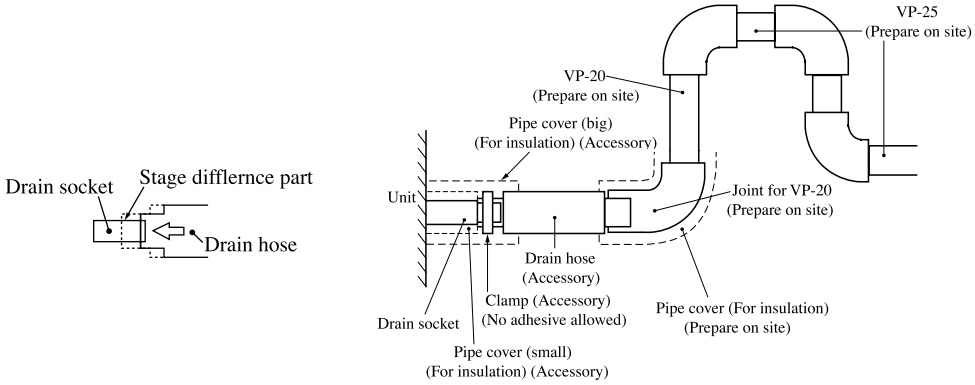
(f) Drain pipe

Caution

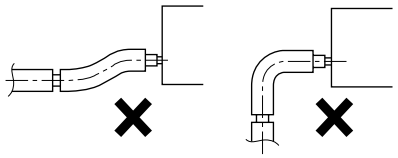
- Install the drain pipe according to the installation manual in order to drain properly.
  Imperfection in draining may cause flood indoors and wetting the household goods, etc.
- Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and inflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to userís health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell.
- Connect the pipe securely to avoid water leakage from the joint.
- Insulate the pipe properly to avoid condensation drop.
- Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.
- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance.

Work procedure

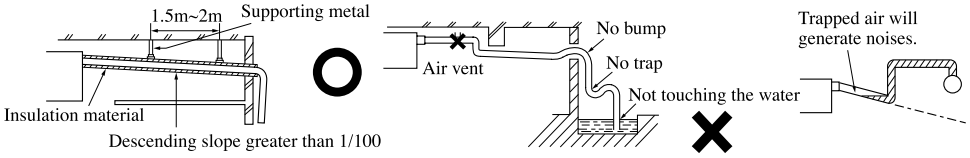
1) Insert the supplied drain hose (the end made of soft PVC) to the step of the drain socket on the indoor unit and fix it securely with the clamp.
   - Do not apply adhesives on this end.
   - Do not use acetone-based adhesives to connect to the drain socket.



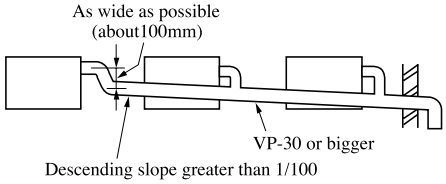
2) Prepare a joint for connecting VP-20 pipe, adhere and connect the joint to the drain hose (the end made of rigid PVC), and adhere and connect VP-20 pipe (prepare on site).
   * As for drain pipe, apply VP-20 made of rigid PVC which is on the market.
   - Make sure that the adhesive will not get into the supplied drain hose.
     It may cause the flexible part broken after the adhesive is dried up and gets rigid.
   - The flexible drain hose is intended to absorb a small difference at installation of the unit or drain pipes. Intentional bending, expanding may cause the flexible hose broken and water leakage.



3) Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway.
   - Pay attention not to give stress on the pipe on the indoor unit side, and support and fix the pipe as close place to the unit as possible when connecting the drain pipe.
   - Do not set up air vent.



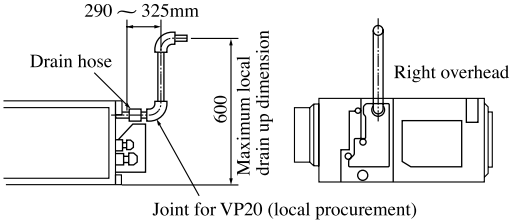
- When sharing a drain pipe for more than one unit, lay the main pipe 100mm below the drain outlet of the unit. In addition, select VP-30 or bigger size for main drain pipe.



4) Insulate the drain pipe.
   - Be sure to insulate the drain socket and rigid PVC pipe installed indoors otherwise it may cause dew condensation and water leakage.
   * After drainage test implementation, cover the drain socket part with pipe cover (small size), then use the pipe cover (big size) to cover the pipe cover (small size), clamps and part of the drain hose, and fix and wrap it with tapes to wrap and make joint part gapless.

Drain up

- The position for drain pipe outlet can be raised up to 600mm above the ceiling. Use elbows for installation to avoid obstacles inside ceiling. If the horizontal drain pipe is too long before vertical pipe, the backflow of water will increase when the unit is stopped, and it may cause overflow of water from the drain pan on the indoor unit. In order to avoid overflow, keep the horizontal pipe length and offset of the pipe within the limit shown in the figure below.



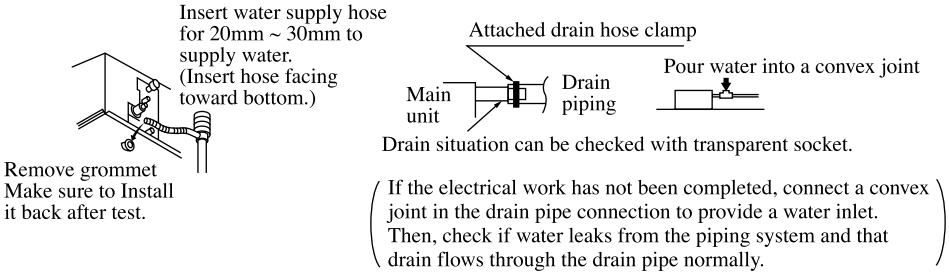
Otherwise, the construction point makes it same as drain pipe construction.

Drain test

① Conduct a drain test after completion of the electrical work.
② During the trail, make sure that drain flows properly through the piping and that no water leaks from connections.
③ In case of a new building, conduct the test before it is furnished with the ceiling.
④ Be sure to conduct this test even when the unit is installed in the heating season.

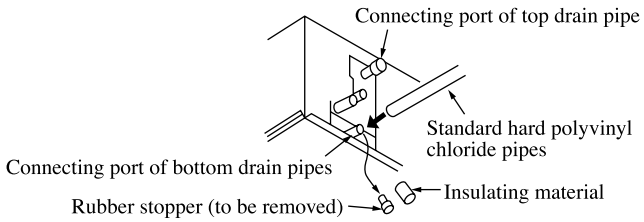
Procedures

① Supply about 1000 cc of water to the unit through the air outlet by using a feed water pump.
② Check the drain while cooling operation.



Outline of bottom drain piping work

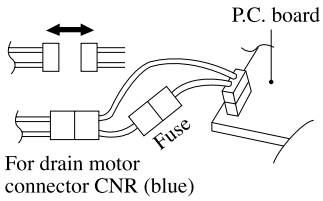
- If the bottom drain piping can be done with a descending gradient (1/50-1/100), it is possible to connect the pipes as shown in the drawing below.



Uncoupling the drain motor connector

- Uncouple the connector CNR for the drain motor as illustrated in the drawing on the right.

Note: If the unit is run with the connector coupled, drain water will be discharged from the upper drain pipe joint, causing a water leak.



Drain pump operation

○ In case electrical wiring work finished
Drain pump can be operated by remote controller (wired).
For the operation method, refer to Operation for drain pump in the installation manual for wiring work.

○ In case electrical wiring work not finished
Drain pump will run continuously when the dip switch "SW7-1" on the indoor unit PCB is turned ON, the Connec-tor CNB is disconnected, and then the power supply (230VAC on the terminal block ① and ②) is turned ON.
Make sure to turn OFF "SW7-1" and reconnect the Connector CNB after the test.

(g) Tap selection on blower unit (when the high peformance filter is used)

The fan tap's factory setting is "Standard" If you want to change it to the high static-pressure setting, you can avail yourself of the following two methods. Use one of the two methods to set the fan tap.
Make sure to perform the functional setting with remote controller.
Select [Indoor function] in the functional setting mode, and change the function number [01]
[High wall setting].
For operation method, refer to the user's manual of the remote controller.

Function number A	Functional content B	Setting content C	Default setting
01	High wall setting	Standard	○
		High wall 1	

UNIT: Pa

Static Pressure	Standard Tap	50
	High Tap	130

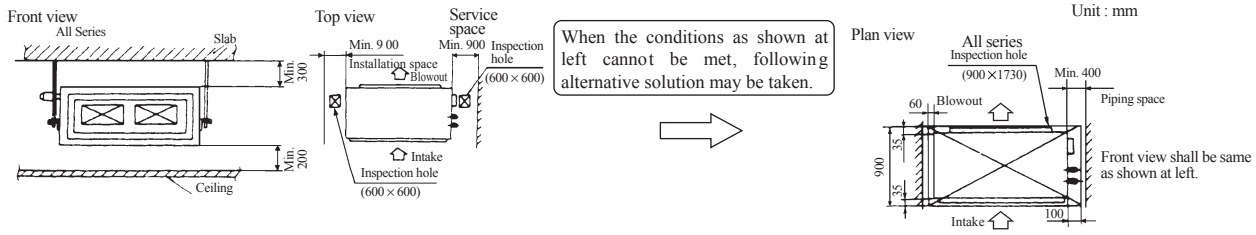
⚠ CAUTION

- Taps should not be used under static pressure outside the unit mentioned above.
  Dew condensation may occur with the unit and wet the ceiling or furniture.
- Do not use under static pressure outside the unit of 50Pa or less. Water drops may be blown from the diffuser outlet of the unit and wet the ceiling or furniture.

♦ **Model FDU200V, 250V**

(a) Selection of installation location

1) Install the unit at a place as shown below and which meets the conditions as shown by the following table.



Air conditions, limitation of air volume

(50/60Hz)

	Air volume (m^3/min)			Indoor unit suction air temperature		Ambient temperature around indoor unit
	Rating	Lower limit	Upper limit	Cooling	Heating	
FDU200V	51/60	38/45	65/60	Upper limit 26°CWB When ambient temperature is 35°C	Upper limit 27°CDB Ambient temperature is below 20°CWB	Dew point temperature below 23°C
FDU250V	68/80	51/60	87/88			
				Lower limit 16°CWB When ambient temperature is 15°C	Lower limit 10°CDB Ambient temperature is above 10°CWB	
				For further details refer to the engineering data which		

2) Places where perfect drainage can be prepared and sufficient drainage gradient is available.

3) Places free from air disturbances to the return air and supply air of the indoor unit.

4) Areas where dew point is lower than around 28°C and relative humidity is lower than 80%.

(This indoor unit is tested under the condition of ISO high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air conditioner is operated under the severer condition than mentioned above.
If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.)

5) Do not place where the unit is exposed to oil splashes or steam (e.g. kitchens and machine plants).
(Installation and use at such places will cause the performance drop, corrosion in the heat exchanger and damage in molded synthetic resin parts.)

6) Do not place where corrosive gas (such as sulfurous acid gas) or inflammable gas (thinner, gasoline, etc.) is generated or remains.
Installation and use at such places will cause corrosion in the heat exchanger and damage in molded synthetic resin parts.

7) Do not place adjacent to equipment generating electromagnetic waves or high-frequency waves such as in hospitals, Generated noise may cause malfunctioning of the controller.

(b) Installation

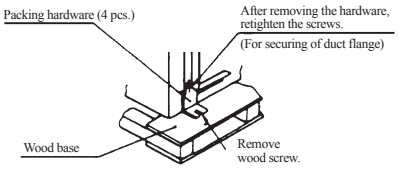
<Delivery>

○ When delivering the package, move the package to the installation as close as possible.

○ When it is unpacked and then moved to the installation place, sufficient care must be taken not to damage the unit during transfer.

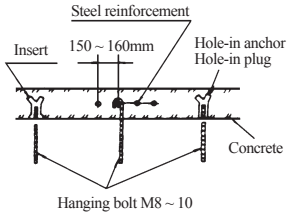
<Packing hardware>

Four pieces of packing hardware are used.
Discard them after unpacking.

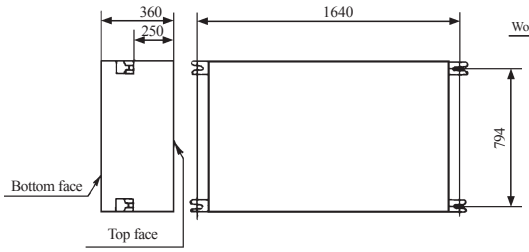


<Securing of Hanging Bolt>

Secure the hanging bolts by either one of following methods.



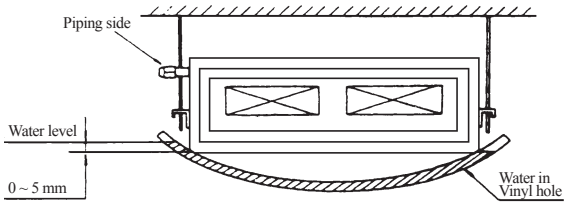
<Hanging bolt location>



○ To adjust the level, use a level gauge or adjust as shown by the left figure.

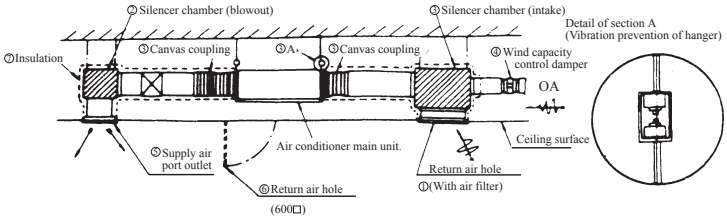
Note: Unless the level is adjusted properly, the float switch may malfunction or operate improperly.

<Adjustment level>



Adjust the piping side a little lower than the opposite side.

(c) Duct work



① Air filter is not installed in the main unit of air conditioner. Air filter should be installed in the return air grill which allows an ample access for cleaning.

② Silencer chamber(s) may be necessary depending on the noise level allowed in the room where the air conditioner is installed.
Additional silencer may be necessary where a particularly low noise is required.
(Provision of silencer is a must at offices and a meeting room.)

③ In order not to transmit vibration from the main unit of air conditioner to the ceiling or slab, it is necessary to provide means to prevent vibration, for example, a canvas coupling on the duct or rubber cushion on the main unit of air conditioner.

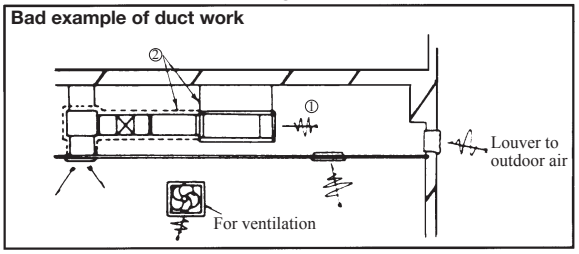
④ A damper to control air volume should be installed on the joint of OA duct to facilitate control of air capacity after the installation.

⑤ Location and from of blow outlet should be selected so that air from the outlet will be distributed all over the room, and equipped with a device to control air volume.

⑥ Make sure to provide an inspection hole on the ceiling. It is indispensable to service electric equipment, motor, functional components and cleaning of heat exchanger.

⑦ Make sure to insulate the duct to prevent dewing on it.
Thickness of insulating material is 65 mm minimum.

Bad example of duct work



① If a duct is not provided at the suction side but it is substituted with the space over the ceiling, humidity in the space will increase by the influence of capacity of ventilation fan, strength of wind blowing against the outdoor air louver, weather (rainy day) and others.

a) Moisture in air is likely to condense over the external plates of the unit and to drip on the ceiling.
Unit should be operated under the conditions as listed in the above table and within the limitation of wind volume.
When the building is a concrete structure, especially immediately after the construction, humidity tends to rise even if the space over the ceiling is not substituted in place of a duct.
In such occasion, it is necessary to insulate the entire unit with glass wool (25 mm).
(Use a wire net or equivalent to hold the glass wool in place.)

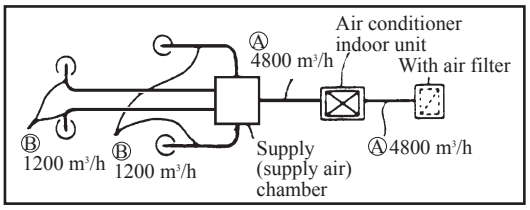
b) It may run out the allowable limit of unit operation (Example: When return air temperature is 35°CDB, supply air temperature is 27°CWB) and it could result in such troubles as compressor overload, etc.

c) There is a possibility that the blow air volume may exceed the allowable range of operation due to the capacity of ventilation fan or strength of wind blowing against external air louver so that drainage from the heat exchanger may fail to reach the drain pan but leak outside (e.g. drip onto the ceiling) with consequential water leakage in the room.

② Unless vibration isolation is provided between the unit and duct and between the unit and the slab, vibration will be transmitted to the duct so that vibration noise may generate from between the ceiling and blow outlet or vibration may be transmitted to the slab. Make sure to provide an effective vibration prevention means.

<Simplified method for determination of duct dimensions>

In the following method, it is assumed that the friction resistance per unit length of duct is 1 Pa/m (0.1 mm Aq/m) and a side of duct is 250 mm.
Air volume rating is assumed to be FDU250V.



○ Calculation of duct resistance
(Use following simplified calculations.)

	Air volume	Duct (mm × mm)
Section Ⓐ	4800m³/h (680m³min)	250 × 950
Section Ⓑ	1200m³/h (20m³min)	250 × 310

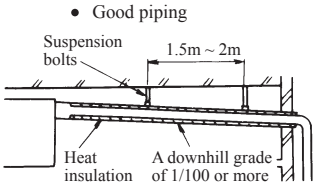
Linear pipe section	Calculate based on 1 Pa per 1 m in length 1 Pa/m.
Curved pipe section	Take a curved section as equivalent to 3 ~4 m in straight line.
Blowout section	Calculate based on 25 Pa.
Chamber	Calculate by taking 1 pc. as 50Pa.
Suction grill (with filter)	Calculate by taking 1 pc. as 40Pa.

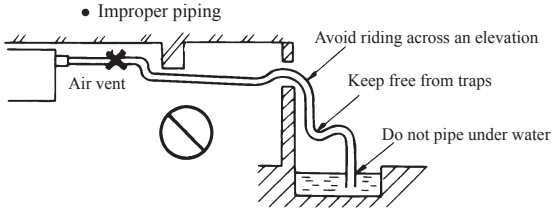
<Table of simplified selection of duct dimensions>

Air volume \ Item / Duct form	Square duct
	Dimensions
m³/h(m³/min)	(mm × mm)
100	250 × 60
200	250 × 90
300	250 × 120
400	250 × 140
500	250 × 170
Section Ⓑ 600(10)	250 × 190
800	250 × 230
1,000	250 × 270
1,200(20)	250 × 310
1,400	250 × 350
1,600	250 × 390
1,800(30)	250 × 430
2,000	250 × 470
Section Ⓐ 2,400(40)	250 × 560
3,000(50)	250 × 650
3,500	250 × 740
4,000	250 × 830
4,500	250 × 920
4,800(80)	250 × 950
5,000	250 × 1000
5,500	250 × 1090
6,000(100)	250 × 1180

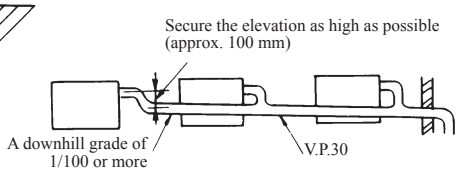
(d) Drain Piping

1) Drain piping should always be in a downhill grade (1/50~1/100) and avoid riding across an elevation or making traps.



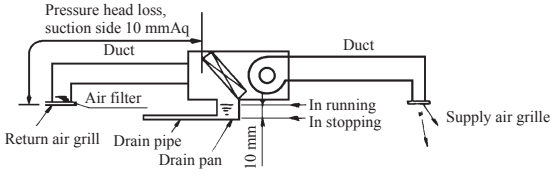


2) When connecting the drain pipe to unit, pay sufficient attention not to apply excess force to the piping on the unit side. Also, fix the piping at a point as close as possible to the unit.



3) For drain pipe, use hard PVC general purpose pipe VP-25(I.D.1″) which can be purchased locally.
4) When constructing drain piping for several units, position the common pipe about 100 mm below the drain outlet of each unit as shown in the sketch. Use VP-30 (11/4″) or thicker pipe this purpose.
5) Be sure to provide heat insulation to hard PVC pipes of indoor placement.
6) Do not ever provide an air vent.
7) Avoid postitioning the drain piping outlet at a place where generation of odor may be stimulated. Do not lead the drain piping direct into a sewer from where sulfur gas may generate.

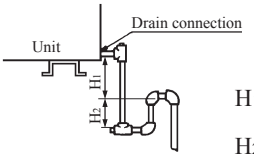
If the duct is connected and then the blower is operated, inside air pressure will become negative compared with the atmospheric pressure.



Example: If the pressure loss at the return air side, such as the suction grill, air filter and duct, is 100 Pa, the level of drain water will rise approx. 10 mm higher than the state of operation stop.

<Provision of trap>

Since the drain outlet is disposed at a position that makes the pressure negative, it is necessary to provide a trap (during the piping work) in order to prevent water leakage due to rising of water level in the drain pan.
Trap must be so constructed to facilitate cleaning. It should be better to employ a "T" joint as shown below. In addition, the height of trap should be as specified below. The trap should be provided close to the unit.

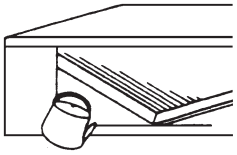


- Provide a trap on way of the drain pipe as shown at left.

H_1=100 mm or static pressure of blower
H_2=1/2 H_1 or 50 ~ 100 mm

(e) Drain Test

When the drain piping work is over, inject water to inspect if the piping is arranged properly or not.



○ Remove the side panel and supply gradually 1,000 cc of water to see if water is drained smoothly or not. Check also for water leakage.

1.5.2 Installation of wired remote controller

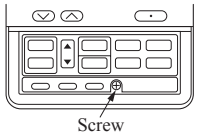
(1) Selection of installation location

Avoid the following locations

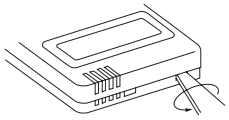
(a) Direct sunlight.
(b) Close to heating device.
(c) Highly humid or water splashing area.
(d) Uneven surface.

(2) Installation procedure

(a) Open the cover of remote controller , and remove the screw under the buttons without fail.

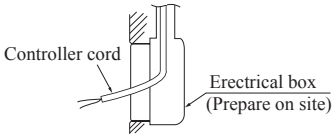


(b) Remove the upper case of remote controller.
Insert a flat-blade screwdriver into the dented part of the upper part of the remote controller, and wrench slightly.

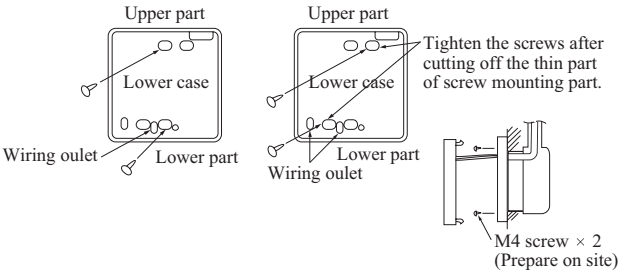


[In case of embedding cord]

① Embed the erectrical box and remote controller cord beforehand.



② Prepare two M4 screws (recommended length is 12-16mm) on site, and install the lower case to erectrical box. Choose either of the following two positions in fixing it with screws.

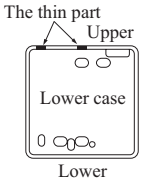


③ Connect the remote controller cord to the terminal block. Connect the terminal of remote controller (X,Y) with the terminal of indoor unit (X,Y). (X and Y are no polarity)

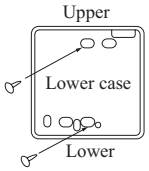
④ Install the upper case as before so as not to catch up the remote controller cord, and tighten with the screws.

[In case of exposing cord]

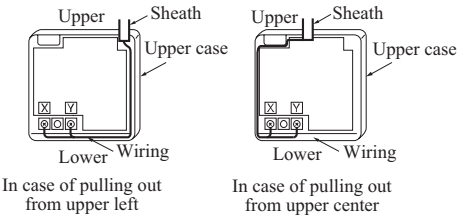
① You can pull out the remote controller cord from left upper part or center upper part. Cut off the upper thin part of remote controller lower case with a nipper or knife, and grind burrs with a file etc.



② Install the lower case to the flat wall with attached two wooden screws.

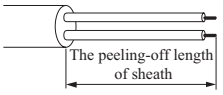


③ Connect the remote controller cord to the terminal block. Connect the terminal of remote controller (X,Y) with the terminal of indoor unit (X,Y). (X and Y are no polarity) Wiring route is as shown in the right diagram depending on the pulling out direction.



The wiring inside the remote controller case should be within 0.3mm² (recommended) to 0.5mm². The sheath should be peeled off inside the remote controller case. The peeling-off length of each wire is as below.

Pulling out from upper left	Pulling out from upper center
X wiring : 215mm Y wiring : 195mm	X wiring : 170mm Y wiring : 190mm



④ Install the upper case as before so as not to catch up the remote controller cord, and tighten with the screws.

⑤ In case of exposing cord, fix the cord on the wall with cord clamp so as not to slack..

Installation and wiring of remote controller

① Wiring of remote controller should use 0.3mm² × 2 core wires or cables. (on-site configuration)

② Maximum prolongation of remote controller wiring is 600 m. If the prolongation is over 100m, change to the size below. But, wiring in the remote controller case should be under 0.5mm² . Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.

100-200m……0.5 mm² × 2 cores
Under 300m……0.75 mm² × 2 cores
Under 400m……1.25 mm² × 2 cores
Under 500m……2.0 mm² × 2 cores

1.5.3 Installation of outdoor unit

Notabilia as a unit designed for R410A

- Do not use any refrigerant other than R410A. R410A will rise to pressure about 1.6 times higher than that of a conventional refrigerant.
- A unit designed for R410A has adopted a different size indoor unit service valve charge port and a different size check joint provided in the unit to prevent the charging of a wrong refrigerant by mistake. The processed dimension of the flared part of a refrigerant pipe and a flare nut's parallel side measurement have also been altered to raise strength against pressure. Accordingly, you are required to arrange dedicated R410A tools listed in the table on the right before installing or servicing this unit.
- Do not use a charge cylinder. The use of a charge cylinder will cause the refrigerant composition to change, which results in performance degradation.
- In charging refrigerant, always take it out from a cylinder in the liquid phase.
- All indoor units must be models designed exclusively for R410A. Please check connectable indoor unit models in a catalog, etc. (A wrong indoor unit, if connected into the system, will impair proper system operation)

	Dedicated R410A tools
a)	Gauge manifold
b)	Charge hose
c)	Electric scale for refrigerant charging
d)	Torque wrench
e)	Flare tool
f)	Protrusion control copper pipe gauge
g)	Vacuum pump adapter
h)	Gas leak detector

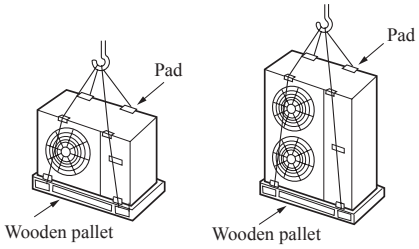
(1) Haulage and installation (Take particular care in carrying in or moving the unit, and always perform such an operation with two or more persons.)

⚠ CAUTION

When a units hoisted with slings for haulage, take into consideration the offset of its gravity canter position. If not properly balanced, the unit can be thrown off-balance and fall.

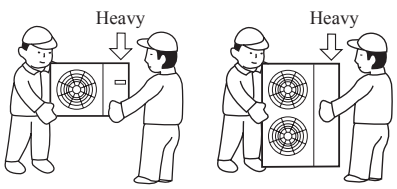
(a) Delivery

1) Deliver the unit as close as possible to the installation site before removing it from the package.
2) When some compelling reason necessitates the unpacking of the unit before it is carried in, use nylon slings or protective wood pieces so as not to damage the unit by ropes lifting it.



(b) Portage

The right hand side of the unit as viewed from the front (diffuser side) is heavier. A person carrying the right hand side must take heed of this fact. A person carrying the left hand side must hold with his right hand the handle provided on the front panel of the unit and with his left hand the corner column section.

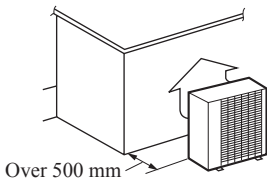


(c) Selecting the installation location

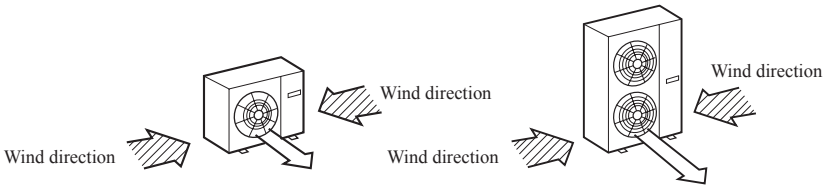
Be careful of the following conditions and choose an installation place.

- ○ Where air is not trapped.
- ○ Where the installation fittings can be firmly installed.
- ○ Where wind does not hinder the intake and outlet air.
- ○ Out of the heat range of other heat sources.
- ○ A place where stringent regulation of electric noises is applicable.
- ○ Where it is safe for the drain water to be discharged.
- ○ Where noise and hot air will not bother neighboring residents.
- ○ Where snow will not accumulate.
- ○ Where strong winds will not blow against the outlet pipe.
- ○ A place where no TV set or radio receiver is placed within 5 m.
  (If electrical interference is caused, seek a place less likely to cause the problem)
- ○ Where it is likely that the unit is subjected to strong winds, provide wind guards according to the following guidelines.
  Strong winds can cause performance degradation, an accidental stop due to a rise of high pressure and broken fan.

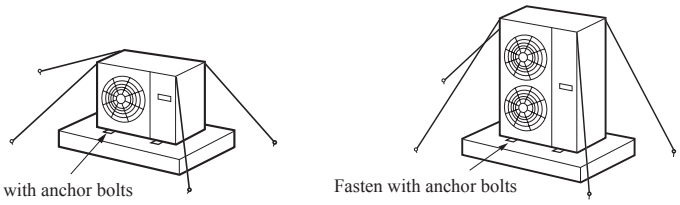
1) Place the unit outlet pipe perpendicular to the wind direction.



2) Please install so the direction of the air from the blowing outlet will be perpendicular to the direction of the wind.



3) When the foundation is not level, use wires to tie down the unit.

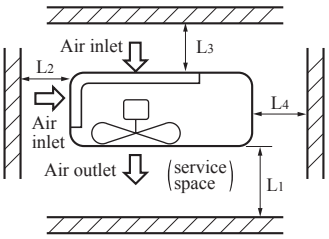


(d) Installation space

- Walls surrounding the unit in the four sides are not acceptable.
- There must be a 1-meter or larger space in the above.
- Where a danger of short-circuting exists, install guide louvers.
- When more than one unit are installed, provide sufficient intake space consciously so that short-circuiting may not occur.
- Where pilling snow can bury the outdoor unit, provide proper snow guards.

Unit: mm

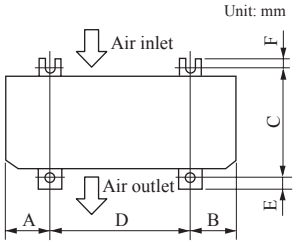
Installation example / Distance	SRC40~60				FDC71			FDC100~250		
	I	II	III	IV	I	II	III	I	II	III
L1	Open space	280	280	180	Open space	Open space	500	Open space	Open space	500
L2	100	75	Open space	Open space	300	250	Open space	300	5	Open space
L3	100	80	80	80	100	150	100	150	300	150
L4	250	Open space	250	Open space	250	250	250	5	5	5



(e) Installation

① Anchor bolt fixed position

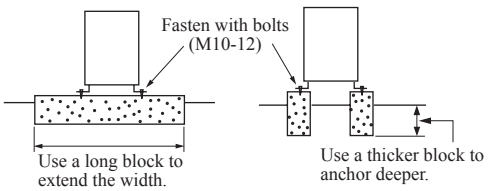
Unit: mm



Unit: mm

Model / Item	A	B	C	D	E	F
SRC40~60	88.4	200	312.5	510	14.8	24.3
FDC71	150	150	380	580	19	19
FDC100~250	190	200	410	580	20	20

② Notabilia for installation



- In installing the unit, fix the unit's legs with bolts specified on the left.
- The protrusion of an anchor bolt on the front side must be kept within 15 mm.
- Securely install the unit so that it does not fall over during earthquakes or strong winds, etc.
- Refer to the left illustrations for information regarding concrete foundations.
- Install the unit in a level area. (With a gradient of 5 mm or less.)
- Improper installation can result in a compressor failure, broken piping within the unit and abnormal noise generation.

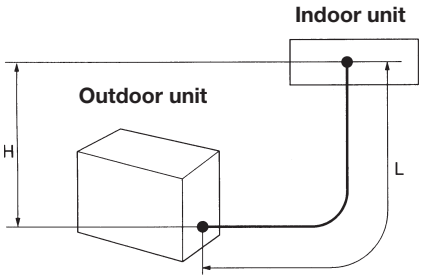
(f) To run the unit for a cooling operation, when the ambient temperature is -5°C or lower. Please equip a flex flow adapter and a snow guard hood (option) on the unit.

(2) Refrigerant piping work

Select the piping to match the specification of indoor unit and installation.

(a) Decision of piping specification

(i) Single type



Maximum one way length

SRC40~60 : L=30 m or less

FDC71~140 : L=50 m or less

FDC200, 250 : L=70 m or less

Height difference

- When the position of outdoor unit is higher than that of the indoor unit, keep the difference H=30 (40~60: 20) m or less.
- When the position of outdoor unit is lower than that of the indoor unit, keep the difference H=15 m or less.

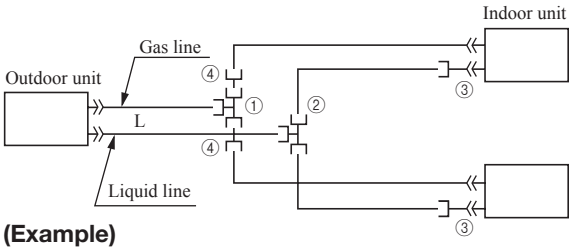
Piping specification

Unit : mm

Outdoor unit model	Gas pipe	Liquid pipe
SRC40~60	ϕ 12.7 × t 0.8	ϕ6.35 × t 0.8
FDC71~140	ϕ15.88 × t 1.0	ϕ9.52 × t 0.8
FDC200	ϕ 22.22 × t 1.6	ϕ9.52 × t 0.8
FDC250	ϕ 22.22 × t 1.6	ϕ12.7 × t 0.8

(ii) Twin type

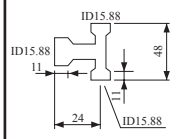
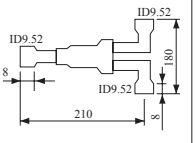
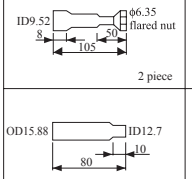
Models FDC71~140 [Branch pipe set : DIS-WA1]



(Example)

Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC71	40 + 40	ϕ 9.52 × t 0.8	ϕ 9.52 × t 0.8	ϕ 15.88 × t 1.0	ϕ12.7 × t 0.8
FDC100	50 + 50				
FDC125	60 + 60				ϕ 15.88 × t 1.0
FDC140	71 + 71				

Chart of shapes of branch piping parts (DIS-WA1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③ ④

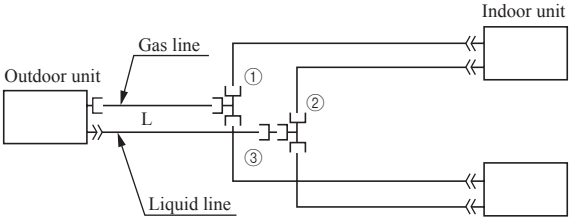
Notes (1) Symbol ① to ④ in the drawing shows the symbols of branch piping parts in the chart respectively.

(2) Branch piping should always be arranged to have level or perpendicular position. (See the next page.)

Notes (1) When 40-60 models of indoor units are applied to this combination, the reducer ③ supplied with the branch piping set should be used in order to reduce the liquid piping size from ø9.52mm to ø6.35mm at indoor unit side (flare connection). Accordingly be sure to select the liquid piping size ø9.52mm from branch to indoor unit.

(2) The reducer ④ is for FDC71 and 100 models only.

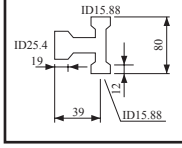
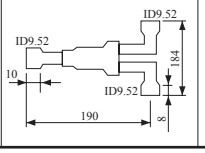
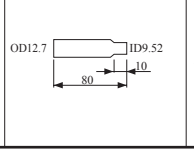
Models FDC200, 250 [Branch pipe set : DIS-WB1]



(Example)

Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC200	100 + 100	ϕ 9.52 × t 0.8	ϕ 9.52 × t 0.8	ϕ 22.22 × t 1.6	ϕ 15.88 × t 1.0
FDC250	125 + 125	ϕ 12.7 × t 0.8			

Chart of shapes of branch piping parts (DIS-WB1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③

Notes (1) Symbol ① to ③ in the drawing shows the symbols of branch piping parts in the chart respectively.

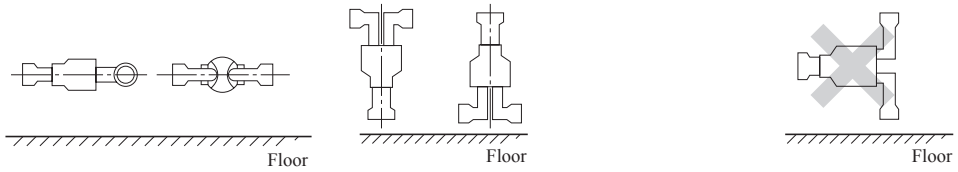
(2) Branch piping should always be arranged to have level or perpendicular position. (See the next page.)

Notes (1) For model FDC200, when the length of the main piping "L" exceeds 30m, ø12.7mm liquid pipe should be used. If ø9.52mm liquid pipe is used instead of ø12.7mm, it may cause performance degradation and/or leakage of condensate from indoor unit.

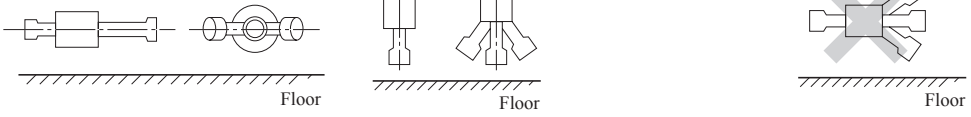
(2) Minimum one-way piping length should be 3m. If the piping length is less than 3m, the precharged amount of refrigerant should be reduced at site by recovering refrigerant and recharging proper amount according to the instruction of our distributor.

- **The branch piping (both gas and liquid lines) should always be arranged to have a level or perpendicular position.**

< 2-Way Branch >

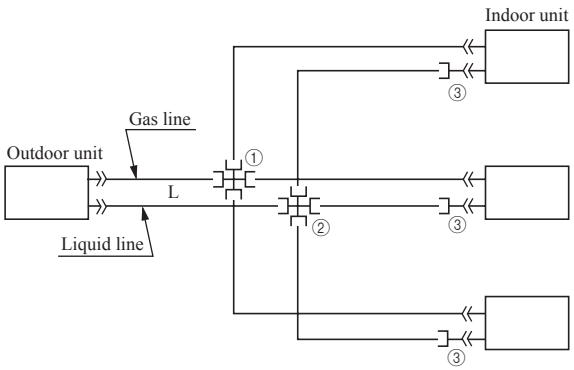


< 3-Way Branch >



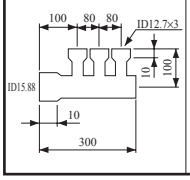
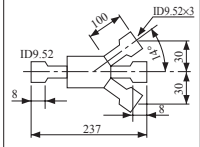
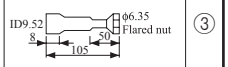
(iii) Triple type (The below mentioned piping diagram shows the application that the difference in piping length between indoor units is less than 3m. In case of the application that the difference in piping length between indoor units is 3m or more, see page 350.)

Model FDC140 [Branch pipe set : DIS-TA1]



Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC140	50 + 50 + 50	φ 9.52 × t 0.8	φ 9.52 × t 0.8	φ 15.88 × t 1.0	φ 12.7 × t 0.8

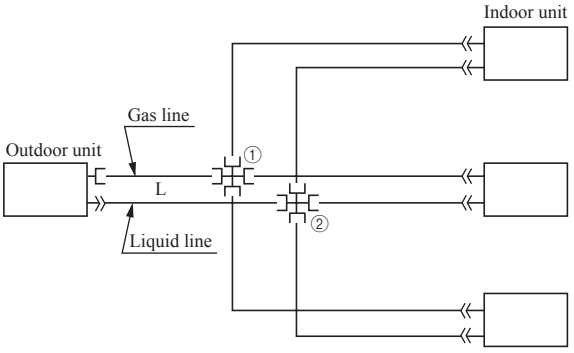
Chart of shapes of branch piping parts (DIS-TA1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③

Notes (1) Symbol ① to ③ in the drawing shows the symbols of branch piping parts in the chart respectively.
(2) Branch piping should always be arranged to have level or perpendicular position. (See the above figure.)

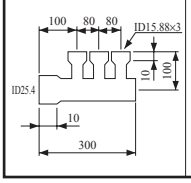
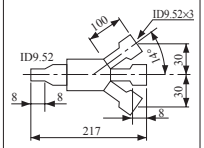
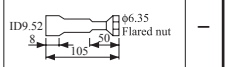
Notes (1) The reducer ③ supplied with the branch piping set should be used in order to reduce the liquid piping size from ø9.52mm to ø6.35mm at indoor unit side (flare connection). Accordingly be sure to select the liquid piping size ø9.52mm from branch to indoor unit.

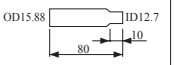
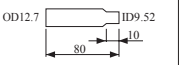
Model FDC200 [Branch pipe set : DIS-TB1]



Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC200	71 + 71 + 71	φ 9.52 × t 0.8	φ 9.52 × t 0.8	φ 22.22 × 1.6	φ 15.88 × t 0.8

Chart of shapes of branch piping parts (DIS-TB1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		–

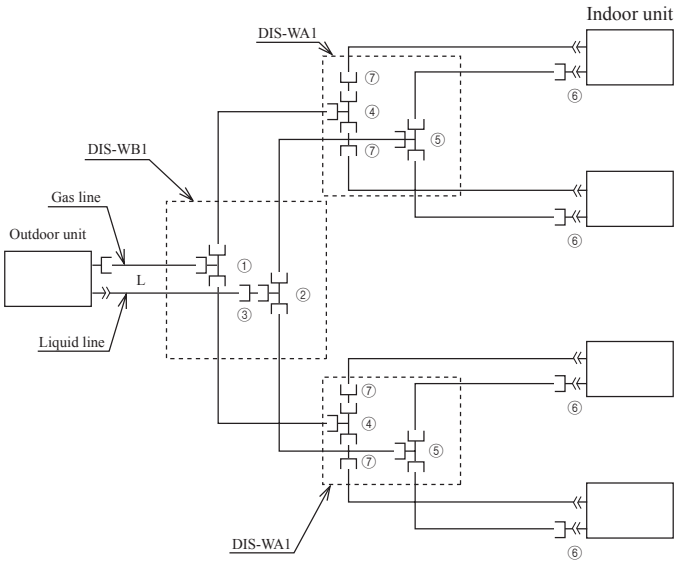
Reducer	Symbol	Reducer	Symbol
	–		–

Notes (1) Symbol ① to ② in the drawing shows the symbols of branch piping parts in the chart respectively.
(2) Branch piping should always be arranged to have level or perpendicular position. (See the above figure.)

Notes (1) For model FDC200, when the length of the main piping "L" exceeds 30m, ø12.7mm liquid pipe should be used. If ø9.52mm liquid pipe is used instead of ø12.7mm, it may cause performance degradation and/or leakage of condensate from indoor unit.

(iv) Double twin type

Models FDC200, 250 [Branch pipe set : DIS-WA1 × 2set, DIS-WB1 × 1set]



Item / Model	Indoor unit combinations	Liquid pipe			Gas pipe		
		Main pipe	1st branch pipe	2nd branch pipe	Main pipe	1st branch pipe	2nd branch pipe
FDC200	50 + 50 + 50 + 50	ϕ 9.52 × t 0.8	ϕ 9.52 × t 0.8	ϕ 9.52 × t 0.8	ϕ 22.22 × t 1.6	ϕ 15.88 × t 1.0	ϕ 12.7 × t 0.8
FDC250	60 + 60 + 60 + 60	ϕ 12.7 × t 0.8					ϕ 15.88 × t 1.0

Notes (1) The reducer ⑥ supplied with the branch piping set should be used in order to reduce the liquid piping size from ø9.52mm to ø6.35mm at indoor unit side (flare connection). Accordingly be sure to select the liquid piping size ø9.52mm from branch to indoor unit.
(2) The reducer ⑦ is for FDC200 model only

Chart of shapes of branch piping parts (DIS-WB1)

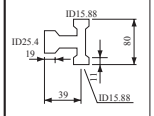
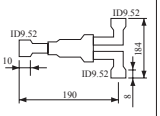
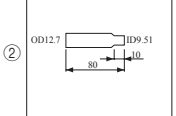
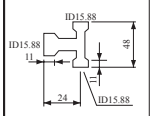
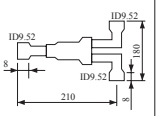
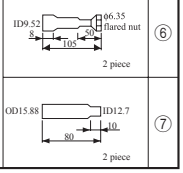
Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③

Chart of shapes of branch piping parts (DIS-WA1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	④		⑤		⑥ ⑦

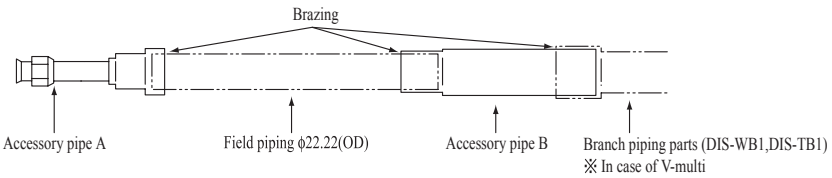
Notes (1) Symbol ① to ⑦ in the drawing shows the symbols of branch piping parts in the chart respectively.
(2) Branch piping should always be arranged to have level or perpendicular position. (Refer to the 222 page for details.)
(3) The reducer ③ is for FDC200 model only

Notes (1) For model FDC200, when the length of the main piping "L" exceeds 30m, ø12.7mm liquid pipe should be used. If ø9.52mm liquid pipe is used instead of ø12.7mm, it may cause performance degradation and/or leakage of condensate from indoor unit.
(2) Minimum one-way piping length should be 3m. If the piping length is less than 3m, the precharged amount of refrigerant should be reduced at site by recovering refrigerant and recharging proper amount according to the instruction of our distributor.

(b) How to use pipe reducer (Attached to FDC200, 250 only)

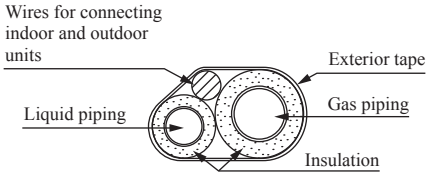
• ϕ22.22 (OD) size of the refrigerant gas pipe can be used by using the accessory pipe B, although ϕ25.4 (OD) size of the refrigerant gas pipe is standard.
(When ϕ25.4 (OD) size of the refrigerant gas pipe is used, the accessory pipe B is unnecssary.)
(∗) OD: Outer diameter.

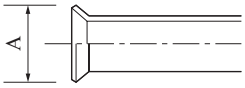
● Install this accessory pipe according to the following.



(c) Points for attention in installing refrigerant piping

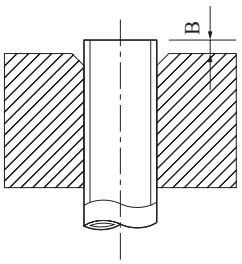
1) Use pipes made of the following material
   Material: Phosphorus deoxidized copper seamless pipes (C1220T, JIS H3300)
2) Please dress the refrigerant piping (both gas and liquid pipes) with a heat insulating material for prevention of dew condensation. Improper heat insulation incapable of preventing dew condensation can cause the leaking or dripping of water and a resultant soaking of household effects.
3) Use only a good heat insulating material (120°C or higher) for heat insulation. A poor heat insulating material offers only poor heat insulation and can cause cable deterioration.
   a) The gas pipes can cause dew condensation during a cooling operation, which may become drain water causing a water-leak accident, or a risk of burns during a heating operation, if touched accidentally, with its surface reaching a high temperature because of discharged gas flowing inside. So, do not fail to dress it with a heat insulating material to prevent such mishap.
   b) Dress the flare joints of the indoor units with a heat insulating material (pipe covers) (for both gas and liquid pipes).
   c) Dress both gas and liquid pipes with a heat insulating material. In doing so, leave no gaps between the pipe and the heat insulating material and wrap them, together with the connecting cable, with a dressing tape.
   d) If the unit is used in a place where dew point in the ambient atmosphere is 28ºC or higher, and the relative humidity is 70% or higher, dress 20 mm or more of insulation.
4) When you need to bend a pipe, bend it to the largest possible radius (R100-R150) permitted. Do not bend a pipe repeatedly in an effort to shape it appropriately.
5) In laying pipes, take care to avoid debris, chips or water from entering the piping system.
6) A unit and a refrigerant pipe are to be flare connected. Flare a pipe after you have attached a flare nut to the pipe. The dimensions of flaring for R410A are different from those for the conventional R407C refrigerant. Although we recommend the use of flare tools developed specifically for R410A, conventional flare tools can also be used, if the measurement of protrusion B is adjusted with a protrusion control copper pipe gauge.
7) Tighten a flare joint securely with double spanners. Observe the following tightening torque values for flare nuts:
8) A branching pipe set (option part supplied separately) and refrigerant piping should be connected by brazing.
9) In brazing pipes, keep nitrogen gas flowing inside the pipes so that an oxide film may not form on the inner surfaces of the pipes.
10) Tighten a flare joint securely with a double spanner.
    a) Do not apply force beyond proper fastening torque in tightening the flare nut.
    b) Fix both liquid and gas service valves at the valve main bodies as illustrated on the lower, and then fasten them, applying appropriate fastening torque.





Flared pipe end: A (mm)

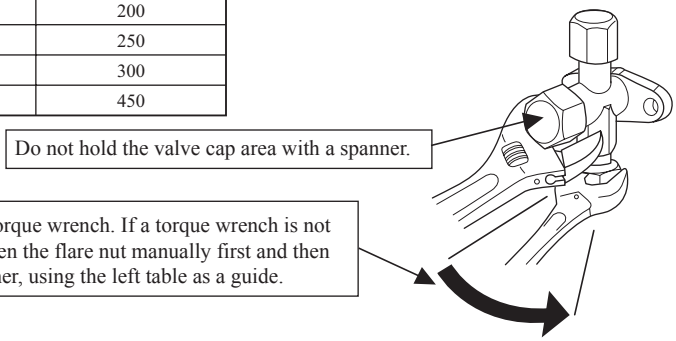
Copper pipe outer diameter	A $^{0}_{-0.4}$
ø6.35	9.1
ø9.52	13.2
ø12.7	16.6
ø15.88	19.7



Copper pipe protrusion for flaring: B (mm)

Copper pipe outer diameter	In the case of a rigid (clutch) type	
	With an R410A tool	With a conventional tool
ϕ 6.35	0~0.5	0.7~1.3
ϕ 9.52		
ϕ 12.7		
ϕ 15.88		

Operation valve size (mm)	Tightening torque (N·m)	Tightening angle (°)	Recommended length of a tool handle (mm)
ϕ 6.35 (1/4")	14~18	45~60	150
ϕ 9.52 (3/8")	34~42	30~45	200
ϕ 12.7 (1/2")	49~61	30~45	250
ϕ 15.88 (5/8")	68~82	15~20	300
ϕ 19.05 (3/4")	100~120	15~20	450

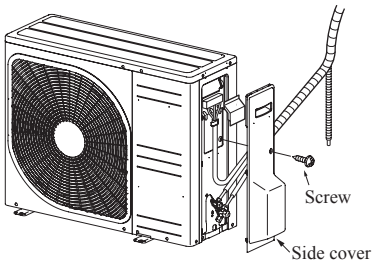


(d) How to remove the side cover

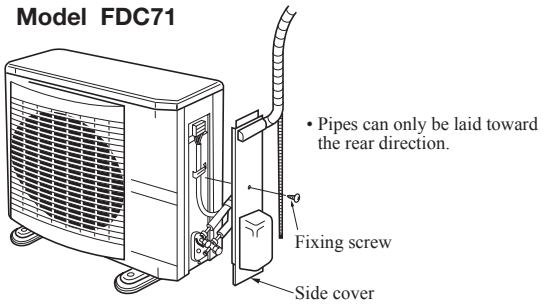
- **Models SRC40 ~ 60, FDC71**

First unscrew four screws holding the side cover in place, pull down the cover toward the direction indicated by the arrow, and then pull it toward you to remove it from the casing.

Models SRC40, 50, 60

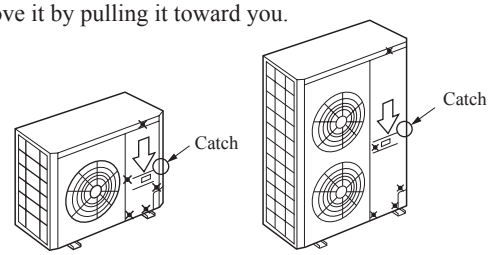


Model FDC71



- **Models FDC100 ~ 250**

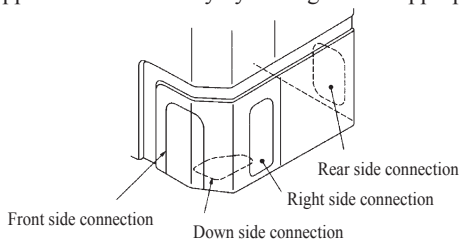
First remove the five screws (× mark) of the service panel and push it down into the direction of the arrow mark and then remove it by pulling it toward you.



Models FDC100~140 Models FDC200, 250

(e) Refrigerant pipe connection (Models FDC100 ~ 250 only)

1) The pipe can be laid in any of the following directions: side right, front, rear and downward.
2) Remove a knock-out plate provided on the pipe penetration to open a minimum necessary area and attach an edging material supplied as an accessory by cutting it to an appropriate length before laying a pipe.



(f) Method for connecting the accessory pipe (Models FDC200, 250 only)

Be sure to use the accessory pipe to connect the service valve on the gas side with the field pipe.

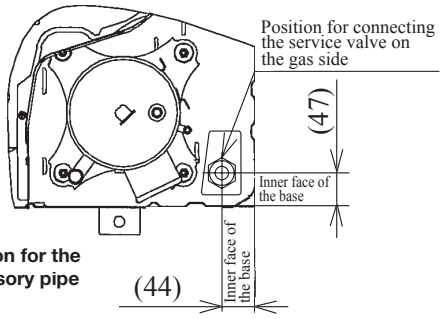
a) Referring to Table ① and Table ②, prepare the straight pipe and the elbow in the field, which are used in the construction examples Ⓐ ~ Ⓓ applicable to the connecting direction.
b) Firstly, use the accessory pipe to assemble the connecting pipe assembly outside the outdoor unit.
As shown in the fi gures of construction examples Ⓐ ~ Ⓓ applicable to the connecting direction(chain double dashed line), braze the accessory pipe and the parts prepared in the above ①.
c) After assembly of the connecting pipe, connect it to the service valve on the gas side inside the outdoor unit.
Tighten the flare nut with appropriate torque.
d) After connection of the connecting pipe assembly to the service valve on the gas side, braze the connecting pipe assembly and the field pipe.

A	B
	
ID22.22 1 pc	OD25.4 1 pc

Appropriate torque	
ϕ19.05	100~120N·m

Table ① Parts used for the connecting pipe assembly

No.	Name	Qty.	Remarks
1	Accessory pipe A	1	Accessories
2	Straight pipe ①	1	Procured in the field
3	Straight pipe ②	1 or 0	Procured in the field (Not required for downward direction)
4	Elbow	1 or 0	Procured in the field (Not required for downward direction)



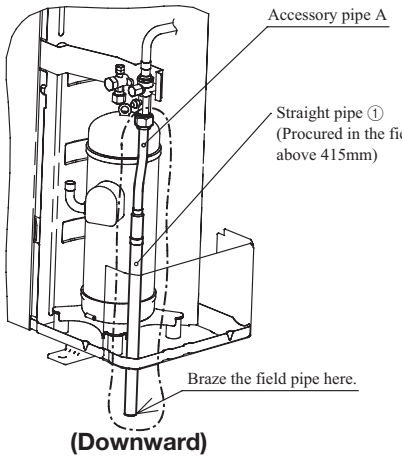
Position for the accessory pipe

Table ② Length of the straight pipe (prepared in the field)

	Pipe size	Ⓐ Downward	Ⓑ Forward	Ⓒ Rightward	Ⓓ Backward
Straight pipe ①	ϕ22.22 × t 1.6	above 415mm	185~235mm	185~235mm	185~235mm
Straight pipe ②	ϕ22.22 × t 1.6	–	above 125mm	above 125mm	above 405mm

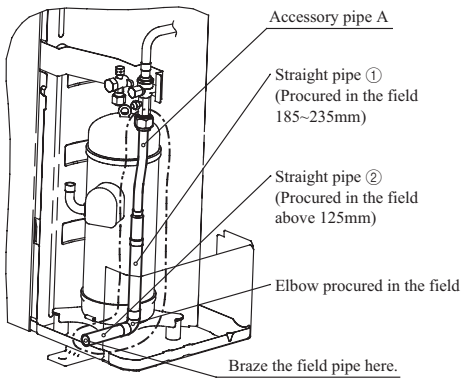
- Be sure to use pipes of 1/2H material, and wall thickness above 1mm. (Pressure resistance of O-type pipe is not enough)
- Switch ON SW5-1 on the control PCB, if O-type pipe must be used and bent with the bender.
  During heating operation, the high-pressure protection may be actuated under the condition lower than the normal pressure, and the heating capacity may decrease.

Construction example Ⓐ



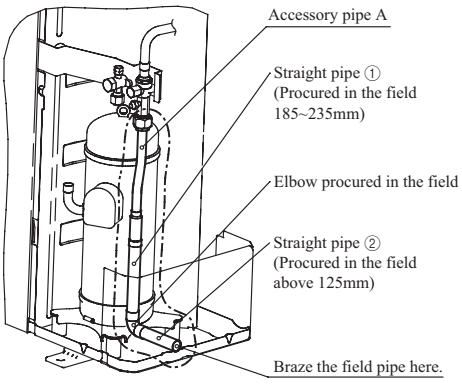
(Downward)

Construction example Ⓑ



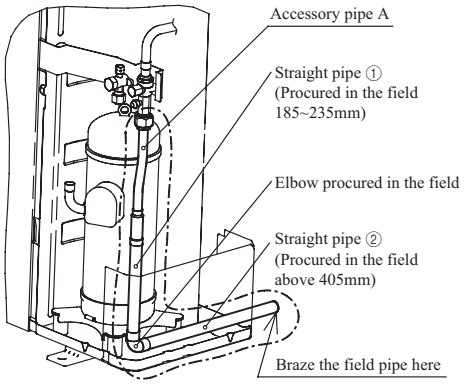
(Forward)

Construction example Ⓒ



(Rightward)

Construction example Ⓓ

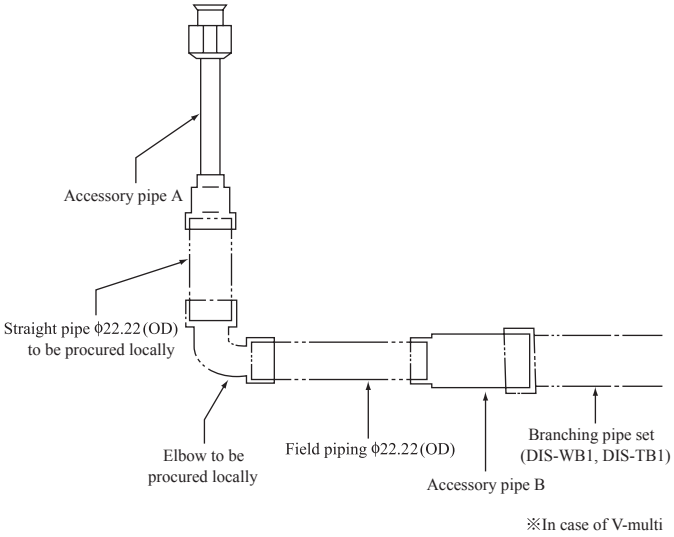


(Backward)

About brazing

- **Be sure to braze while supplying nitrogen gas.**
  If no nitrogen gas is supplied, a large amount of impurity (oxidized fi lm) will be generated, which may clog the capillary tube and the expansion valve, resulting in fatal malfunction.

- Branching pipe set can be used by using the accessory pipe B. When ϕ22.22(OD) size of the indoor unit gas pipe is used, the accessory pipe B is unnecessory.



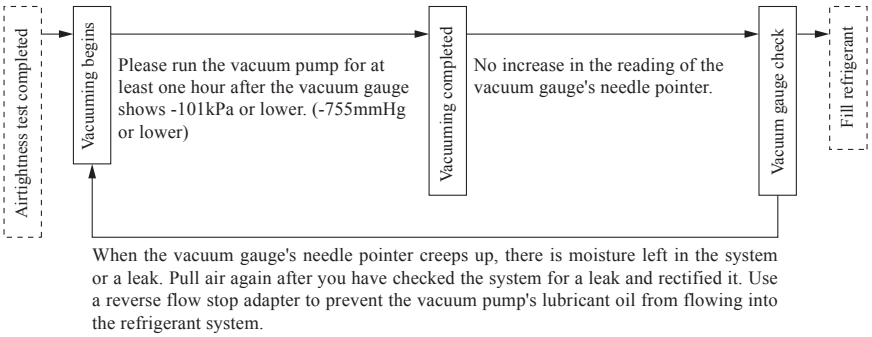
(3) Air tightness test and air purge

•Always use a vacuum pump to purge air trapped within an indoor and the refrigerant piping.

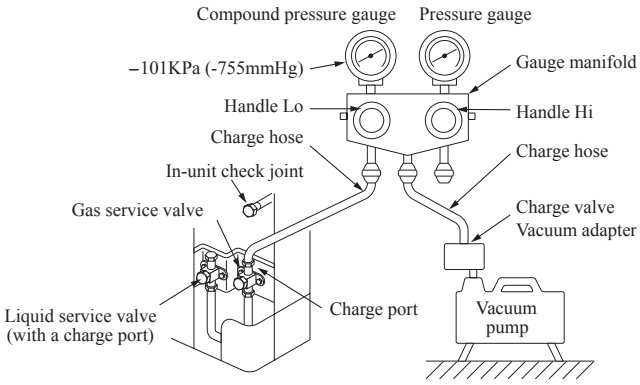
(a) Air tightness test

1) When all the flare nuts on both indoor and outdoor unit sides are fastened. Conduct an air-tightness test from the service valves (on both liquid and gas sides) closed tightly to check whether the system has no leaks.
2) Use nitrogen gas in the air-tightness test. Do not use gas other than nitrogen gas under any circumstances.
   Conduct the air-tightness test by applying 4.15MPa of pressure.
3) Do not apply the specified pressure at once, but increase pressure gradually.
   a) Raise the pressure to 0.5 MPa, and then stop. Leave it for five minutes to see if the pressure drops.
   b) Then raise the pressure to 1.5 MPa, and stop. Leave it for five more minutes to see if the pressure drops.
   c) Then raise the pressure to the specified level (4.15 MPa), and record the ambient temperature and the pressure.
   d) If the pressure does not drop after the units is left for approximately one day, the airtighteness is acceptable.
   When the ambient temperature changes 1˚C, the pressure also changes approximately 0.01 MPa. The pressure. if changed, should be compensated for.

(b) Air purge



When a vacuum air purge is completed, remove the valve rod cap nuts and open the service valves (both liquid and gas sides) as illustrated below. After you have made sure that the valves are in the full-open position, lighten the cap nuts (for the valve rods and charge ports).



- You can purge air with either liquid service valve or gas service valve.

(4) Additional refrigerant charge

(a) Calculate a required refrigerant charge volume from the following table.

• Models SRC 40~60

Item / Model	Additional charge volume (kg) per meter of refrigerant piping (liquid pipe φ6.35)	Refrigerant volume charged for shipment at the factory (kg)	Installation's pipe length (m) covered without additional refrigerant charge
SRC40, 50, 60	0.02	1.40	15

- This unit contains factory charged refrigerant covering 15m of refrigerant piping and additional refrigerant charge on the installation site is not required for an installation with up to 15m refrigerant piping.
  When refrigerant piping exceeds 15m, additionally charge an amount calculated from the pipe length and the above table for the portion in excess of 15m.
- If an existing pipe system is used, a required refrigerant charge volume will vary depending on the liquid pipe size.

Formula to calculate the volume of additional refrigerant required

Additional charge volume (kg) = { Main length (m) – Factory charged volume 15 (m) } × 0.02 (kg/m)

Note (1) When an additional charge volume calculation result is negative, it is not necessary to charge refrigerant additionally.

- For an installation measuring 15 m or shorter in pipe length, please charge the refrigerant volume charged for shipment at the factory, when you recharge refrigerant after servicing etc.

• Model FDC71

Item / Model	Standard refrigerant charge volume (kg)	Pipe length for baseline charge volume (m)	Additional charge volume (kg) per meter of refrigerant piping (liquid pipe ϕ6.35)	Refrigerant volume charged for shipment at the factory (kg)	Installation's pipe length (m) covered without additional refrigerant charge
FDC71	2.35	20	0.06	2.95	30

- This unit contains factory charged refrigerant covering 30m of refrigerant piping and additional refrigerant charge on the installation site is not required for an installation with up to 30m refrigerant piping.
  When refrigerant piping exceeds 30m, additionally charge an amount calculated from the pipe length and the above table for the portion in excess of 30m.
- When refrigerant piping is shorter than 3m, reduce refrigerant by 1kg from the factory charge volume and adjust to 1.95kg.
- If an existing pipe system is used, a required refrigerant charge volume will vary depending on the liquid pipe size.

Formula to calculate the volume of additional refrigerant required

Additional charge volume (kg) = { Main length (m) – Factory charged volume 30 (m) } × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m)

Note (1) When an additional charge volume calculation result is negative, it is not necessary to charge refrigerant additionally.

- For an installation measuring 3m or longer, but not more than 20m, in pipe length, please charge the standard refrigerant charge volume, when you recharge refrigerant after servicing etc.
- When refrigerant piping is shoter than 3m, recharge 1.95kg of refrigerant.
  Ex.) For a 10m installation, charge 2.35 kg of refrigerant.
  For a 25m installation, charge "2.35 + (25-20) × 0.06 = 2.65 kg."

• Models FDC100 ~ 140

<Single type>

Item / Model	Standard refrigerant charge volume (kg)	Pipe length for standard refrigerant charge volume (m)	Additional charge volume (kg) per meter of refrigerant piping (liquid pipe)	Refrigerant volume charged for shipment at the factory (kg)	Installation's pipe length (m) covered without additional refrigerant charge
FDC100	2.0	0	0.06	3.8	30
FDC125					
FDC140					

<Twin, triple, W-twin type>

Item / Model	Standard refrigerant charge volume (kg)	Pipe length for standard refrigerant charge volume (m)	Additional charge volume (kg) per meter of refrigerant piping (liquid pipe)		Refrigerant volume charged for shipment at the factory (kg)	Installation's pipe length (m) covered without additional refrigerant charge
			Main pipe	Branch pipe		
FDC100	2.0	0	0.06		3.8	30
FDC125						
FDC140						

- A standard refrigerant charge volume means a refrigerant charge volume for an installation with 0m long refrigerant piping.
- This unit contains factory charged refrigerant covering 30m of refrigerant piping and additional refrigerant charge on the installation site is not required for an installation with up to 30m refrigerant piping.
  When refrigerant piping exceeds 30m, additionally charge an amount calculated from the pipe length and the above table for the portion in excess of 30m.
- When refrigerant piping is shoter than 3m, reduce refrigerant by 1kg from factory charged volume and adjust to 2.8kg.
- If an existing pipe system is used, a required refrigerant charge volume will vary depending on the liquid pipe size.

Formula to calculate the volume of additional refrigerant required

FDC100~140	Additional charge volume (kg) = { Main pipe length (m) – Length covered without additional charge 30 (m) } × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m)

Note (1) When an additional charge volume calculation result is negative, it is not necessary to charge refrigerant additionally.

- To charge refrigerant again, recover refrigerant from the system first and then charge the volume calculated from the above table. (Standard refrigerant charge volume + branch pipes charge volume)

• Models FDC200, 250

<Single type>

Item / Model	Standard refrigerant charge volume (kg)	Pipe length for standard refrigerant charge volume (m)	Additional charge volume (kg) per meter of refrigerant piping (liquid pipe)	Refrigerant volume charged for shipment at the factory (kg)	Installation's pipe length (m) covered without additional refrigerant charge
FDC200	3.6	0	0.06 (Liquid piping φ 9.52)	5.4	30
			0.12 (Liquid piping φ 12.7)		
FDC250			0.12	7.2	

<Twin, triple, W-twin type>

Item / Model	Standard refrigerant charge volume (kg)	Pipe length for standard refrigerant charge volume (m)	Additional charge volume (kg) per meter of refrigerant piping (liquid pipe)		Refrigerant volume charged for shipment at the factory (kg)	Installation's pipe length (m) covered without additional refrigerant charge
			Main pipe	Branch pipe		
FDC200	3.6	0	0.06		5.4	30
FDC250			0.12	0.06	7.2	

- A standard refrigerant charge volume means a refrigerant charge volume for an installation with 0m long refrigerant piping.
- This unit contains factory charged refrigerant covering 30m of refrigerant piping and additional refrigerant charge on the installation site is not required for an installation with up to 30m refrigerant piping.
  When refrigerant piping exceeds 30m, additionally charge an amount calculated from the pipe length and the above table for the portion in excess of 30m.
- When refrigerant piping is shoter than 3m, reduce refrigerant by 1kg from factory charged volume and adjust to 4.4kg(FDC200) or 6.2kg(FDC 250).
- If an existing pipe system is used, a required refrigerant charge volume will vary depending on the liquid pipe size.

Formula to calculate the volume of additional refrigerant required

FDC200	In the case of φ9.52mm liquid piping	Additional charge volume (kg) = { Main pipe length (m) - Length covered without additional charge 30 (m) } × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m)
	In the case of φ12.7mm liquid piping	Additional charge volume (kg) = { Main pipe length (m) - Length covered without additional charge 30 (m) } × 0.12 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m)
FDC250		

Note (1) When an additional charge volume calculation result is negative, it is not necessary to charge refrigerant additionally.

- To charge refrigerant again, recover refrigerant from the system first and then charge the volume calculated from the above table. (Standard refrigerant charge volume + branch pipes charge volume)

(b) Charging refrigerant

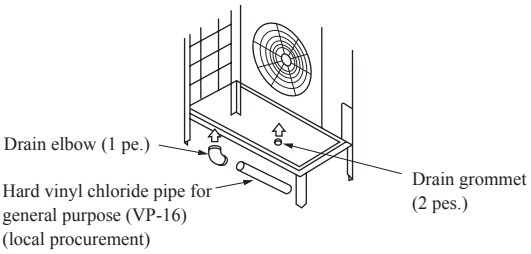
1) Since R410A refrigerant must be charged in the liquid phase, you should charge it, keeping the container cylinder upside down or using a refrigerant cylinder equipped with a siphon tube.
2) Charge refrigerant always from the liquid side service port with the service valve shut. When you find it difficult to charge a required amount, fully open the outdoor unit valves on both liquid and gas sides and charge refrigerant from the gas (suction) side service port, while running the unit in the cooling mode. In doing so, care must be taken so that refrigerant may be discharged from the cylinder in the liquid phase all the time. When the cylinder valve is throttled down or a dedicated conversion tool to change liquid-phase refrigerant into mist is used to protect the compressor, however, adjust charge conditions so that refrigerant will gasify upon entering the unit.
3) In charging refrigerant, always charge a calculated volume by using a scale to measure the charge volume.
4) When refrigerant is charged with the unit being run, complete a charge operation within 30 minutes. Running the unit with an insufficient quantity of refrigerant for a long time can cause a compressor failure.

PLEASE NOTE Please put down the refrigerant volume calculated from the pipe length onto the caution label attached on the back side of the service panel.

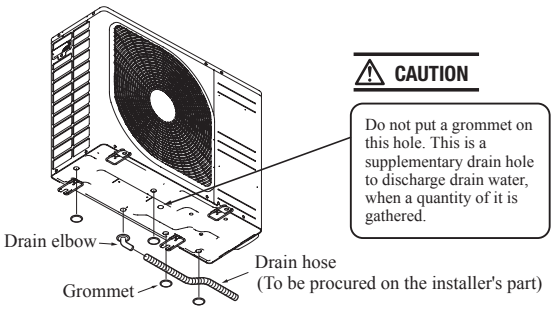
(5) Drain piping work

- ● Execute drain piping by using a drain elbow and drain grommets supplied separately as optional parts, where water drained from the outdoor unit is a problem.
- ○ There are 3 drain holes provided on the bottom plate of an outdoor unit to discharge condensed water.
- ○ When condensed water needs to be led to a drain, etc., install the unit on a flat base (supplied separately as an optional part) or concrete blocks.
- ○ Connect a drain elbow as shown in the illustration and close the other two drain holes with grommets.

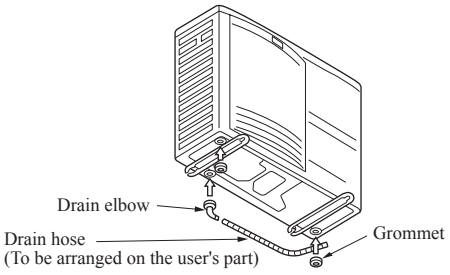
• Models FDC100 ~ 250



• Models SRC40 ~ 50



• Model FDC71



(6) Electrical wiring work

Electrical installation work must be performed by an electrical installation service provider qualified by a power provider of the country.
Electrical installation work must be executed according to the technical standards and other regulations applicable to electrical installations in the country.

① Do not use any supply cord lighter than one specified in parentheses for each type below.
- braided cord (code designation 60245 IEC 51),
- ordinary tough rubber sheathed cord (code designation 60245 IEC 53)
- flat twin tinsel cord (code designation 60227 IEC 41);

Do not use anything lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC57) for supply cords of parts of appliances for outdoor use.

② Ground the unit. Do not connect the grounding wire to a gas pipe, water pipe, lightning rod or telephone grounding wire. If improperly grounded, an electric shock or malfunction may result.

③ A grounding wire must be connected before connecting the power cable. Provide a grounding wire longer than the power cable.

④ The installation of an impulse withstanding type earth leakage breaker is necessary. A failure to install an earth leakage breaker can result in an accident such as an electric shock or a fire.

⑤ Do not turn on the power until the electrical work is completed.

⑥ Do not use a running capacitor for power factor improvement under any circumstances. (It does not improve power factor, while it can cause an abnormal overheat accident)

⑦ For power supply cables, use conduits.

⑧ Do not lay electronic control cables (remote control and signaling wires) and other cables together outside the unit. Laying them together can result in the malfunctioning or a failure of the unit due to electric noises.

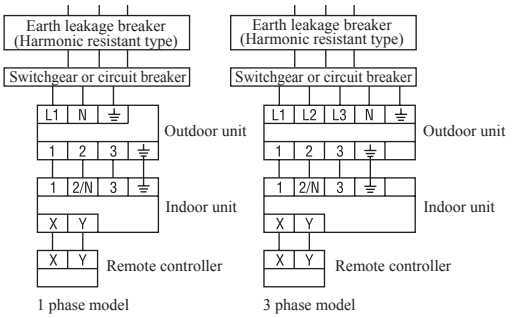
⑨ Fasten cables so that may not touch the piping etc.

⑩ When cables are connected, please make sure that all electrical components within the electrical component box are free of loose connector coupling or terminal connection and then attach the cover securely. (Improper cover attachment can result in malfunctioning or a failure of the unit, if water penetrates into the box.)

⑪ Always use a three-core cable for an indoor-outdoor connecting cable. Never use a shield cable.

Power cable, indoor-outdoor connecting wires

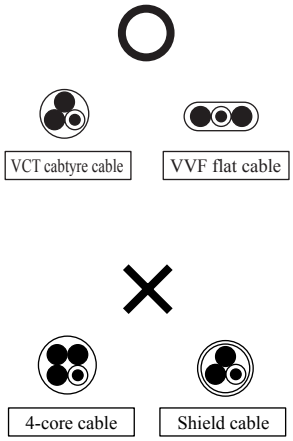
- Always perform grounding system installation work with the power cord unplugged.



⚠CAUTION

Always use an earth leakage circuit breaker designed for inverter circuits to prevent a faulty operation.

Model	Power source	Power cable thickness (mm^2)	Max. over current (A)	Cable length (m)	Grounding wire thickness	Indoor-outdoor wire thickness × number
SRC40	1 phase 220-240V 50Hz/ 220V 60Hz	2.0	12	21	ϕ1.6 mm	ϕ1.6 mm × 3
SRC50			14	18		
SRC60						
FDC71		3.5	17	21		
FDC100		5.5	24	25		
FDC125						
FDC140						
FDC100	3 phase 380-415V 50Hz/ 380V 60Hz	3.5	15	27	ϕ1.6 mm	
FDC125						
FDC140						
FDC200			19	21		
FDC250		5.5	22	31		



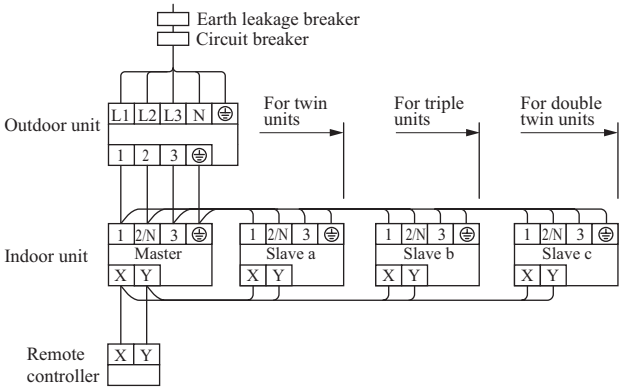
- At the connection with the duct type indoor unit.

Model	Power source	Power cable thickness (mm^2)	Max. over current (A)	Cable length (m)	Grounding wire thickness	Indoor-outdoor wire thickness × number
FDC100	1 phase 220-240V 50Hz/ 220V 60Hz	5.5	25	24	ϕ1.6 mm	ϕ1.6 mm×3
FDC125			27	22		
FDC140		8	28	32		
FDC100	3 phase 380-415V 50Hz/ 380V 60Hz	3.5	16	26		
FDC125			18	23		
FDC140			19	21		
FDC200		5.5	24	29		
FDC250			27	26		

Notes (1) The specifications shown in the above table are for units without heaters. For units with heaters, refer to the installation instructions or the construction instructions of the indoor unit.
(2) Switchgear or circuit breaker capacity which is calculated from MAX. over current should be chosen along the regulations in each country.
(3) The cable specifications are based on the assumption that a metal or plastic conduit is used with no more than three cables contained in a conduit and a voltage drop is 2%. For an installation falling outside of these conditions, please follow the internal cabling regulations. Adapt it to the regulation in effect in each country.

(d) Wiring diagram

- This diagram shows wiring for a 3 phase model.



4) Between master and slave indoor units, connect between the same numbers ①, ②/N, ③ and Ⓧ, Ⓨ on the respective terminal blocks.

5) Set the same address for the master and slave indoor units as the communications address for the remote controller using rotary switch SW2 on the indoor units' control PCB.
6) Set slave a, slave b and slave c using DIP switch SW5-1 and SW5-2 on the control PCB of the respective indoor slave units.
7) Be sure to press the AIR CON No. button on the remote controller after turning on the power, then check if the indoor master and slave unit No. is displayed in the remote controller.

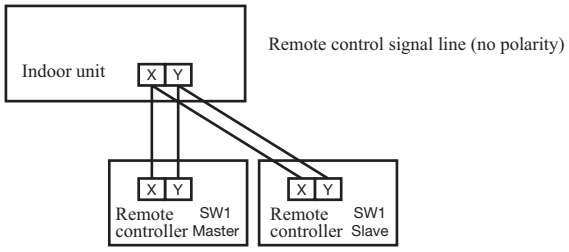
   The indoor unit address is displayed when the AIR CON No. button is pressed. After that, pressing the ▲ or ▼ key displays the unit No. beginning from the lowest No.
8) Plural Master / Slave setting

   Set the plural address switches SW5-1 and SW5-2 on the indoor control PCB as shown in the table right.

Master setting at time of factory shipment		Indoor unit			
		Master	Slave a	Slave b	Slave c
DIP switch	SW5-1	OFF	OFF	ON	ON
	SW5-2	OFF	ON	OFF	ON

(e) Remote controller wiring and connection procedure

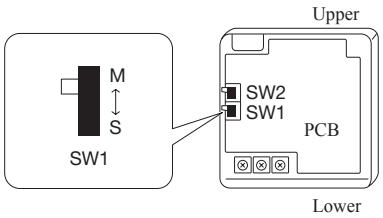
1) Master-slave settings when using multiple remote controllers
   - Up to 2 remote controllers can be connected for each indoor unit (or group).
     a) There are two methods, one where the remote controller signal line (3-wire) for the slave remote controller is taken from the indoor unit and the other where the signal lines are taken from the master remote controller.



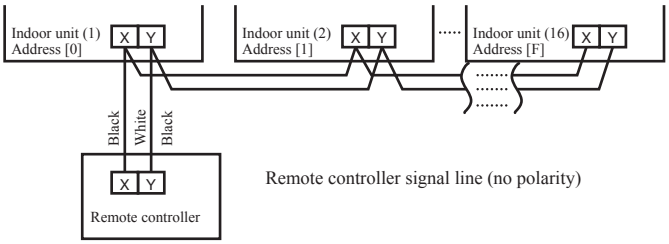
     b) Set the SW1 select switch on the slave remote controller on the Slave setting. (It is set on the Master setting at the factory.)

Note (1) Remote controller thermistor activation settings are possible only with the master remote controller. Install the master remote controller in a location where it can sense the room temperature.

Switch		Function
SW1	M	Master remote controller
	S	Slave remote controller



2) Controlling multiple indoor units using a single remote controller.
   - Up to 16 indoor units can be controlled with a single remote controller.
     a) Run 2-wire remote controller lines between each of the indoor units. See "Installation and wiring of remote controller" on page 218 concerning extended remote controller lines.
     b) Set the remote controller communications address on "0" ~ "F" using rotary switch SW2 on the indoor unit's control board, taking care not to overlap the addresses of any of the units.



     c) After turning the power on, press the AIR CON No. button to display the indoor unit's address. Be sure to confirm that the settings are displayed correctly in the remote controller by using the ▲ and ▼ buttons to display the address of each connected indoor unit.

(7) Setting functions using the wired remote controller

(a) The initial function setting for typical using is performed automatically for a remote control unit and an indoor unit by the outdoor unit connected, when remote controller and inside unit are connected.

As long as they are used in a typical manner, there wiil be no need to change the initial settings.
If you would like to change the initial setting marked " ○ ", set your desired setting as for the selected item.
The procedure of functional setting is shown as the following diagram.
As for detail of setting, refer to the installation manual of remote controller.

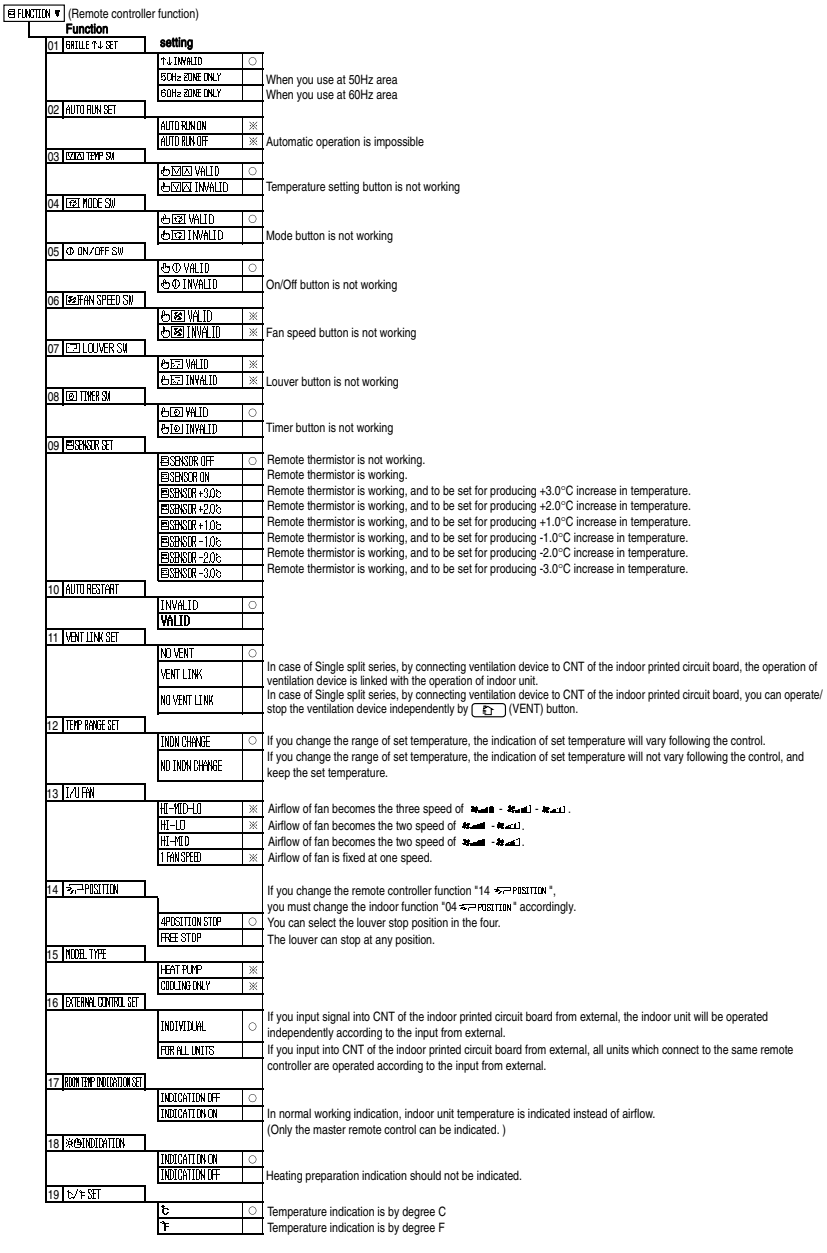
(b) Flow of function setting

Start : While indoor unit do not operate, press " (SET) " and " (MODE) " button for 3 seconds at the same time.
Finalizea : Press " (SET) " button.
Reset : Press " (RESET) " button.
Select : Press ▲ ▼ button.
End : Press ⏻ON/OFF button.
It is possible to finish above setting on the way, and unfinished change of setting is unavailable.
" ○ " : Initial settings
" ※ " : Automatic criterion

(c) Clearing the function setting

Pressing CHECK (CHECK) + (TIMER) + (MODE) buttons simultaneously reverts the function setting data to the data which are set at the shipping from factory.

① Remote controller unit functions (FUNCTION▼)

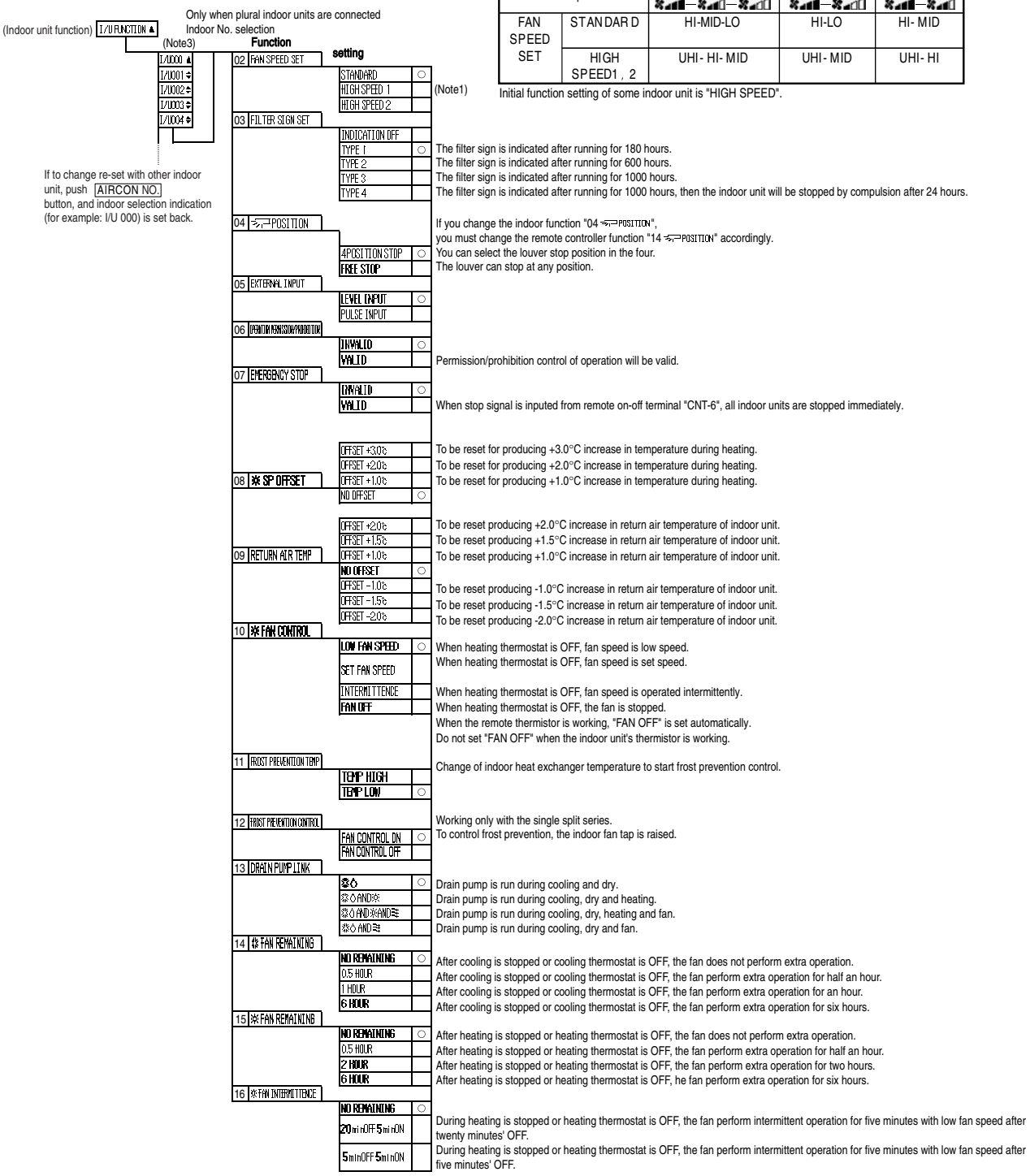


② Indoor unit functions (I/U FUNCTION▲)

Note1: Fan setting of "HIGH SPEED"

Fan tap		Indoor unit air flow setting		
		※—※—※	※—※	※—※
FAN SPEED SET	STANDARD	HI-MID-LO	HI-LO	HI- MID
	HIGH SPEED1，2	UHI- HI- MID	UHI- MID	UHI- HI

Initial function setting of some indoor unit is "HIGH SPEED".



(d) How to set function

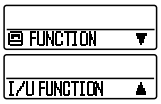
1) Stop air-conditioner and press ( ) (SET) ( ) (MODE) buttons at the same time for over three seconds, and the "FUNCTION SET ▼ " will be displayed.

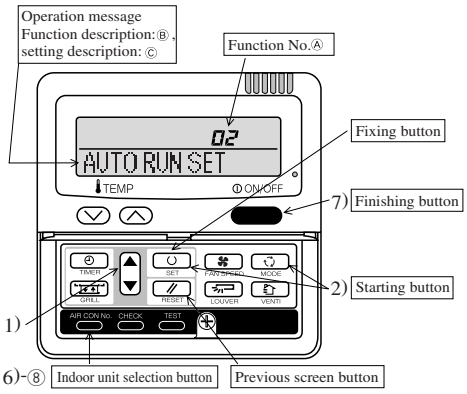
2) Press ( ) (SET) button.

3) Make sure which do you want to set, FUNCTION ▼" (remote controller function) or "I/U FUNCTION ▲ " (indoor unit function).

4) Press ▲ or ▼ button.
Selecct " FUNCTION ▼ " (remote controller function) or "I/U FUNCTION ▲ " (indoor unit function).

5) Press ( ) (SET) button.

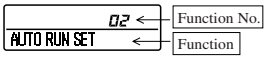




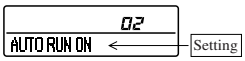
6) 【On the occasion of remote controller function selection】

① "DATA LOADING" (Indication with blinking)
↓
Display is changed to "01 GRILLE ↑↓ SET".

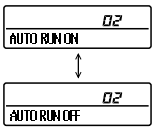
② Press ▲ or ▼ button.
"No. and function"are indicated by turns on the remote controller function table, then you can select from them.
(For example)



③ Press ( ) (SET) button.
The current setting of selected function is indicated.
(for example) "AUTO RUN ON" ← If "02 AUTO RUN SET" is selected



④ Press ▲ or ▼ button.
Select the setting.



⑤ Press ( ) (SET)
"SET COMPLETE" will be indicated, and the setting will be completed.
Then after "No. and function" indication returns, Set as the same procedure if you want to set continuously ,and if to finish, go to 7.

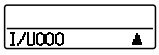
7) Press ON/OFF button.
Setting is finished.

【On the occasion of indoor unit function selection】

① "DATA LOADING" (Blinking for 2 to 23 seconds to read the data)
↓
Indication is changed to "01 AUTO FILTER CLEANING".
Go to ② .

[Note]

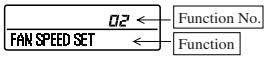
(1) If plural indoor units are connected to a remote controller, the indication is "I/U 000" (blinking) ← The lowest number of the indoor unit connected is indicated.



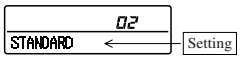
(2) Press ▲ or ▼ button.
Select the number of the indoor unit you are to set
If you select "ALL UNIT ▼ ", you can set the same setting with all unites.

(3) Press ( ) (SET) button.

② Press ▲ or ▼ button.
"No. and function" are indicated by turns on the indoor unit function table, then you can select from them.
(For example)



③ Press ( ) (SET) button.
The current setting of selected function is indicated.
(For example) "STANDARD" ← If "02 FAN SPEED SET" is selected.



④ Press ▲ or ▼ button.
Select the setting.

⑤ Press ( ) (SET) button.
"SET COMPLETE" will be indicated, and the setting will be completed.
Then after "No. and function" indication returns, set as the same procedure if you want to set continuously , and if to finish, go to 7).

※ When plural indoor units are connected to a remote controller, press the AIRCON NO. button, which allows you to go back to the indoor unit selection screen. (example "I/U 000▲ ")

- It is possible to finish by pressing ON/OFF button on the way, but unfinished change of setting is unavailable.
- During setting, if you press ( ) (RESET) button, you return to the previous screen.
- Setting is memorized in the controller and it is saved independently of power failure.

【How to check the current setting】
When you select from "No. and funcion" and press set button by the previous operation, the "Setting" displayed first is the current setting.
(But, if you select "ALL UNIT ▼ ", the setting of the lowest number indoor unit is displayed.)

(d) The range of temperature setting.

When shipped, the range of set temperature differs depending on the operation mode as below.
Heating : 16~30°C (55~86°F)
Except heating (cooling, fan, dry, automatic) : 18~30°C (62~86°F)

1) Upper limit and lower limit of set temperature can be changed with remote controller.

Upper limit setting: valid during heating operation. Possible to set in the range of 20 to 30°C (68 to 86°F).
Lower limit setting: valid except heating (automatic, cooling, fan, dry) Possible to set in the range of 18 to 26°C (62 to 79°F).
When you set upper and lower limit by this function, control as below.

a) When ⑫ TEMP RANGE SET, remote controller function of function setting mode is "INDN CHANGE" (factory setting),
[If upper limit value is set]
During heating, you cannot set the value exceeding the upper limit.
[If lower limit value is set]
During operation mode except heating, you cannot set the value below the lower limit.

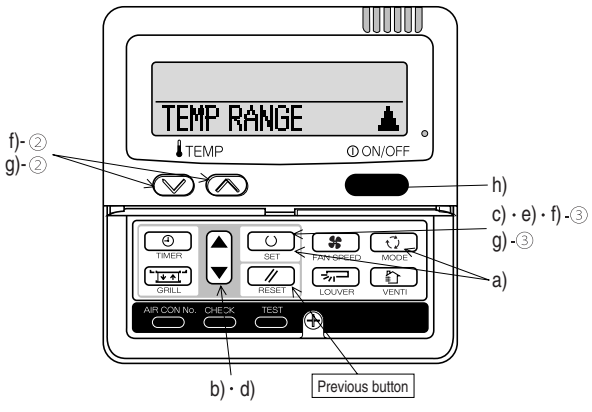
b) When ⑫ TEMP RANGE SET, remote controller function of function setting mode is "NO INDN CHANGE"
[If upper limit value is set]
During heating, even if the value exceeding the upper limit is set, upper limit value will be sent to the indoor unit.
But, the indication is the same as the temperature set.
[If lower limit value is set]
During except heating, even if the value lower than the lower limit is set, lower limit value will be sent to the indoor unit.
But, the indication is the same as the temperature set.

2) How to set upper and lower limit value

a) Stop the air-conditioner, and press (○) , (SET) and (⟲) , (MODE) button at the same time for over three seconds .
The indication changes to "FUNCTION SET ▼ ".
b) Press [▼] button once, and change to the "TEMP RANGE ▲ " indication.
c) Press (○) (SET) button, and enter the temperature range setting mode.
d) Select "UPPER LIMIT ▼ " or "LOWER LIMIT ▲ " by using [▲] [▼] button.
e) Press (○) (SET) button to fix.
f) When "UPPER LIMIT ▼ " is selected (valid during heating)
① Indication: "SET UP" → "UPPER 30°C "
② Select the upper limit value with temperature setting button [▼] [▲] . Indication example: "UPPER 26°C " (blinking)
③ Press (○) (SET) button to fix. Indication example: "UPPER 26°C" (Displayed for two seconds)
After the fixed upper limit value displayed for two seconds, the indication will return to "UPPER LIMIT ▼ ".

g) When "LOWER LIMIT ▲ " is selected (valid during cooling, dry, fan, automatic)
① Indication: "SET UP" → "LOWER 18°C "
② Select the upper limit value with temperature setting button [▼] [▲] . Indication example: "LOWER 24°C " (blinking)
③ Press (○) (SET) button to fix. Indication example: "LOWER 24°C" (Displayed for two seconds)
After the fixed upper limit value displayed for two seconds, the indication will return to "LOWER LIMIT ▼ ".
h) Press [ON/OFF] button.

- It is possible to finish by pressing [ON/OFF] button on the way, but unfinished change of setting is unavailable.
- During setting, if you press (//) (RESET) button, you return to the previous screen.



(e) Trail operation of drain pump

Drain pump operation from remote control unit is possible. Operate a remote control unit by following the steps described below.

1) To start a forced drain pump operation.

① Press the [TEST] button for three seconds or longer.
The display will change " ❋ TEST RUN ▼ "

② Press the [▼] button once and cause " DRAIN PUMP ▲▼ " to be displayed.

③ When the [○] (SET) button is pressed, a drain pump operation will start.
Display: "☝⊙ TO STOP "

2) To cancel a drain pump operation.

① If either [○] (SET) or [①ON/OFF] button is pressed, a forced drain pump operation will stop. The air conditioning system will become OFF.

○ If two (2) remote controllers are connected to one (1) inside unit, only the master controller is available for trial operation and confirmation of operation data. (The slave remote controller is not available.)

(f) How to set the airflow direction (Only FDT, FDTC, FDE)

(i) FDT, FDTC series

It is possible to change the movable range of the louver on the air supply from the wired remote controller. Once the top and bottom position is set, the louver will swing within the range between the top and the bottom when swing operation is chosen. It is also possible to apply different setting to each louver.

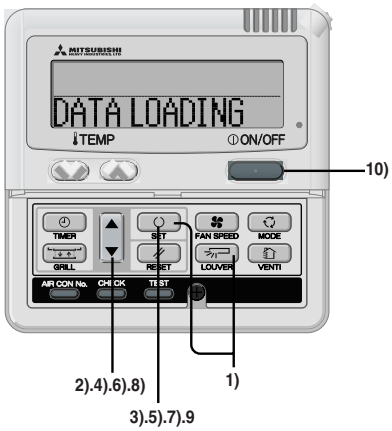
1) Stop the air conditioner and press [○] SET button and [⥱] LOUVER button simultaneously for three seconds or more.

The following is displayed if the number of the indoor units connected to the remote controller is one. Go to step 4.

"DATA LOADING "
↓
"⥱ No.1 ♟"

The following is displayed if the number of the indoor units connected to the remote controller are more then one.

"☝▲▼ SELECT I/U "
↓
"I/U000 ♟"



2) Press ▲ or ▼ button. (selection of indoor unit)

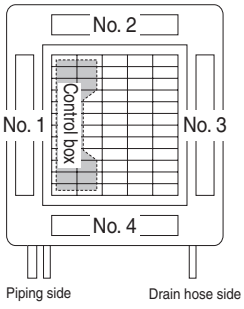
Select the indoor unit of which the louver is set.

[EXAMPLE]
"I/U000 ♟"⇔"I/U001 ▲▼"⇔"I/U002 ▲▼"⇔
"I/U003 ▲▼"

3) Press [○] SET button. (determination of indoor unit)

Selected indoor unit is fixed.

[EXAMPLE]
"I/U001 " (displayed for two seconds)
↓
"DATA LOADING "
↓
"⥱ No.1 ♟"



Louver No.

NOTICE

- For FDT type, in case the louver No. to be set is uncertain, set any louver temporarily. The louver will swing once when the setting is completed and it is possible to confirm the louver No. and the position.
  After that, choose the correct louver No. and set the top and bottom position.
- For FDTC series, set louver No.1 other settings selected have no effect.

4) Press ▲ or ▼ button. (selection of louver No.)

Select the louver No. to be set according to the right figure.

[EXAMPLE]

"No.1 ♟" ⇔ "No.2 ⇕" ⇔ "No.3 ⇕" ⇔
"No.4 ▼"

• For FDTC series, set louver No.1 other settings selected have no effect.

5) Press ○ SET button. (Determination of louver No.)

The louver No. to be set is confirmed and the display shows the upper limit of the movable range.

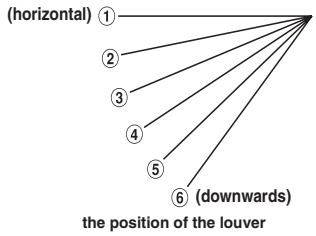
[EXAMPLE] If No.1 louver is selected,

"No.1 UPPER2 ⇕" ←current upper limit position

6) Press ▲ or ▼ button. (selection of upper limit position)

Select the upper limit of louver movable range.
"position 1" is the most horizontal, and "position 6" is the most downward.
"position --" is to return to the factory setting. If you need to change the setting to the default setting, use "position --".

"No.1 UPPER1 ▼" (the most horizotal)
⇔ "No.1 UPPER2 ⇕"
⇔ "No.1 UPPER3 ⇕"
⇔ "No.1 UPPER4 ⇕"
⇔ "No.1 UPPER5 ⇕"
⇔ "No.1 UPPER6 ⇕" (the most downwards)
⇔ "No.1 UPPER-- ♟" (return to the default setting)



7) Press ○ SET button. (Fixing of the upperlimit position)

The upper limit position is fixed and the setting position is displayed for two seconds.Then proceed to lower limit position selection display.

[EXAMPLE]

No.1 UPPER2 (displayed for two seconds)
↓
No.1 LOWER5 ⇕ (shows current setting)

8) Press ▲ or ▼ button. (Selection of lower limit position)

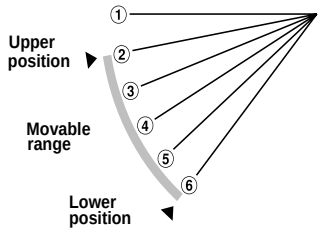
Select the lower limit position of louver.
"position 1" is the most horizontal, and "position 6 " is the most downwards.
"position --" is to return to the factory setting. If you need to change the setting to the default setting, use "position --".

No.1 LOWER1 ▼ (the most horizontal)
No.1 LOWER2 ⇕
No.1 LOWER3 ⇕
No.1 LOWER4 ⇕
No.1 LOWER5 ⇕
No.1 LOWER6 ⇕ (the most downwards)
No.1 LOWER-- ♟ (return to the default setting)

9) Press ○ SET button. (Fixing of the upper limit position)

Upper limit position and lower limit position are fixed, and the set positions are displayed for two seconds, then setting is completed.

• After the setting is completed, the louver which was set moves from the original position to the lower limit position, and goes back to the original position again. (This operation is not performed if the indoor unit and/or indoor unit fan is in operation.)



[EXAMPLE]

No.1 U2 L6 (displayed for two seconds)

SET COMPLETE

No.1 ♟

10) Press ⓘON/OFF button.

Louver adjusting mode ends and returns to the original display.

Caution

If the upper limit position number and the lower limit position number are set to the same position, the louver is fixed at that position auto swing does not funtion.

ATTENTON

If you press ⌀ RESET button during settings, the display will return to previous display.If you press ⓘON/OFF button during settings, the mode will be ended and return to original display, and the settings that have not been completed will become invalid.

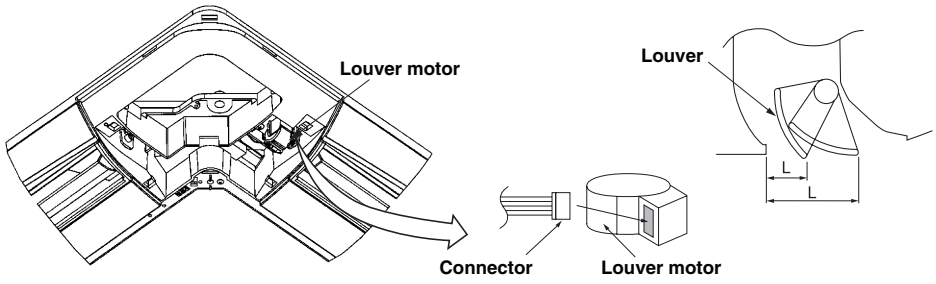
When plural remote controllers are connected, louver setting operation cannot be set by slave remote controller.

If it is necessary to fix the louver position manually, follow the procedure mentioned below.

① Shut off the main power switch.

② Unplug the connector of the louver motor which you want to fix the position. Make sure to insulate unplugged connectors electrically with a vinyl tape.

③ Adjust the louver position slowly by hand so as to be within the applicable range mentioned below table.



<Range of louver setting>

Vertical airflow direction	Horizontal 0˚	Downwards 45˚
Dimension L (mm)	43	26

※It can be set between 26~43mm freely.

Caution

- Any automatic control or operation from the remote controller will be disabled on the louver whose position is fixed in the above way.
- Do not set a louver beyond the specified range. Failure to observe this instruction may result in dripping, dew condensation, the fouling of the ceiling and the malfunctioning of the unit.

(ii) FDE series

It is possible to change the movable range of the louver on the air supply from the wired remote controller. Once the top and bottom position is set, the louver will swing within the range between the top and the bottom when swing operation is chosen. It is also possible to apply different setting to each louver.

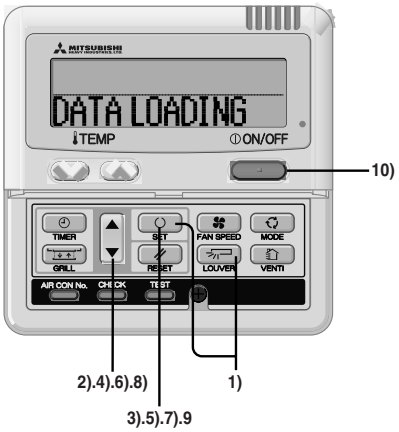
1) Stop the air conditioner and press ○ SET button and LOUVER button simultaneously for three seconds or more.

● The following is displayed if the number of the indoor units connected to the remote controller is one. Go to step 4.

"DATA LOADING "
↓
"No.1 ♟"

● The following is displayed if the number of the indoor units connected to the remote controller are more than one.

"SELECT I/U"
↓
"I/U000 ♟"



2) Press ▲ or ▼ button. (selection of indoor unit)

● Select the indoor unit of which the louver is set.

[EXAMPLE]
"I/U000 ♟"⇔"I/U001 ⇕"⇔"I/U002 ⇕"⇔
"I/U003 ⇕"

3) Press ○ SET button. (determination of indoor unit)

● Selected indoor unit is fixed.

[EXAMPLE]
"I/U001 " (displayed for two seconds)
↓
"DATA LOADING "
↓
"No.1 ♟"

4) Press ▲ or ▼ button. (selection of louver No.)

● Select the louver No. to be set according to the right figure.

[EXAMPLE]
"No.1

5) Press ○ SET button. (Determination of louver No.)

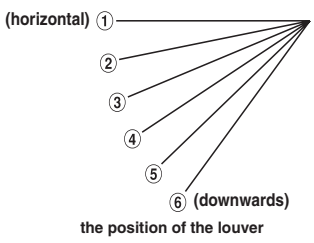
● The louver No. to be set is confirmed and the display shows the upper limit of the movable range.

[EXAMPLE] If No.1 louver is selected,
"No.1 UPPER2 ⇕" ←current upper limit position

6) Press ▲ or ▼ button. (selection of upper limit position)

● Select the upper limit of louver movable range.
"position 1" is the most horizontal, and "position 6" is the most downward.
"position --" is to return to the factory setting. If you need to change the setting to the default setting, use "position --".

"No.1 UPPER1 ⇓" (the most horizotal)
⇔ "No.1 UPPER2 ⇕"
⇔ "No.1 UPPER3 ⇕"
⇔ "No.1 UPPER4 ⇕"
⇔ "No.1 UPPER5 ⇕"
⇔ "No.1 UPPER6 ⇑" (the most downwards)
⇔ "No.1 UPPFR-- ♟" (return to the default setting)



7) Press ○ SET button. (Fixing of the upper limit position)

● The upper limit position is fixed and the setting position is displayed for two seconds.Then proceed to lower limit position selection display.

[EXAMPLE]

No.1 UPPER2 (displayed for two seconds)
↓
No.1 LOWER5 ▲▼ (shows current setting)

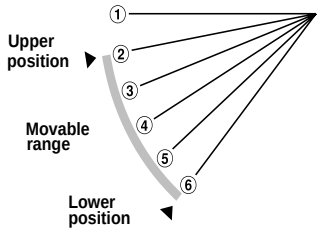
8) Press ▲ or ▼ button. (Selection of lower limit position)

● Select the lower limit position of louver.
"position 1" is the most horizontal, and "position 6 " is the most downwards.
"position --" is to return to the factory setting. If you need to change the setting to the default setting, use "position --".

No.1 LOWER1 (the most horizontal)
No.1 LOWER2 ▲▼
No.1 LOWER3 ▲▼
No.1 LOWER4 ▲▼
No.1 LOWER5 ▲▼
No.1 LOWER6 ▲▼ (the most downwards)
No.1 LOWER-- (return to the default setting)

9) Press ○ SET button. (Fixing of the upper limit position)

● Upper limit position and lower limit position are fixed, and the set positions are displayed for two seconds, then setting is completed.
• After the setting is completed, the louver which was set moves from the original position to the lower limit position, and goes back to the original position again. (This operation is not performed if the indoor unit and/or indoor unit fan is in operation.)



[EXAMPLE]

No.1 U2 L6 (displayed for two seconds)
SET COMPLETE
No.1

10) Press ⏻ON/OFF button.

● Louver adjusting mode ends and returns to the original display.

Caution

If the upper limit position number and the lower limit position number are set to the same position, the louver is fixed at that position auto swing does not funtion.

ATTENTON

If you press RESET button during settings, the display will return to previous display.If you press ⏻ON/OFF button during settings, the mode will be ended and return to original display, and the settings that have not been completed will become invalid.

When plural remote controllers are connected, louver setting operation cannot be set by slave remote controller.

(8) Troubleshooting

The operation data is saved when the situation of abnormal operation happen, and the data can be confirmed by remote controller.

[Operating procedure]

(a) Press the CHECK button.

The display change " OPER DATA ▼ "

(b) Once, press the ▼ button, and the display change

" ERROR DATA ♟ ".

(c) Press the ○ (SET) button and abnormal operation data mode is started.

(d) When only one indoor unit is connected to remote controller, following is displayed.

① The case that there is history of abnormal operation.

→ Error code and " DATA LOADING " is displayed.

[Example]: [E8] (ERROR CODE)

" DATA LOADING " is displayed (blinking indication during data loading).

Next, the abnormal operation data of the indoor unit will be displayed. Skip to step (h).

② The case that there is not history of abnormal operation.

→ " NO ERROR " is displayed for 3 seconds and this mode is closed.

Error Code of indoor unit

Display on remote controller	LED on indoor circuit board		Content
	red (checking)	green (normal)	
No-indication	Stays OFF	Continuous flash	Normal
	Stays OFF	Stays OFF	Fault on power, indoor power Stays OFF or lack phase
E1	Stays OFF	Continuous flash	Fault on the transmission between indoor circuit board and remote control
	Not sure	Not sure	Indoor computer abnormal
E5	2 time flash	Continuous flash	Fault on outdoor-indoor transmission
E6	1 time flash	Continuous flash	Indoor heat exchange sensor interrupted or short-circuit
E7	1 time flash	Continuous flash	Indoor air inhaling sensor broken or short-circuit
E8	1 time flash	Continuous flash	The temperature of heat exchange abnormal
E9	1 time flash	Continuous flash	Float SW actions (only with FS)
E10	Stays OFF	Continuous flash	Excess number of remote controller connections
E14	3 time flash	Continuous flash	The communication fault for master/slave indoor units
E16	1 time flash	Continuous flash	Fan motor abnormal
E19	1 time flash	Continuous flash	Configuration fault on running checking model
E28	Stays OFF	Continuous flash	Remote controller sensor interrupted
Over E30	Stays OFF	Continuous flash	Outdoor unit checking (outdoor circuit board LED checking)

(e) When plural indoor units is connected, following is displayed.

① The case that there is history of abnormal operation.

→ Error code and the smallest address number of indoor unit among all connected indoor unit is displayed.

[Example]: [E8] (ERROR CODE) " I/U000 ♟ " blinking

② The case that there is not history of abnormal operation.

→ Only address number is displayed.

(f) Select the indoor unit number you would like to have data displayed with the ▲ ▼ button.

(g) Determine the indoor unit number with the ○ (SET) button.

[Example]: [E8] (ERROR CODE)

" I/U000 ♟ " (The address of selected indoor unit is blinking for 2 seconds.)

↓

[E8] " DATA LOADING " (A blinking indication appears while data loaded.)

Next, the abnormal operation data is indicated.

If the indoor unit doing normal operation is selected, " NO ERROR " is displayed for 3 seconds and address of indoor unit is displayed.

(h) By the ▲ ▼ button, the abnormal operation data is displayed.

※ Depending on models, the items that do not have corresponding data are not displayed.

(i) To display the data of a different indoor unit, press the AIR CON No. button, which allows you to go back to the indoor unit slection screen.

(j) Pressing the ⓘON/OFF button will stop displaying data.

Pressing the (RESET) button during remote control unit operation will undo your last operation and allow you to go back to the previous screen.

○ If two (2) remote controllers are connected to one (1) indoor unit, only the master controller is available for trial operation and confirmation of operation data. (The slave remote controller is not available.)

(9) Test run (FDC71~250 only)

(a) Test run from an outdoor unit.

1) Test run method

a) A test run can be initiated from an outdoor unit by using SW3-3 and SW3-4 for on-site setting.

b) Switching SW3-3 to ON will start the compressor.

c) The unit will start a cooling operation, when SW3-4 is OFF, or a heating operation, when SW3-4 is ON.

d) **Do not fail to switch SW3-3 to OFF when a test run is completed.**

SW-3-3	SW-3-4	
ON	OFF	Cooling during a test run
	ON	Heating during a test run
OFF	—	Normal or After the test operation

2) Checking the state of the unit in operation

Use check joints provided on the piping before and after the four-way valve installed inside the outdoor unit for checking discharge pressure and suction pressure.

As indicated in the table shown on the right, pressure detected at each point will vary depending on whether a cooling or heating operation has been selected.

	Check joint of the pipe	Charge port of the gas operation valve
Cooling operation	Discharge pressure (High pressure)	Suction pressure (Low pressure)
Heating operation	Suction pressure (Low pressure)	Discharge pressure (High pressure)

3) Setting SW3-1, SW3-2, J7 (FDC200, 250 only) on-site

a) Defrost control switching (SW3-1)

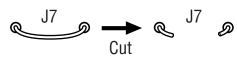
- When this switch is turned ON, the unit will run in the defrost mode more frequently.
- Set this switch to ON, when installed in a region where outdoor temperature falls below zero during the season the unit is run for a heating operation.

b) Snow guard fan control (SW3-2)

- When this switch is turned on, the outdoor unit fan will run for 10 seconds in every 10 minutes, when outdoor temperature falls to 3°C or lower and the compressor is not running.
- When the unit is used in a very snowy country, set this switch to ON.

c) Higth pressure control (J7) (FDC200, 250 only)

- When the option parts that change air flow from outlet are used, cut (open) J7.
  Cut the jumper wire into two parts and ensure that they are kept isolated from each other.



4) Failure diagnosis in a test run

Error indicated on the remote control unit	Printed circuit board LED(The cycles of 5 seconds)		Failure event	Action
	Red LED	Green LED		
E34	1 time flash	Continuous flash	Open phase	Check power cables for loose contact or disconnection
E40	1 time flash	Continuous flash	63H1 actuation or operation with service valves shut (occurs mainly during a heating operation)	1. Check whether the service valves are open. 2. If an error has been canceled when 3 minutes have elapsed since a compressor stop, you can restart the unit by effecting Check Reset from the remote control unit.
E49	1 time flash	Continuous flash	Low pressure error or operation with service valves shut (occurs mainly during a cooling operation)	

● If an error code other than those listed above is indicated, refer to the wiring diagram of the outdoor unit and the indoor unit.

5) The state of the electronic expansion valve.

The following table illustrates the steady states of the electronic expansion valve.

	When power is turned on	When the unit comes to a normal stop		When the unit comes to an abnormal stop	
		During a cooling operation	During a heating operation	During a cooling operation	During a heating operation
Valve for a cooling operation	Complete shut position	Complete shut position	Full open position	Full open position	Full open position
Valve for a heating operation	Full open position	Full open position	Complete shut position	Full open position	Full open position

6) Heed the following on the first operation after turning on the circuit breaker.

This outdoor unit may start in the standby mode (waiting for a compressor startup), which can continue up to 30 minutes, to prevent the oil level in the compressor from lowering on the first operation after turning on the circuit breaker. If that is the case, do not suspect a unit failure.

(b) Test run from an wired remote controller.

1) Starting a cooling test run.

① Start the system by pressing the [ON/OFF] button.
② Select " (Cool) " with the (MODE) button.
③ Press the [TEST] button for 3 seconds or longer.
The screen display will switch to: "TEST RUN ".
④ When the (SET) button is pressed while "TEST RUN ". is indicated, a cooling test run will start.
The screen display will switch to " TEST RUN ".

2) Ending a cooling test run.

Pressing the [ON/OFF] button, the (TEMP) button or (MODE) button will end a cooling test run. (Cooling test run will end after 30 minutes pass.)
" TEST RUN " shown on the screen will go off.

1.6 MAINTENANCE DATA

1.6.1 Servicing

(1) Evacuation

The evacuation is a procedure to purge impurities, such as noncondensable gas, air, moisture from the refrigeration circuit by using a vacuum pump. Since the refrigerant R410A is very insoluble in water, even a small amount of moisture left in the refrigeration circuit will freeze, causing what is called ice clogging.

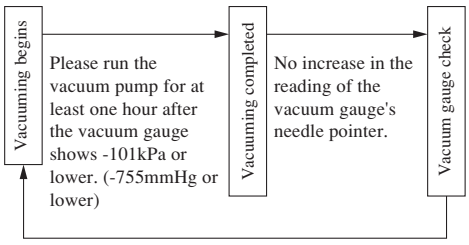
Evacuation procedure

Make sure that the both service valves of gas and liquid line are fully opened.

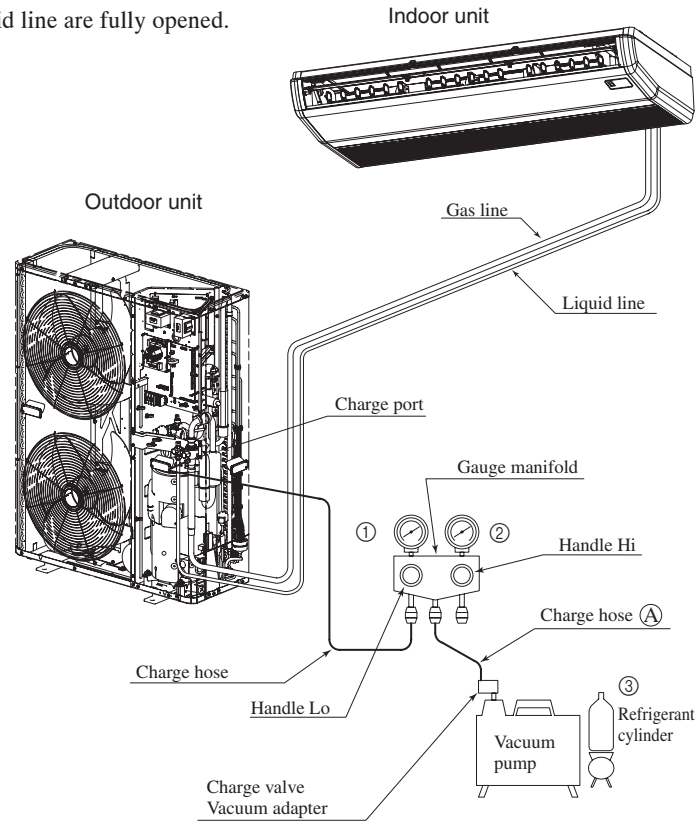
(a) Check to ensure that there is no internal pressure in the unit. If there is an internal pressure, it should be relieved through the service port to vacant refrigerant cylinder.

(b) Connect the charging hose of the gauge manifold to the service port of the gas piping.
Close high pressure valve ② of gauge manifold.

(c) Connect the charging hose Ⓐ to a vacuum pump.
Repeat evacuation in the following sequence.



When the vacuum gauge's needle pointer creeps up, there is moisture left in the system or a leak. Pull air again after you have checked the system for a leak and rectified it. Use a reverse flow stop adapter to prevent the vacuum pump's lubricant oil from flowing into the refrigerant system.



Notes (1) Do not use the refrigerant pressure to expel air.
(2) Do not use the compressor for evacuation.
(3) Do not operate the compressor in a vacuum condition.

(2) Refrigerant charging

(a) After the evacuation shown in the above, change the connection of the charge hose Ⓐ to the refrigerant cylinder.

(b) Purge air from the charge hose Ⓐ.

First loosen the connecting portion of the charge hose at the gauge manifold side and open valve ③ for a few seconds, and then immediately retighten it after observing that gas has blown out from loosened connecting portion.

(c) Open valves ① and ③ then gas refrigerant begins flowing from the cylinder into the unit.

When refrigerant has been charged into the unit to some extent, refrigerant flow becomes stagnant. When that happens, start the compressor in cooling cycle until the system is filled with the specified amount of gas, then close valves ① and ③ and remove the gauge manifold. Cover the service port with caps and tighten them securely.

(d) Check for gas leakage by applying a gas leak detector around the piping connection.

(e) Start the air conditioner and make sure of its operating condition.

1.6.2 Trouble shooting for refrigerant circuit

(1) Judgement of operating condition by operation pressure and temperature difference

Making an accurate judgement requires a skill that is acquired only after years of experience, one trouble may lead to an another trouble from a single trouble source and several other troubles may exist at the same time which comes from a undetected different trouble source.

Filtering out the trouble sources can be done easier by comparing with daily operating conditions. Some good guides are to judge the operating pressure and the temperature difference between return air and supply air of indoor unit.

Following are some pointers,

Pressure / Indication / Circuit	Too low	A little low	Normal	A little high	Too high	Trouble cause
High side					●	1) Excessive overcharging of refrigerant
Low side					●	2) Mixture of non condensable gas (air etc.)
High side	●					Ineffective compression
Low side					●	(defective compressor)
High side		●				1) Insufficient refrigerant in circuit 2) Clogging of strainer 3) Gas leakage 4) Clogging of air filter (in cooling) 5) Decrease in heat load (in cooling) 6) Locking of indoor fan (in cooling)
Low side	●					
High side					●	1) Locking of outdoor fan (in cooling)
Low side				●		2) Dirty outdoor heat exchanger (in cooling) 3) Mixture of non condensable gas (air etc.)
High side				●		1) Too high temperature of room
Low side					●	

1.6.3 Diagnosing of microcomputer circuit

(1) Selfdiagnosis function

(a) Check Indicator Table

Whether a failure exists or not on the indoor unit and outdoor unit can be know by the contents of remote controller error code, indoor/outdoor unit green LED (power pilot lamp and microcomputer normality pilot lamp) or red LED (check pilot lamp).

(i) Indoor unit side

Remote controller		Indoor unit control PCB		Outdoor unit control PCB		Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	Red LED	Green LED (1)	Red LED	Green LED (1)				
No-indication	Stays OFF	Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	—	• **Normal operation**	—	—
		Stays OFF	Stays OFF	2 times flash	Stays OFF	Indoor unit power supply	• Power OFF, broken wire/blown fuse, broken transformer wire	Repair	274
		* 3 times flash	Keeps flashing	Stays OFF	Keeps flashing	Remote controller wires	• Poor connection, breakage of remote controller wire * For wire breaking at power ON, the LED is OFF.	Repair	275
						Remote controller	• Defective remote controller PCB	Replacement of remote controller	
WAIT or stays OFF		Stays OFF	Keeps flashing	2 times flash	Keeps flashing	Indoor-outdoor units connection wire	• Poor connection, breakage of indoor-outdoor units connection wire	Repair	276~284
						Remote controller	• Improper setting of master and slave by remote controller		
E1		Stays OFF	* Keeps flashing	Stays OFF	Keeps flashing	Remote controller wires (Noise)	• **Poor connection of remote controller signal wire (White)** * For wire breaking at power ON, the LED is OFF • **Intrusion of noise in remote controller wire**	Repair	285
						Remote controller indoor unit control PCB	*• Defective remote controller or indoor unit control PCB (defective communication circuit)?	Replacement of remote controller or PCB	
E5		2 times flash	Keeps flashing	2 times flash	Keeps flashing	Indoor-outdoor units connection wire	• **Poor connection of wire between indoor-outdoor units during operation (disconnection, loose connection)** • **Anomalous communication between indoor-outdoor units by noise, etc.**	Repair	286
		2 times flash	Keeps flashing	Stays OFF	Keeps flashing	(Noise)	• **CPU-runaway on outdoor unit control PCB**	Power reset or Repair	
						Outdoor unit control PCB	*• Occurrence of defective outdoor unit control PCB on the way of power supply (defective communication circuit)?	Replacement of PCB	
		2 times flash	Keeps flashing	Stays OFF	Stays OFF	Outdoor unit control PCB	• **Defective outdoor unit control PCB on the way of power supply**	Replacement	
						Fuse	• **Blown fuse**		
E6		1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor unit heat exchanger temperature thermistor	• **Defective indoor unit heat exchanger temperature thermistor** (defective element, broken wire, short-circuit) • Poor contact of temperature thermistor connector	Replacement, repair of temperature thermistor	287
						Indoor unit PCB	*• **Defective indoor unit control PCB (Defective temperature thermistor input circuit)?**	Replacement of PCB	
E7		1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor unit return air temperature thermistor	• **Defective indoor unit return air temperature thermistor** (defective element, broken wire, short-circuit) • Poor contact of temperature thermistor connector	Replacement, repair of temperature thermistor	288
						Indoor unit control PCB	*• **Defective indoor unit control PCB (Defective temperature thermistor input circuit)?**	Replacement of PCB	
E8	Keeps flashing	1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Installation or operating condition	• **Heating over-load** (Anomalously high indoor unit heat exchanger temperature)	Repair	289
						Indoor unit heat exchanger temperature thermistor	• **Defective indoor unit heat exchanger temperature thermistor (short-circuit)**	Replacement of temperature thermistor	
						Indoor unit control PCB	*• **Defective indoor unit control PCB** (Defective temperature thermistor input circuit)?	Replacement of PCB	
E9		1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Drain trouble	• **Defective drain pump (DM), broken drain pump wire**, disconnected connector	Replacement, repair of DM	290
						Float switch	• **Anomalous float switch operation** (malfunction)	Repair	
						Indoor unit control PCB	*• **Defective indoor unit control PCB** (Defective float switch input circuit) *• **Defective indoor unit control PCB** (Defective DM drive output circuit)?	Replacement of PCB	
						Option	• **Defective optional parts** (At optional anomalous input setting)	Repair	
E10		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Number of connected indoor units	• **When multi-unit control by remote controller is performed, the number of units is over**	Repair	291
E14		3 times flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor unit No. setting	• No master is assigned to slaves.	Repair	292
						Remote controller wires	• Anomalous remote controller wire connection, broken wire between master and slave units		
E16		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Fan motor	• **Defective fan motor (FDT)**	Replacement, repair	293
						Indoor unit control PCB	• **Defective indoor unit control PCB**	Replacement	
E19		1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor unit control PCB	• **Improper operation mode setting**	Repair	294
E28		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Remote controller temperature thermistor	• Broken wire of remote controller temperature thermistor	Repair	295

Note (1) **Normal indicator lamp (Indoor, outdoor units: Green) extinguishes (or lights continuously) only when CPU is anomalous. It keeps flashing in any trouble other than anomalous CPU.**

(2) * mark in the Description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

(ii) Outdoor unit side

1) Model SRC40~60

Remote controller		Indoor unit control PCB		Outdoor unit control PCB	Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	Red LED	Green LED	Red LED				
E33	Keeps flashing	Stays OFF	Keeps flashing	1 time flash	Power supply wires	• Anomalous current on inverter primary side	Repair	296
E35		Stays OFF	Keeps flashing	8 times flash	Installation, operation status	• Higher outdoor unit heat exchanger temperature	Repair	299
					Outdoor unit heat exchanger temperature thermistor	• Defective outdoor unit heat exchanger temperature thermistor	Replacement, repair of temperature thermistor	
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E36		Stays OFF	Keeps flashing	8 times flash	Installation, operation status	• Higher discharge temperature	Repair	301
					Discharge pipe temperature thermistor	• Defective discharge pipe temperature thermistor	Replacement, repair of temperature thermistor	
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E37		Stays OFF	Keeps flashing	8 times flash	Outdoor unit heat exchanger temperature thermistor	• Defective outdoor unit heat exchanger temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	302
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E38		Stays OFF	Keeps flashing	8 times flash	Ambient air temperature thermistor	• Defective ambient air temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	303
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E39		Stays OFF	Keeps flashing	8 times flash	Discharge pipe temperature thermistor	• Defective discharge pipe temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	304
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E42		Stays OFF	Keeps flashing	1 time flash	Outdoor unit control PCB compressor	• Current cut (Anomalous compressor over-current)	Replacement of PCB	307, 308
					Installation, operation status	• Service valve closing operation	Repair	
E47		Stays OFF	Keeps flashing	1 time flash	Outdoor unit control PCB power transistor	• Anomalous inverter over-voltage	Repair PCB replacement	310
E48		Stays OFF	Keeps flashing	Keeps flashing	DC fan motor	• Defective DC fan motor	Replacement	311
					Outdoor unit control PCB	• Defective outdoor unit control PCB		
E57		Stays OFF	Keeps flashing	2 times flash	Operation status	• Shortage in refrigerant quantity	Repair	319
					Installation status	• Service valve closing operation	Service valve opening check	
E59		Stays OFF	Keeps flashing	2 times flash	Compressor outdoor unit control PCB	• Anomalous compressor startup	Replacement	320
E60		Stays OFF	Keeps flashing	7 times flash	Compressor	• Anomalous compressor rotor lock	Replacement	322

Note (1) * mark in the Description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

2) Model FDC71~250

Remote controller		Indoor unit control PCB		Outdoor unit control PCB		Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	Red LED	Green LED (1)	Red LED	Green LED (1)				
E34	Keeps flashing	Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Power supply wires	• Outdoor unit power supply L3-phase interruption, defective noise filter (3-phase model only)	Repair	297, 298
						Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective power supply input circuit)? (3-phase model only)	Replacement of PCB	
E35		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Installation or operating condition	• Higher outdoor unit heat exchanger temperature	Repair	300
						Outdoor unit heat exchanger temperature thermistor	• Defective outdoor unit heat exchanger temperature thermistor	Replacement of temperature thermistor	
						Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E36		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Installation or operating condition	• Higher discharge temperature	Repair	301
						Discharge pipe temperature thermistor	• Defective discharge pipe temperature thermistor	Replacement, repair of temperature thermistor	
						Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E37		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Outdoor unit heat exchanger temperature thermistor	• Defective outdoor unit heat exchanger temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	302
						Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E38		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Ambient air temperature thermistor	• Defective ambient air temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	303
						Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E39		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Discharge pipe temperature thermistor	• Defective discharge pipe temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	304
						Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E40		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Installation or operating condition	• Rising high pressure (Operation of 63H1) • Service valve closing operation	Repair	305
						Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective 63H input circuit)?	Replacement of PCB	
E41		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Inverter PCB or radiator fin	• Power transistor overheat (Model 200, 250 only)	Replacement of PCB or Repair	306
E42		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Outdoor unit control PCB compressor	• Current cut (Anomalous compressor over-current)	Replacement of PCB	307, 308
						Installation or operating condition	• Service valve closing operation	Repair	
E45		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Outdoor unit control PCB	• Anomalous outdoor unit control PCB communication	Service valve opening check	309
						Inverter PCB	• Anomalous inverter PCB communication	Replacement of PCB	
E48		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Outdoor unit DC fan motor	• Anomalous outdoor unit DC fan motor	Replacement, repair	312
						Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective DC motor input circuit)?	Replacement of PCB	
E49		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Installation or operating condition	• Low pressure error • Service valve closing operation	Repair	313, 314
						Low pressure sensor	• Anomalous low pressure, broken wire of low pressure sensor or poor connector connection	Replacement, repair of sensor	
						Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective sensor input circuit)?	Replacement of control PCB	
E51		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Inverter PCB	• Anomalous inverter PCB	Replacement of PCB	315
E53		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Suction pipe temperature thermistor	• Defective suction pipe temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	316
						Outdoor unit control PCB	*• Defective outdoor unit PCB (Defective thermistor input circuit)?	Replacement of control PCB	
E54		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Low pressure sensor	• Defective low pressure sensor	Replacement of sensor	317
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective sensor input circuit)?	Replacement of control PCB	
E55		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Compressor underneath temperature thermistor	• Defective compressor underneath temperature thermistor (Model 200, 250 only)	Replacement of temperature thermistor	318
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective thermistor input circuit)? (Model 200, 250 only)	Replacement of control PCB	
E57		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Operation status	• Shortage in refrigerant quantity	Repair	319
						Installation status	• Service valve closing operation	Service valve opening check	
E59		Stays OFF	Keeps flashing	5 times flash	Keeps flashing	Compressor inverter PCB	• Anomalous compressor startup	Replacement	321
E60		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Compressor	• Anomalous compressor rotor position detection (Model 200, 250 only)	Replacement	322

Note (1) * mark in the Description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

(iii) Optional controller in-use

SL-1N-E SL-2N-E SL-3N-E		Indoor unit control PCB		Outdoor unit control PCB		Location of trouble	Description of trouble	Repair method
Error code	Red LED	Red LED	Green LED	Red LED	Green LED			
E75	Keeps flashing	Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	SL-1N-E SL-2N-E SL-3N-E	• Communication error (Defective communication circuit on the main unit of SL1N-E, SL2N-E or SL3N-E)	Replacement

(iv) Display sequence of error codes or inspection indicator lamps

■ **Occurrence of one kind of error**

Displays are shown respectively according to errors.

■ **Occurrence of plural kinds of error**

Section	Category of display
Error code on remote controller	• Displays the error of higher priority (When plural errors are persisting) E1>E5>·····>E10>E32>·····Eb0 • Displays the present errors. (When a new error has occurred after the former error was reset.)
Red LED on indoor unit control PCB	
Red LED on outdoor unit control PCB	

■ **Error detecting timing**

Section	Error description	Error code	Error detecting timing
Indoor	Drain trouble (Float switch activated)	E9	Whenever float switch is activated after 30 second had past since power ON.
	Communication error at initial operation	"WAIT"	No communication between indoor and outdoor units is established at initial operation.
	Remote controller communication circuit error	E1	Communication between indoor unit and remote controller is interrupted for mote than 2 minutes continuously after initial communication was established.
	Communication error during operation	E5	Communication between indoor and outdoor units is interrupted for mote than 2 minutes continuously after initial communication was established.
	Excessive number of connected indoor units by controlling with one remote controller	E10	Whenever excessively connected indoor units is detected after power ON.
	Return air temperature thermistor anomaly	E7	-50°C or lower is detected for 5 seconds continuously within 60 minutes after initial detection of this anomalous temperature. Or 48°C or higher is detected for 5 seconds continuously.
	Indoor heat exchanger temperature thermistor anomaly	E6	-50°C or lower is detected for 5 seconds continuously within 60 minutes after initial detection of of this anomalous temperature. Or 70°C or higher is detected for 5 seconds continuously.
Outdoor	Ambient air temperature thermistor anomaly	E38	-30°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -30°C or higher is detected for 5 seconds continuously within 20 seconds after compressor ON.
	Outdoor heat exchanger temperature thermistor anomaly	E37	-50°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -50°C or lower is detected for 5 seconds continuously within 20 seconds after compressor ON.
	Discharge pipe temperature thermistor anomaly	E39	-10°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature.
	Suction pipe temperature thermistor anomaly	E53	-50°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature.
	Low pressure sensor anomaly	E54	0V or lower or 3.49V or higher is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous pressure.
	Underneath temperature thermistor anomaly	E55	-50°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature.

■ **Error log and reset**

Error indicator	Memorized error log	Reset
Remote controller display	• Higher priority error is memorized.	• Stop the unit by pressing the ON/OFF switch of remote controller. • If the unit has recovered from anomaly, it can be operated.
Red LED on indoor unit control PCB	• Not memorized.	
Red LED on outdoor unit control PCB	• Memorizes a mode of higher priority.	

■ **Resetting the error log**

- Resetting the memorized error log in the remote controller

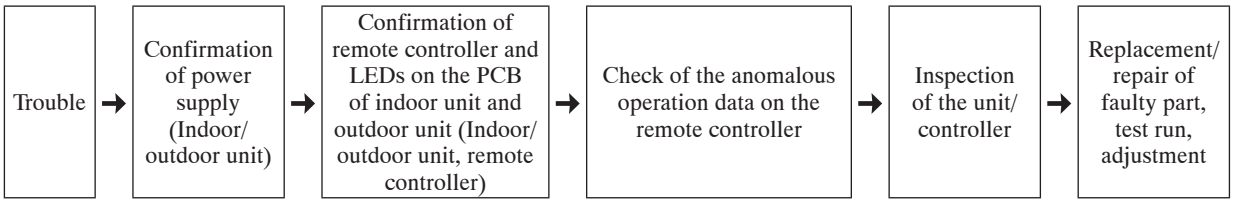
  Holding down “CHECK” button, press “TIMER” button to reset the error log memorized in the remote controller.
- Resetting the memorized error log

  The remote controller transmits error log erase command to the indoor unit when “VENTI” button is pressed while holding down “CHECK” button.

  Receiving the command, the indoor unit erase the log and answer the status of no error.

(2) Troubleshooting procedure

When any trouble has occurred, inspect as follows. Details of respective inspection method will be described on later pages.



(3) Troubleshooting at the indoor unit side

With the troubleshooting, find out any defective part by checking the voltage (AC, DC), resistance, etc. at respective connectors at around the indoor PCB, according to the inspection display or operation status of unit (the compressor does not run, fan does not run, the 4-way valve does not switch, etc.), and replace or repair in the unit of following part.

(a) Replacement part related to indoor PCB’s

Control PCB, power supply PCB, temperature thermistor (return air, indoor heat exchanger), remote controller switch, limit switch, transformer and fuse

Note (1) With regard to parts of high voltage circuits and refrigeration cycle, judge it according to ordinary inspection methods.

(b) Instruction of how to replace indoor control PCB

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.
  Both mentions the important items to protect your health and safety so strictly follow them by any means.
  ⚠ WARNING Wrong installation would cause serious consequences such as injuries or death.
  ⚠ CAUTION Wrong installation might cause serious consequences depending on circumstances.
- After completing the replacement, do commissioning to confirm there are no anomaly.

⚠ WARNING

- Replacement should be performed by the specialist.
  If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.
- Replace the PCB correctly according to these instructions.
  Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work.
  Replacement during the applying the current would cause the electric shock, unit failure or improper running.
  It would cause the damage of connected equipment such as fan motor,etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal.
  Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.
  Defectiveness of replacement may cause electric shock or fire.

⚠ CAUTION

- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connecter securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.

◆ Model: FDT, FDTC series

• Control PCB

This PCB is for spare part that must be set up according to following instruction since it is common.

①Set to an appropriate address and function by using switch on PCB.

Select the same setting with the removed PCB.

item	switch	Content of control			
Address	SW2	Plural indoor units control by 1 remote controller			
Master /Slave setting		Master	Slave1	Slave2	Slave3
	SW5-1	—	—	○	○
	SW5-2	—	○	—	○
Test run	SW7-1	—	Normal		
		○	Operation check/drain motor test run		

○:ON —:OFF

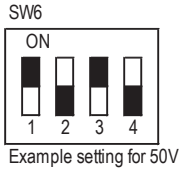
②Set to an appropriate capacity by using the model selector switch(SW6).

Select the same capacity with the PCB removed from the unit.

SW6	-1	-2	-3	-4
40V	○	○	—	—
50V	○	—	○	—
60V	○	○	○	—
71V	○	—	—	○

SW6	-1	-2	-3	-4
100V	○	○	—	○
125V	—	—	○	○
140V	○	—	○	○

○:ON —:OFF



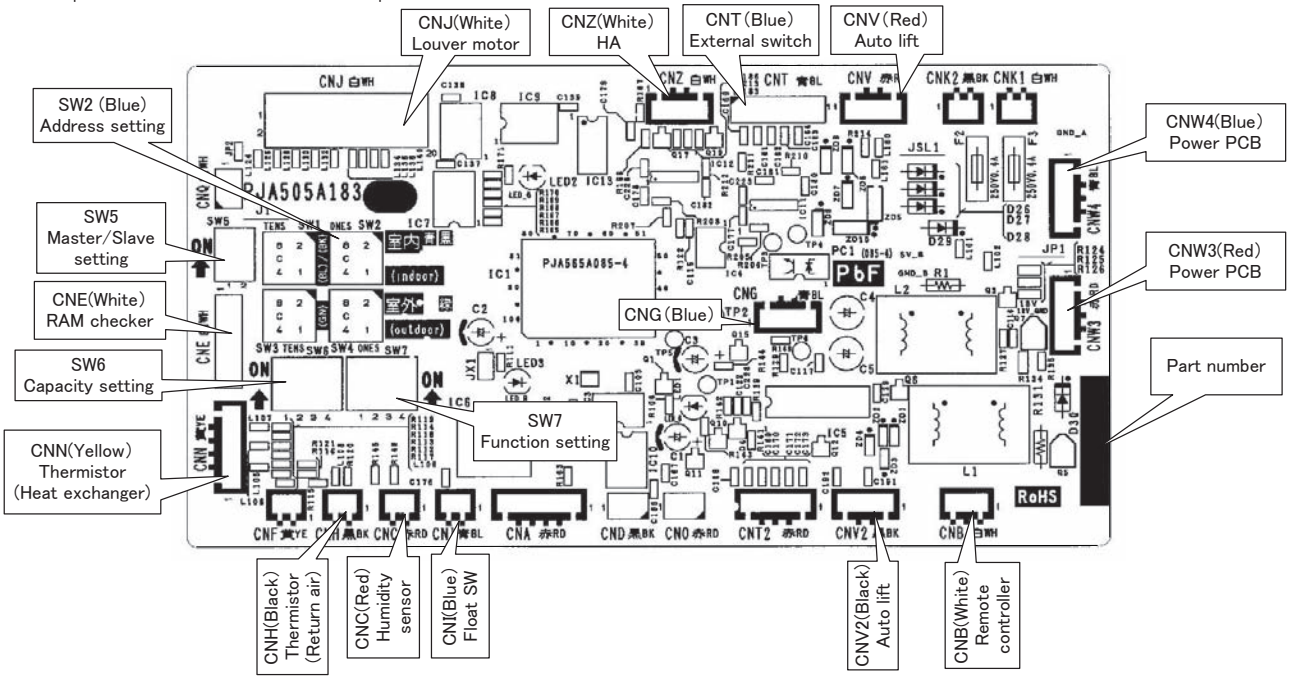
Example setting for 50V

③Replace the PCB

1. Fix the PCB so as not to pinch the wirings.
2. Be sure to connect the connectors with same color of the PCB connectors.
3. Be sure not to pass the wirings on the surface of PCB (especially CPU).

④Control PCB

The parts mounted on PCB are different with respect to each PCB.



• Power PCB

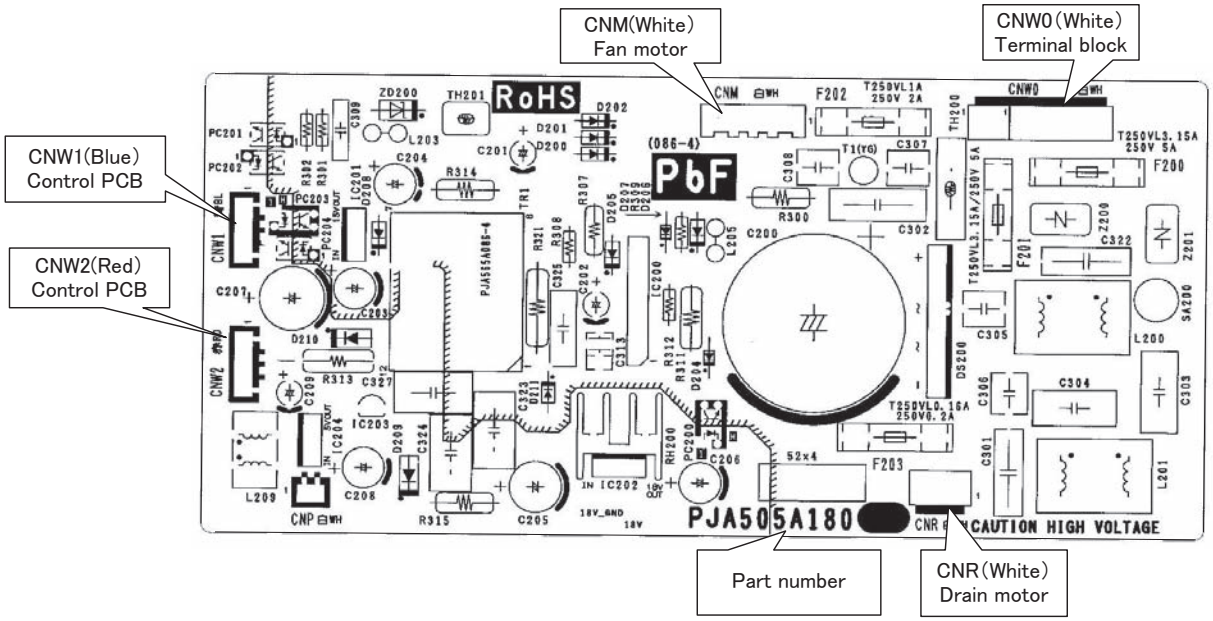
This PCB is for spare part that must be set up according to following instruction since it is common.

①Replace the PCB

1. Fix the PCB so as not to pinch the wirings.
2. Be sure to connect the connectors with same color of the PCB connectors.

②Power PCB

The parts mounted on PCB are different with respect to each PCB.



◆ Model: FDUM, FDDU, FDEN series

①Set an appropriate address and Master/Slave setting by using dip switches.

Set the same setting with the PCB removed from the unit.

item	switch	Content of control			
Address	SW2	Plural indoor units control by 1 remote controller			
Master /Slave setting		Master	Slave1	Slave2	Slave3
	SW5-1	—	—	○	○
	SW5-2	—	○	—	○
Test run	SW7-1	—	Normal		
		○	Operation check/drain motor test run		

○:ON —:OFF

②Set to an appropriate capacity by using the model selector switch(SW6).

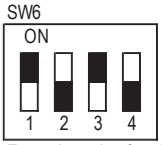
Select the same capacity with the PCB removed from the unit.

SW6	-1	-2	-3	-4
40V	○	○	—	—
50V	○	—	○	—
60V	○	○	○	—
71V	○	—	—	○

SW6	-1	-2	-3	-4
100V	○	○	—	○
125V	—	—	○	○
140V	○	—	○	○

SW6	-1	-2	-3	-4
200V	—	○	○	○
250V	○	○	○	○

SW6



Example setting for 50V

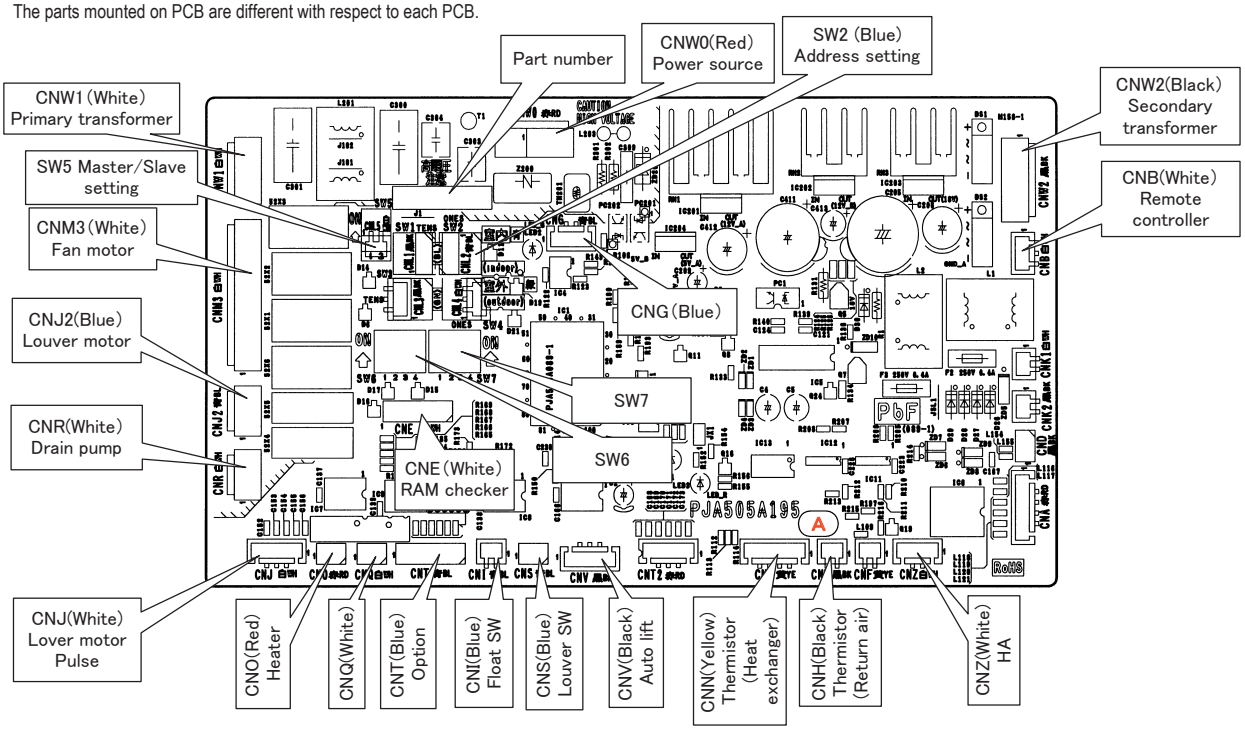
○:ON —:OFF

③Replace the PCB

1. Fix the PCB so as not to pinch the wirings.
2. Be sure to connect the connectors with same color of the PCB connectors.
3. Be sure not to pass the wirings on the surface of PCB (especially CPU).

④Control PCB

The parts mounted on PCB are different with respect to each PCB.



(4) Troubleshooting at the outdoor unit side

When troubleshooting the outdoor unit, firstly assess the overview of malfunction and try to presume the cause and the faulty part by checking the error cord dispalyed on the remote controller and flashing pattern of indicator lamps (Red LED and Green LED), and then proceed further inspection and remedy it.

Self-diagnosis system by microcomputor on indoor and outdoor PCB can assist to find the cause of malfunction smoothly by making a diagnosis of not only the anomaly of microcomutor, but also the anomaly in power supply system, installation space, overload resulting from improper charging amount of refrigerant and etc.

Unless the power is reset, the error log is saved in memory and the inspection indicator lamps on outdoor PCB keep flashing after automatical recovering from malfunction.

After automatical recovering from malfunction, if any another error mode which has a higher priority than the previous error saved in memory occurs, it is overwritten in memory and is displayed.

[Reset of power supply]

Be sure to avoid electrical shock, when replacing or checking the outdoor control PCB, because some voltage is still retained in the electrolytic capacitor on the PCB even after shutting down tne power supply to the outdoor unit.

Be sure to start repairing work, after confirming that the Red LED (or Green LED for 71-250type) on the PCB has been extiguished for more than 10 seconds after more than 3 minutes had been passed since power shut down, and reconfirming that voltage has been discharged sufficiently by measuring the voltage (DC) between both terminals of electrolytic capacitor (C58) (Measurment of voltage may be disturbed by the moisture-proof coating. In such case, remove the coating and measure it by taking care of avoiding electrical shock)

(a) Module of part to be replaced for outdoor unit controller

Outdoor control PCB, Inverter PCB, Temperature thermistor (of outdoor heat exchanger, discharge pipe, ambient air, power transistor, suction pipe and underneath), Fuses (for power supply and control PCB), Noise filter, Capacitor, Reactor and Transformer

(b) Replacement procedure of outdoor control PCB

Precautions for Safety

- Since the following precaution is the important contents for safety, be sure to observe them. WARNING and CAUTION are described as follows:

⚠WARNING Indicates an imminently hazardous situation which will result in death or serious injury if proper safety procedures and instructions are not adhered to.

⚠CAUTION Indicates a potentially hazardous situation which may result in minor or moderate injury if proper safety procedures and instructions are not adhered to.

⚠ WARNING

- Securely replace the PCB according to this procedure. If the PCB is incorrectly replaced, it will cause an electric shock or fire.
- Be sure to check that the power source for the outdoor unit is turned OFF before replacing the PCB. The PCB replacement under current-carrying will cause an electric shock or fire.
- After finishing the PCB replacement, check that wiring is correctly connected with the PCB before power distribution. If the PCB is incorrectly replaced, it will cause an electric shock or fire.

⚠ CAUTION

- Band the wiring so as not to tense because it will cause an electric shock.

Replace the control PCB according to the following procedure.

1) Model FDC71VN

a) Replace the PCB **after elapsing 3 minutes from power OFF.** (**Be sure to measure voltage (DC)** between T26 and T27 on inverter PCB, and **check that the voltage is discharged sufficiently(10V or less)**.(Refer to Fig.2))

b) Disconnect the connectors from the control PCB.

c) Match the switches setting (SW4) with the former PCB.

d) Connect the connectors to the control PCB.(Confirm the **connectors are not half inserted**.)

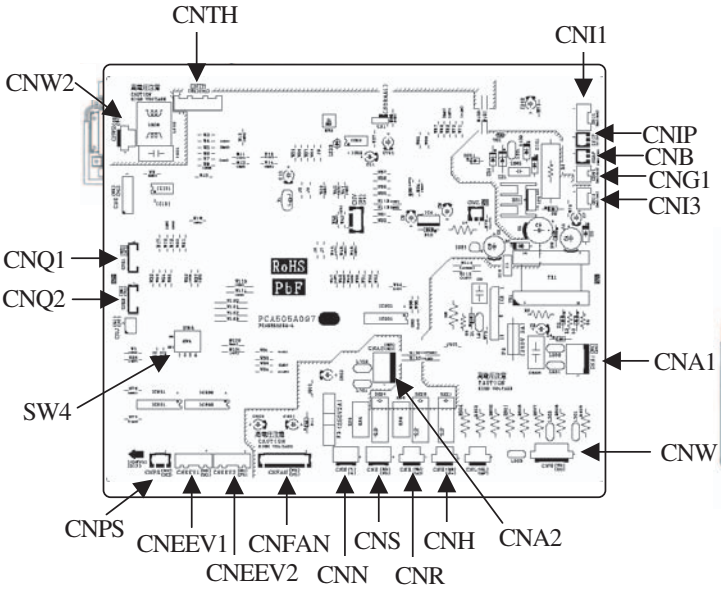


Fig.1 Parts arrangement view

connectors are not half inserted

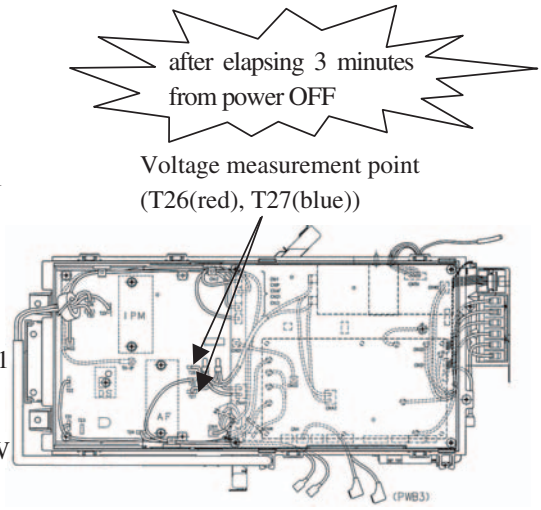


Fig.2 Position of terminal

2) Model FDC100VN, 125VN

a) Replace the PCB **after elapsing 3 minutes from power OFF.**
(**Be sure to measure voltage (DC)** on both capacitor terminals located in controller back, and **check that the voltage is discharged sufficiently**.(Refer to Fig.2))

b) Disconnect the connectors from the control PCB.

c) Disconnect the white wiring passing through CT1 on the PCB before replacing the PCB.

d) Match the setting switches (SW3-5,JSW) with the former PCB.

e) Tighten up a screw after passing white wiring through CT1 of the changed.

f) Connect the connectors to the control PCB.(Confirm the **connectors are not half inserted**.)

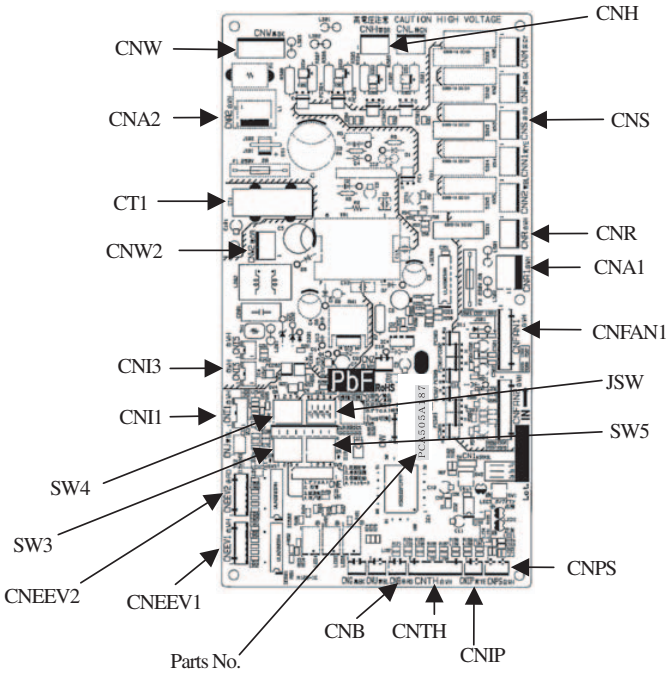


Fig.1 Parts arrangement view

connectors are not half inserted

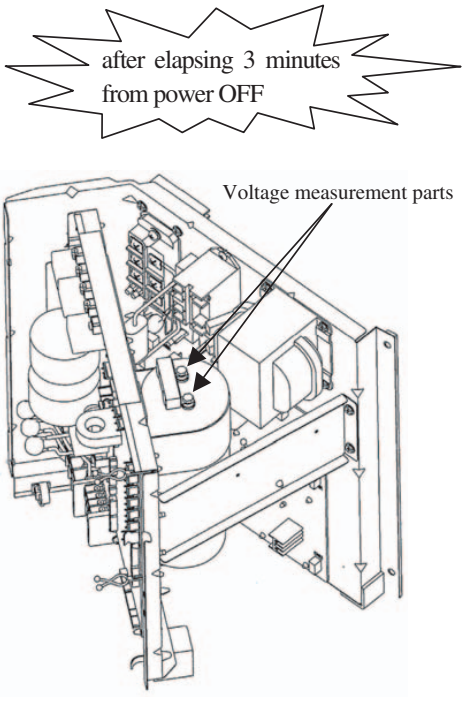


Fig.2 Position of capacitor

3) Model FDC100VS, 125VS

a) Replace the PCB **after elapsing 3 minutes from power OFF**.
(**Be sure to measure voltage (DC)** on both capacitor terminals located in controller back, and **check that the voltage is discharged sufficiently**.(Refer to Fig.2))

b) Disconnect the connectors from the control PCB.

c) Disconnect the white wiring passing through CT1 on the PCB before replacing the PCB.

d) Match the setting switches (SW3-5,JSW) with the former PCB.

e) Tighten up a screw after passing white wiring through CT1 of the changed.

f) Connect the connectors to the control PCB.(Confirm the **connectors are not half inserted**.)

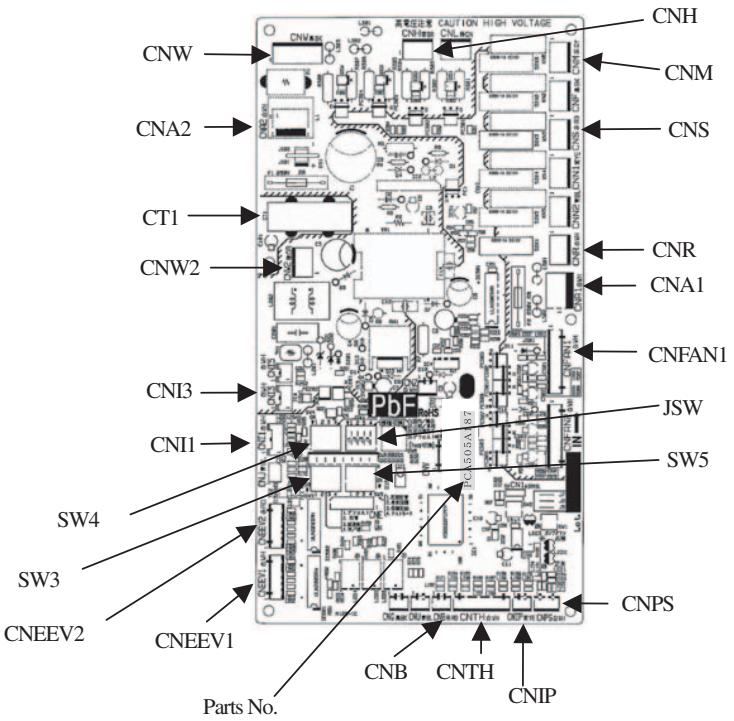
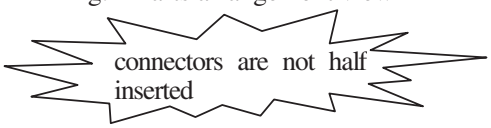


Fig.1 Parts arrangement view



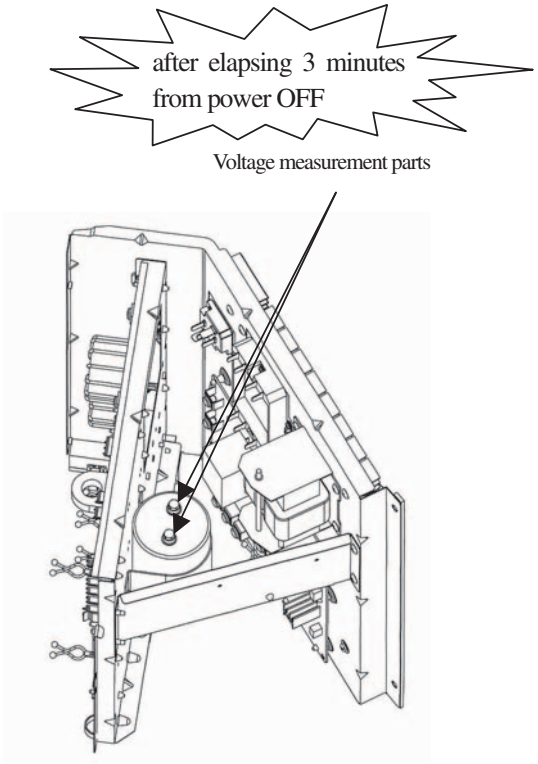


Fig.2 Position of capacitor

4) Model FDC200VS, 240VS

a) Replace the PCB **after elapsing 3 minutes from power OFF.**
(**Be sure to measure the voltage (DC) of two places** (1.Resistor on PCB at the front of controller 2.Both capacitor terminals located in back of controller), and **check that the voltage is discharged sufficiently**. (Refer to Fig.2))

b) Disconnect the connectors from the control PCB.

c) Disconnect the blue wiring passing through CT1 on the PCB before replacing the PCB.

d) Match the setting switches (SW3-5, JSW) with the former PCB.

e) Tighten up a screw after passing blue wiring through CT1 of the changed.

f) Connect the connectors to the control PCB. (Confirm the **connectors are not half inserted**)

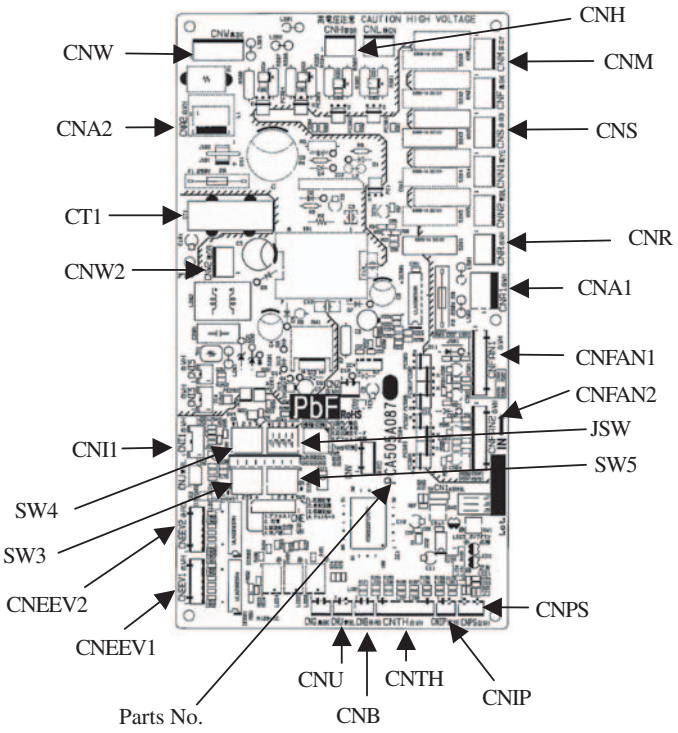


Fig.1 Parts arrangement view

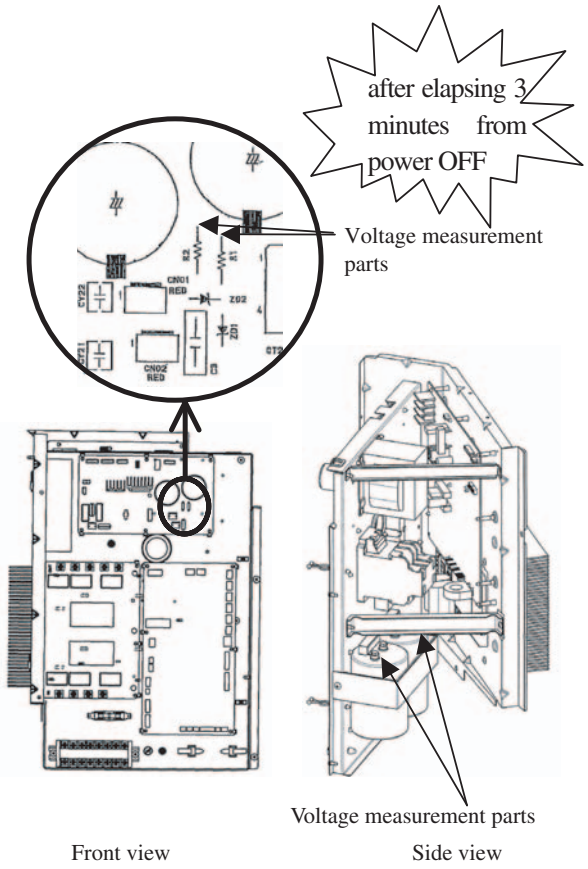
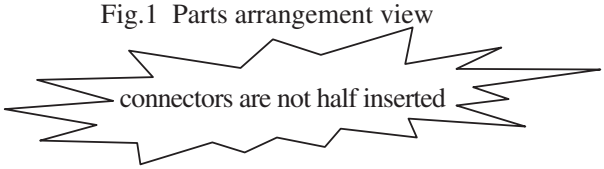


Fig.2 Position of capacitor



(c) Outdoor inverter PCB replacement procedure

Precautions for Safety

- Since the following precaution is the important contents for safety, be sure to observe them. WARNING and CAUTION are described as follows:

⚠ WARNING Indicates an imminently hazardous situation which will result in death or serious injury if proper safety procedures and instructions are not adhered to.

⚠ CAUTION Indicates a potentially hazardous situation which may result in minor or moderate injury if proper safety procedures and instructions are not adhered to.

⚠ WARNING

- Securely replace the PCB according to this procedure. If the PCB is incorrectly replaced, it will cause an electric shock or fire.
- Be sure to check that the power source for the outdoor unit is turned OFF before replacing the PCB. The PCB replacement under current-carrying will cause an electric shock or fire.
- After finishing the PCB replacement, check that wiring is correctly connected with the PCB before power distribution. If the PCB is incorrectly replaced, it will cause an electric shock or fire.

⚠ CAUTION

- Band the wiring so as not to tense because it will cause an electric shock.

Replace the inverter PCB according to the following procedure.

1) Model FDC71VN

a) Replace the PCB **after elapsing 3 minutes from power OFF.** (**Be sure to measure voltage (DC)** between T26 and T27 on inverter PCB, and **check that the voltage is discharged sufficiently (10V or less)**. (Refer to Fig.2))

b) Take off the connection of inverter PCB terminal and connector, and remove the screw of power transistor (IC10), active filter (IC2), and diode stack (DS1) then remove the PCB. Wipe off the silicon grease neatly on the controller's radiation heat fins. (Refer to Fig.1 and 2)

c) Refer to table1 for the setting of switch (JSW10, 11) of new PCB.

d) Before installing the power transistor (IC10), active filter (IC2), and diode stack (DS1) on the new PCB, apply silicon grease equally to the their surface. (Make full use of the silicon grease.) **They may be damaged unless they apply it**.

e) Tighten the screw of power transistor (IC10), active filter (IC2), and diode stack (DS1) on inverter PCB and connect terminal and connector. Confirm the connection and there is not the half insertion. **Tighten properly power transistor, (IC10) active filter (IC2), and diode stack (DS1) with a screw and make sure there is no slack. They can be damage if not properly tighten.** (Recommended tightening torque: power transistor (IC10)1.2±0.1 and active filter (IC2)0.98±0.1, diode stack(DS1) 0.5±0.1)Unit N·m

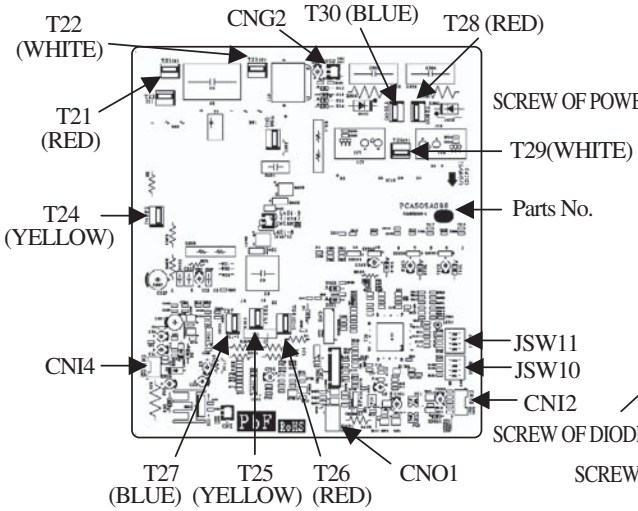


Fig. 1 Parts arrangement view

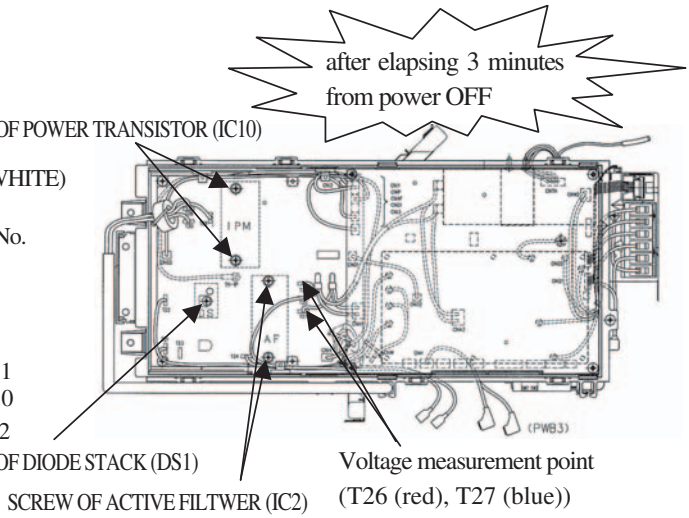


Fig. 2 Position of fastontab and terminal

Connectors are not half inserted

Table. 1 Switch setting

JSW10	-1	OFF	JSW11	-1	ON
	-2	OFF		-2	ON
	-3	OFF		-3	OFF
	-4	OFF		-4	OFF

2) Model FDC100VN, 125VN

a) Replace the PCB **after elapsing 3 minutes from power OFF**.
(**Be sure to measure voltage (DC)** on both capacitor terminals located in controller back, and **check that the voltage is discharged sufficiently**.(Refer to Fig.2))

b) Take off the connection of inverter PCB terminal block connector and remove the screw of power transistor then remove the PCB. Wipe off the silicon grease neatly on the controller's radiation heat fins.

c) Refer to table1 for the setting of switch (JSW10,11) of new PCB.

d) Before installing the power transistor on the new PCB,Apply uniformly a bundled of silicon grease first on the surface of power transistor.Make sure it is applied to prevent damage on power transistor.

e) Tighten the screw of power transistor on inverter PCB and connect the terminal block.Confirm the connection and don't use soldering in the connection.Tighten properly the power transistor with a screw and make sure there is no clearance gap.Power transistor can be damage if not properly tighten.(Recommended power transistor tightening torque:0.98~1.47N·m)

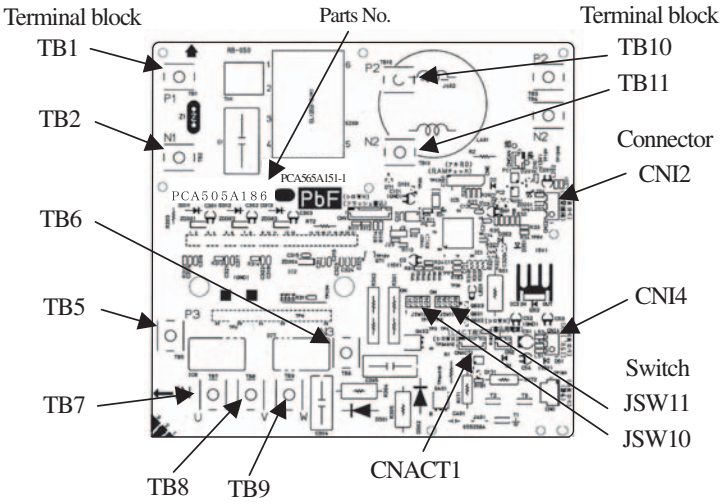


Fig.1 Parts arrangement view

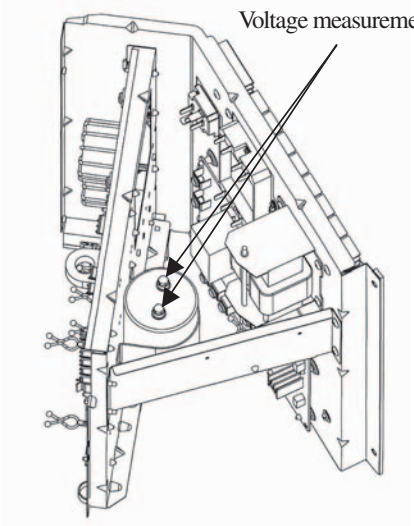


Fig.2 Position of capacitor

Table. 1 Switch setting

JSW10	-1	OFF	JSW11	-1	ON
	-2	OFF		-2	OFF
	-3	OFF		-3	OFF
	-4	OFF		-4	ON

3) Model FDC100VS, 125VS

a) Replace the PCB **after elapsing 3 minutes from power OFF**.
(**Be sure to measure voltage (DC)** on both capacitor terminals located in controller back, and **check that the voltage is discharged sufficiently**.(Refer to Fig.2))

b) Take off the connection of inverter PCB terminal block connector and remove the screw of power transistor then remove the PCB. Wipe off the silicon grease neatly on the controller's radiation heat fins.

c) Refer to table1 for the setting of switch (JSW10,11) of new PCB.

d) Before installing the power transistor on the new PCB, Apply uniformly a bundled of silicon grease first on the surface of power transistor.Make sure it is applied to prevent damage on power transistor.

e) Tighten the screw of power transistor on inverter PCB and connect the terminal block.Confirm the connection and don't use soldering in the connection.Tighten properly the power transistor with a screw and make sure there is no clearance gap.Power transistor can be damage if not properly tighten.(Recommended power transistor tightening torque:0.98~1.47N·m)

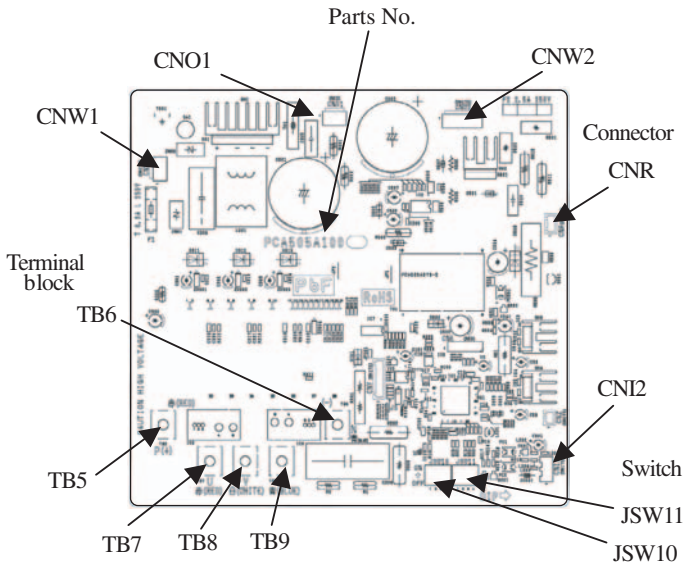


Fig.1 Parts arrangement view

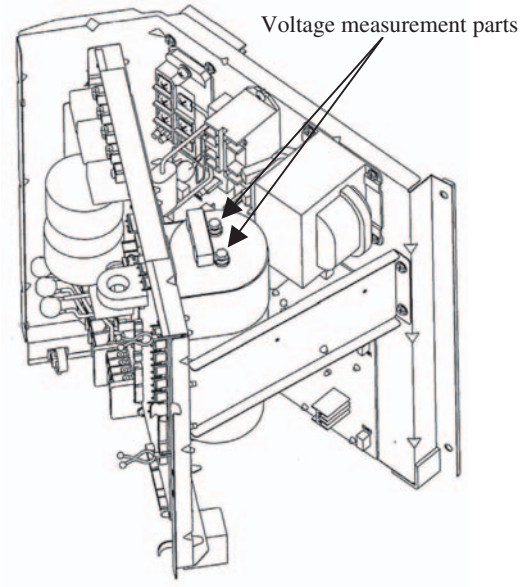


Fig.2 Position of capacitor

Table. 1 Switch setting

JSW10	-1	OFF	JSW11	-1	OFF
	-2	OFF		-2	ON
	-3	OFF		-3	OFF
	-4	OFF		-4	ON

4) Model FDC200VS, 250VS

a) Replace the inverter PCB after 10 minutes from power OFF. (Be sure to check that LED(LED1,2) of the inverter PCB put out the lights. It measures that the voltage (AC) between terminals(R,S,T) on the noise filter PCB (see Fig 2) is discharged sufficiently.)

b) Remove the terminal on the terminal block (TB1) of the inverter PCB and the connector (CNR) of exchange the PCB.

c) Make set switch (SW1,2) as shown in Table 1.

d) Connect the terminal of terminal block and the connector to the inverter PCB.

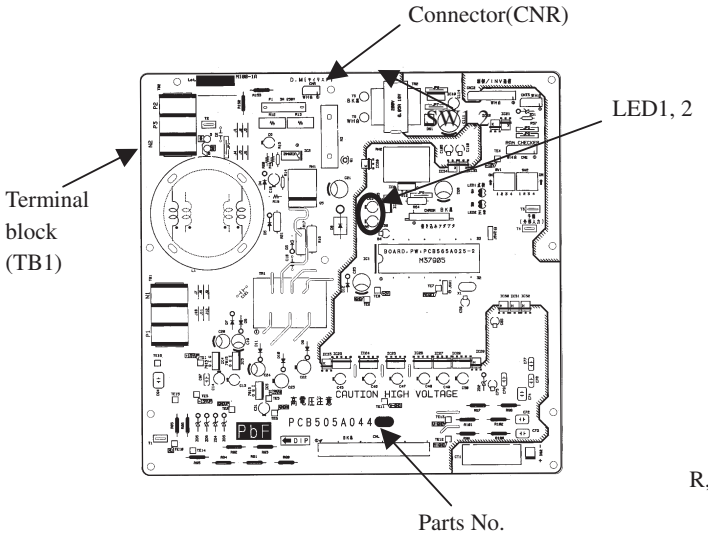


Fig.1 Parts arrangement view
(the inverter substrate)

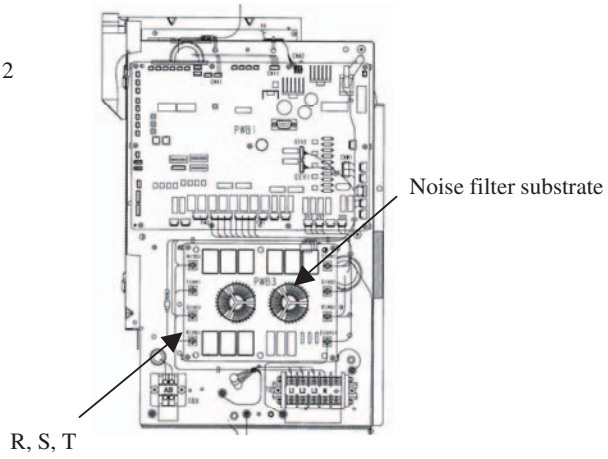


Fig.2 The front of control

(5) Check of anomalous operation data with the remote controller

Operation data can be checked with remote control unit operation.

① Press the CHECK button.
The display change " OPER DATA ▼ "

② Press the ○ (SET) button while " OPER DATA ▼ " is displayed.

③ When only one indoor unit is connected to remote controller, " DATA LOADING " is displayed (blinking indication during data loading).
Next, operation data of the indoor unit will be displayed. Skip to step ⑦.

④ When plural indoor units is connected, the smallest address number of indoor unit among all connected indoor unit is displayed.
[Example]:
" SELECT I/U " (blinking 1 seconds) → " I/U000 ▲ " blinking.

⑤ Select the indoor unit number you would like to have data displayed with the ▲ ▼ button.

⑥ Determine the indoor unit number with the ○ (SET) button.
(The indoor unit number changes from blinking indication to continuous indication)
" I/U000 " (The address of selected indoor unit is blinking for 2 seconds.)
↓
" DATA LOADING " (A blinking indication appears while data loaded.)
Next, the operation data of the indoor unit is indicated.

⑦ Upon operation of the ▲ ▼ button, the current operation data is displayed in order from data number 01.
The items displayed are in the above table.
*Depending on models, the items that do not have corresponding data are not displayed.

Number	Data Item	
01	※	(Operation Mode)
02	SET TEMP ___℃	(Set Temperature)
03	RETURN AIR ___℃	(Return Air Temperature)
04	SENSOR ___℃	(Remote Controller Thermistor Temperature)
05	THI-R1 ___℃	(Indoor Unit Heat Exchanger Thermistor / U Bend)
06	THI-R2 ___℃	(Indoor Unit Heat Exchanger Thermistor /Capillary)
07	THI-R3 ___℃	(Indoor Unit Heat Exchanger Thermistor /Gas Header)
08	I/U FANSPEED ___	(Indoor Unit Fan Speed)
09	DEMAND ___Hz	(Frequency Requirements)
10	ANSWER ___Hz	(Response Frequency)
11	I/U EEV ____P	(Pulse of Indoor Unit Expansion Value)
12	TOTAL I/U RUN ____H	(Total Running Hours of The Indoor Unit)
21	OUTDOOR ___℃	(Outdoor Air Temperature)
22	THO-R1 ___℃	(Outdoor Unit Heat Exchanger Thermistor)
23	THO-R2 ___℃	(Outdoor Unit Heat Exchanger Thermistor)
24	COMP ___Hz	(Compressor Frequency)
25	HP ____MPa	(High Pressure)
26	LP ____MPa	(Low Pressure)
27	Td ___℃	(Discharge Pipe Temperature)
28	COMP BOTTOM ___℃	(Comp Bottom Temperature)
29	CT ___AMP	(Current)
30	TARGET SH ___℃	(Target Super Heat)
31	SH ___℃	(Super Heat)
32	TDSH ___℃	(Discharge Pipe Super Heat)
33	PROTECTION No. __	(Protection State No. of The Compressor)
34	O/U FANSPEED ___	(Outdoor Unit Fan Speed)
35	63H1	(63H1 On/Off)
36	DEFROST	(Defrost Control On/Off)
37	TOTAL COMP RUN ___H	(Total Running Hours of The Compressor)
38	O/U EEV1 ____P	(Pulse of The Outdoor Unit Expansion Valve EEVC)
39	O/U EEV2 ____P	(Pulse of The Outdoor Unit Expansion Valve EEVH)

⑧ To display the data of a different indoor unit, press the AIR CON NO. button, which allows you to go back to the indoor unit selection screen.

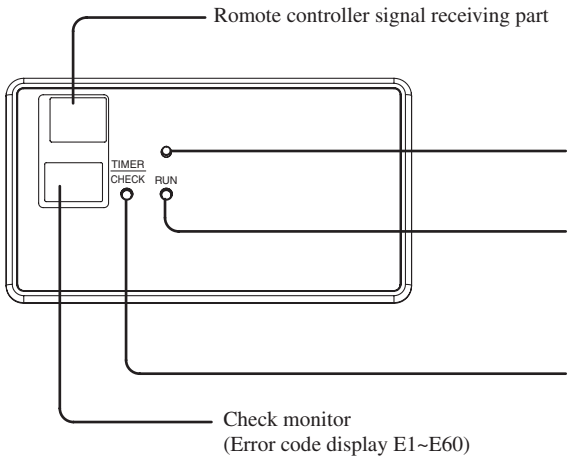
⑨ Pressing the ①ON/OFF button will stop displaying data.
Pressing the ⁄⁄ (RESET) button during remote control unit operation will undo your last operation and allow you to go back to the previous screen.

⊙If two (2) remote controllers are connected to one (1) inside unit, only the master controller is available for trial operation and confirmation of operation data. (The slave remote controller is not available.)

(6) Inspection display of wireless specification model (FDEN, FDT)

(a) Display

1) FDEN Series



Romote controller signal receiving part

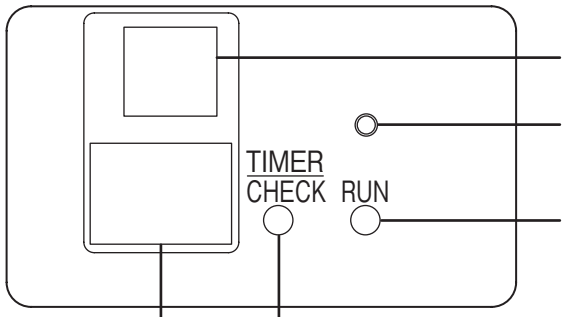
Backup switch

Operation display light (Green)
- Lights continuously: Under air conditioner operation
- Keeps flashing: Under heating preparation (At the time of heating operation)
- 3 time flash: Under reception of a remote controller signal

Timer/Check display light (Yellow)
- Lights continuously: Under timer operation
- 0.5 seconds lighting, 0.5 seconds stays OFF : At the time of anomalous
- 2 seconds lighting, 1 second stays OFF : Filter sign

Check monitor
(Error code display E1~E60)

2) FDT (Wireless kit) [For details of the wireless kit, refer to page 353.]



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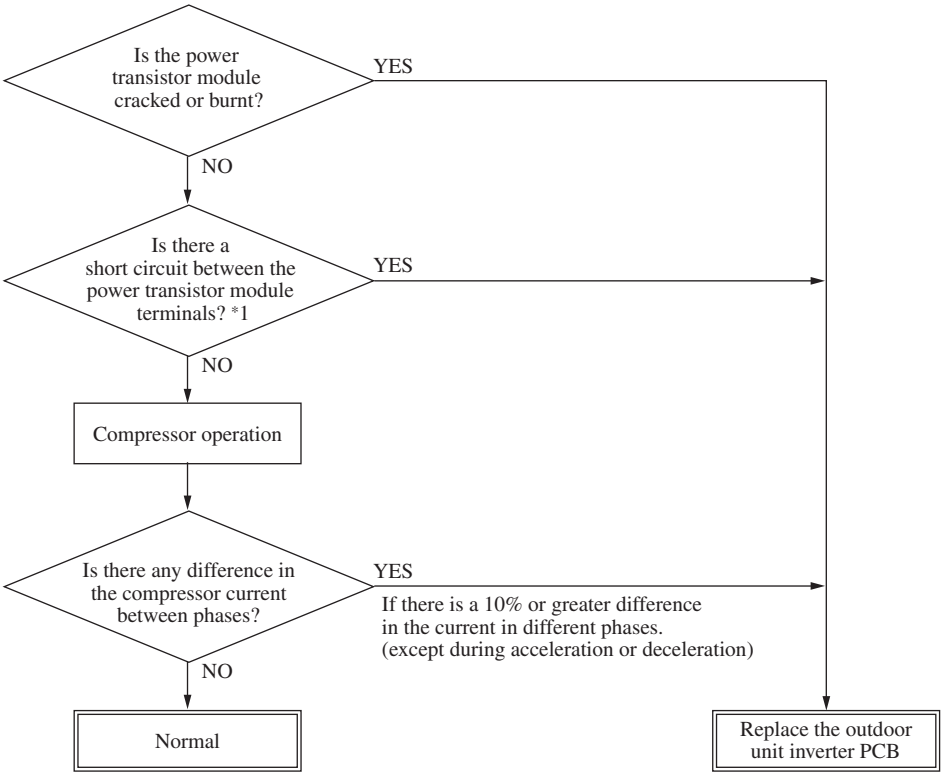
- 3 time flash: Under reception of a remote controller signal

Timer/Check display light (Yellow)
- Lights continuously: Under timer operation
- 0.5 seconds lighting, 0.5 seconds stays OFF : At the time of anomalous
- 2 seconds lighting, 1 second stays OFF : Filter sign

Check monitor
(Error code display E1~E60)

(7) Power transistor module (including the driver PCB) inspection procedure



Note (1) In models 200 and 250, also replace the power transistor.

*1 Power transistor module terminal short circuit check procedure

Disconnect the compressor wiring, then conduct a short circuit check.

P-U, P-V, P-W

N-U, N-V, N-W

Check between the P-N terminals.

Bring the tester probes in contact with the following places on each te rminal.

P: Power transistor P terminal,

N: Power transistor N terminal,

U: End of red harness to compressor

V: End of white harness to compressor

W: End of black or blue harness to compressor

Check for a power transistor short circuit.

- When you do not have a diagnostic checker for judging if the inverter is defective, measure between the terminals of the power transistor parts, judge whether the power transistor is defective or not.
- Disconnect the compressor, then measure with the controller incorporated.

Tester		Normal values (Ω)		
Terminal (+)	Terminal (-)	Model 71	Model 100~140	Model 200, 250
P	N	0 ~ (Numerical value rises.)	Approx. 1 M	Scores of M
N	P		Approx. 300~400	A few of M
P	U	Several M (Numerical value rises.)	0	Scores of M
P	V			Scores of M
P	W			Scores of M
N	U	Approx. 650 k	Approx. 1.2 M	Hundreds of K
N	V			Hundreds of K
N	W			Hundreds of K
U	P	Approx. 670 k	Approx. 1.3 M	Hundreds of K
V	P	Approx. 4.4 M		Hundreds of K
W	P	Approx. 4.4 M		Hundreds of K
U	N	Approx. 650 k	0	Scores of M
V	N	Approx. 4.8 M		Scores of M
W	N	Approx. 4.9 M		Scores of M

If the measured values range from 0 ~ several kW, there is a possibility that the elements are damaged, so replace the power transistor parts.

(8) Troubleshooting flow

(a) List of troubles

No.	Remote controller display	Description of trouble	Reference page
1	None	Operates but does not cool.	267
2	None	Operates but does not heat.	268
3	None	Earth leakage breaker activated	269
4	None	Excessive noise, vibration (1/3)	270
5	None	Excessive noise, vibration (2/3)	271
6	None	Excessive noise, vibration (3/3)	272
7	None	Louver motor failure	273
8	None	Power supply system error (Power supply to indoor unit PCB)	274
9	None	Power supply system error (Power supply to remote controller)	275
10	Indoor unit check ON	Indoor unit check ON (When 1 or 2 remote controllers are connected)	276
11	Indoor unit check ON	Indoor unit check ON (Connection of 3 units or more remote controllers)	277
12	WAIT	Communication error at initial operation (Model 40~60 only)	278~280
13	WAIT	Communication error at initial operation (Model 71~250 only)	281~283
14	None	No display	284
15	E1	Remote controller communication circuit error	285
16	E5	Communication error during operation	286
17	E6	Indoor unit heat exchanger temperature thermistor anomaly	287
18	E7	Return air temperature thermistor anomaly	288
19	E8	Heating overload operation	289
20	E9	Drain trouble (FDT and FDTC series)	290
21	E10	Excessive number of connected indoor units (more than 17 units) by controlling with one remote controller	291
22	E14	Communication error between master and slave indoor units	292
23	E16	Indoor fan motor anomaly (In case of FDTC and FDT)	293
24	E19	Indoor unit operation check, drain motor check setting error	294
25	E28	Remote controller temperature thermistor anomaly	295
26	E33	Inverter primary current error (Model SRC40~60 only)	296
27	E34	Open L3 phase on power supply (3-phase model only)	297, 298
28	E35	Cooling overload operation (Model SRC40~60)	299
29	E35	Cooling overload operation (Model FDC71~250)	300
30	E36	Discharge pipe temperature error	301
31	E37	Outdoor heat exchanger temperature thermistor anomaly	302
32	E38	Ambient air temperature thermistor anomaly	303
33	E39	Discharge pipe temperature thermistor anomaly	304
34	E40	High pressure error (63H1 activated) (Model FDC71~250 only)	305
35	E41	Power transistor overheat (Model FDC200, 250 only)	306
36	E42	Current cut	307, 308
37	E45	Inverter communication error (Model FDC71~250)	309
38	E47	Inverter over-current error (Model SRC40~60)	310
39	E48	DC fan motor error (Model SRC40~60)	311
40	E48	Outdoor DC fan motor (Model FDC71~250)	312
41	E49	Low pressure error or low pressure sensor anomaly (Model 71~250)	313, 314
42	E51	Inverter fan motor anomaly (Model 71~250)	315
43	E53	Suction pipe temperature thermistor anomaly (Model 71~250)	316
44	E54	Low pressure sensor anomaly (Model 71~250)	317
45	E55	Underneath temperature thermistor anomaly (Model FDC200, 250)	318
46	E57	Insufficient in refrigerant amount or detection of service valve closure	319
47	E59	Compressor startup amount (Model SRC40~60)	320
48	E59	Compressor startup failure (Model FDC71~250)	321
49	E60	Anomalous compressor rotor lock (Model FDC200, 250)	322

(b) Troubleshooting

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Keeps flashing	Stays Off	Operates but does not cool
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

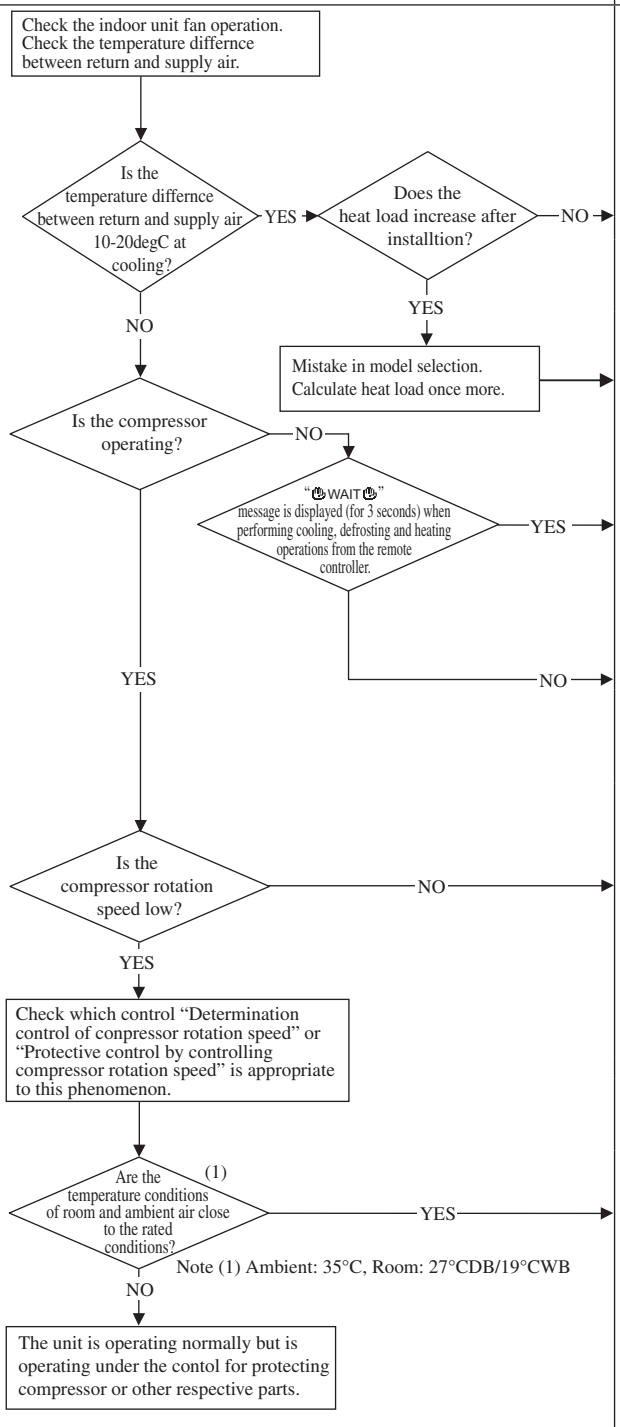
2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Poor compression of compressor
- Faulty expansion valve operation

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Keeps flashing	Stays Off	Operates but does not heat
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

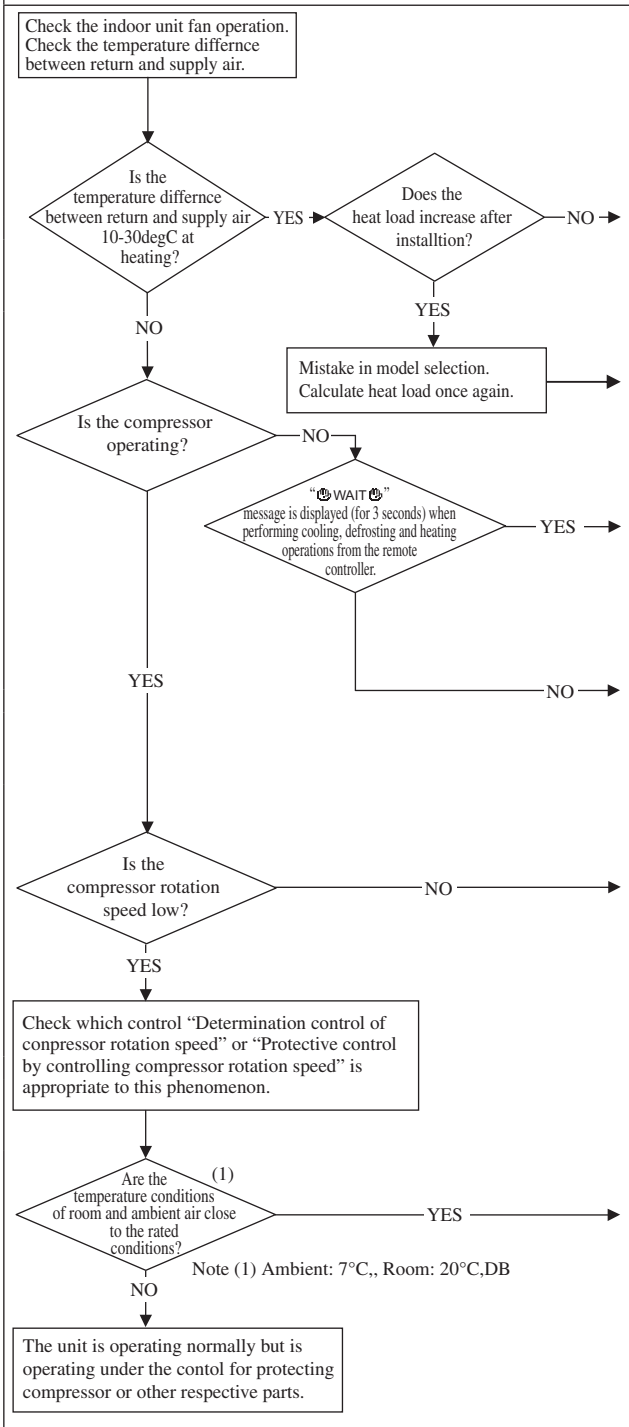
2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Faulty 4-way valve operation
- Poor compression of compressor
- Faulty expansion valve operation

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Stays Off	Stays Off	Earth leakage breaker activated
	Outdoor	Stays Off	Stays Off	

1. Applicable model

All models

2. Error detection method

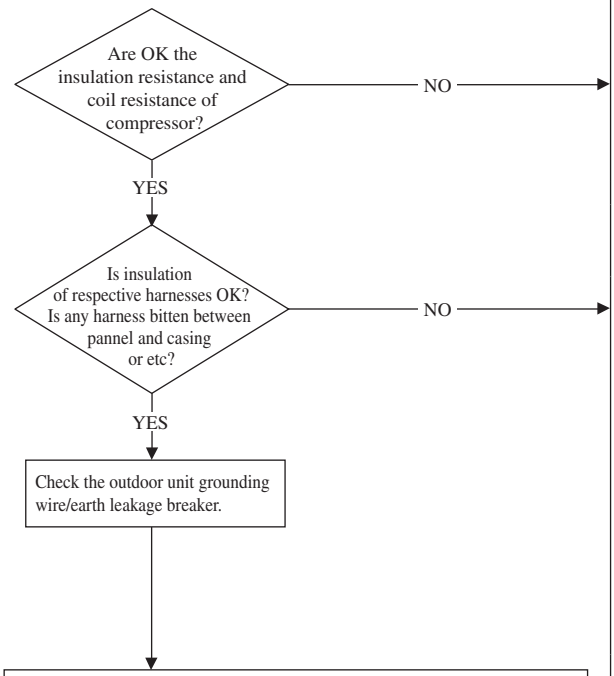
3. Condition of Error displayed

4. Presumable cause

- Defective compressor
- Noise

5. Troubleshooting

Diagnosis



Check of the outdoor unit grounding wire/earth leakage breaker

① Run an independent grounding wire from the grounding screw of outdoor unit to the grounding terminal on the distribution panel. (Do not connect to another grounding wire.)
② In order to prevent malfunction of the earth leakage breaker itself, confirm that it is conformed to higher harmonic regulation.

* Insulation resistance of compressor
- Immediately after installation or when the unit has been left for long time without power supply, the insulation resistance may drop to a few MΩ because of refrigerant migrated in the compressor.
  When the earth breaker is activated at lower insulation resistance, check the following points.

① 6 hours after power ON, check if the insulation resistance recovers to normal.
When power ON, crankcase heater heat up compressor and evaporate the refrigerant migrated in the compressor.
② Check if the earth leakage breaker is conformed to higher harmonic regulation or not.
Since the unit is equipped with inverter, it is necessary to use components conformed to higher harmonic regulation in order to prevent malfunction of earth leakage breaker.

Countermeasure

Replace compressor.*

Secure insulation resistance.

Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	–	–	Excessive noise/vibration (1/3)
	Outdoor	–	–	

1. Applicable model

All models

2. Error detection method

3. Condition of Error displayed

4. Presumable cause

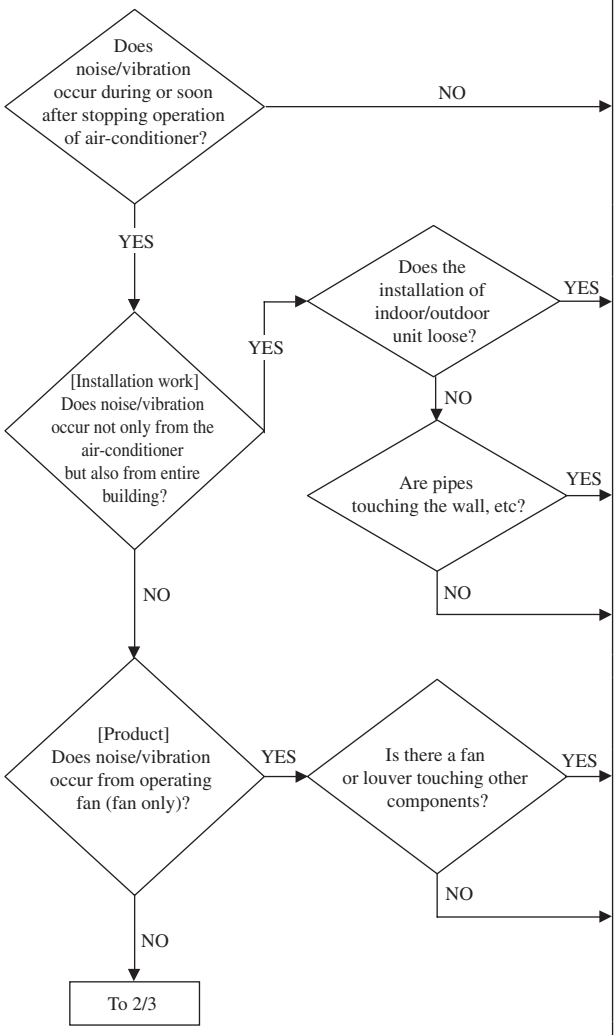
① Improper installation work
- Improper anti-vibration work at instllation
- Insufficient strength of mounting face

② Defective product
- Before/after shipping from factory

③ Improper adjustment during commissioning
- Excess/shortage of refrigerant, etc.

5. Troubleshooting

Diagnosis



Countermeasure

If excessive noise/vibration persists when sufficient time has elapsed after stopping the unit, it is considered that the air-conditioner is not the source.

Check the installed condition carefully, and correct the position or insert rubber cushions or others into the gap, if necessary.

Prevent the vibration from transmitting to wall and etc by fixing pipes on the wall or wrapping rubber cushion around the pipe which goes through the hole in the wall or applying other appropriate means.

Strength of ceiling wall, floor, etc. may be insufficient. Review the installing position or reinforce it.

Check for leaning of installed unit or anomalous mounting of fan, louver or motor and specify the contacting point and correct it.

When the heat exchanger or filter is clogged, clean them. In case that the unit is installed at the site where background noise is very low, small noise from indoor unit can be heard, but it is normal. Before installation, check for background noise. If backgound nois is very low, convince client prior to installation.

Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	–	–	Excessive noise/vibration (2/3)
	Outdoor	–	–	

1. Applicable model

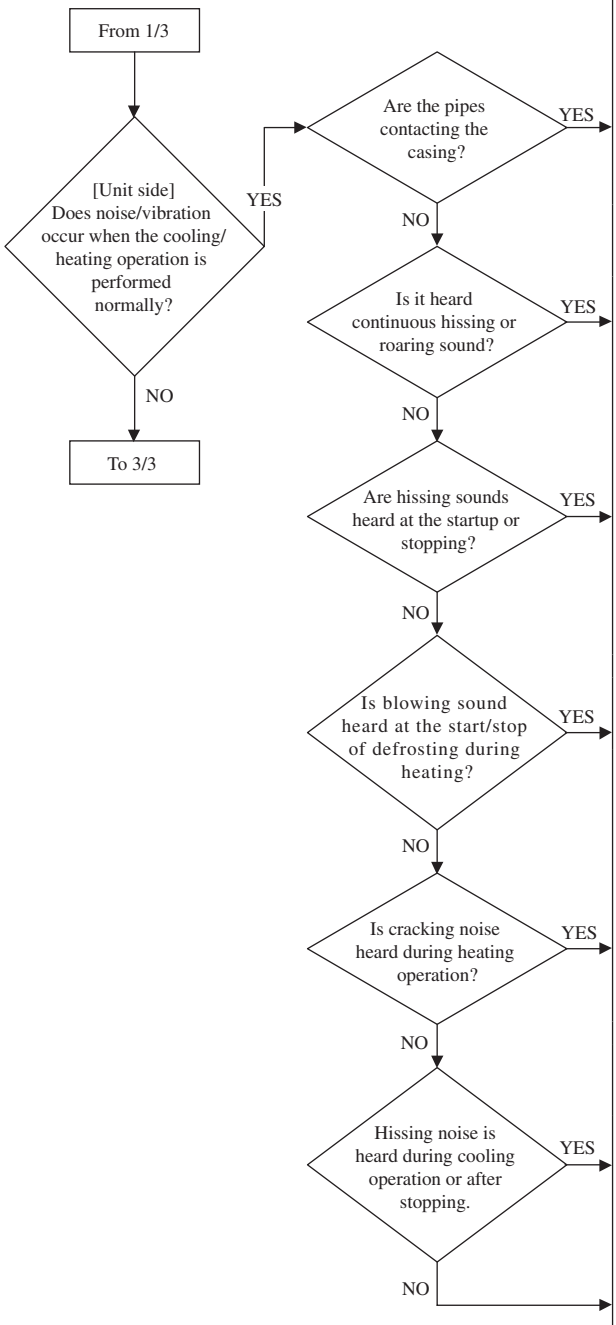
All models

2. Error detection method

3. Condition of Error displayed

4. Presumable cause

5. Troubleshooting



Diagnosis	Countermeasure
Are the pipes contacting the casing? YES	Rearrange the piping to avoid contact with the casing.
Is it heard continuous hissing or roaring sound? YES	It is noise/vibration that is generated when the refrigerant gas or liquid flow through inside of piping of air-conditioner. It is likely to occur particularly during cooling or defrosting in the heating mode. It is normal.
Are hissing sounds heard at the startup or stopping? YES	The noise/vibration occurs when the refrigerant starts or stops flowing. It is normal.
Is blowing sound heard at the start/stop of defrosting during heating? YES	When the defrosting starts or stops during heating, the refrigerant flow is reversed due to switching 4-way valve. This causes a large change in pressure which produces a blowing sound. It may accompany also the hissing sounds as mentioned above. They are normal.
Is cracking noise heard during heating operation? YES	After the start or stop of heating operation or during defrosting, abrupt changes in temperature cause resin parts to shrink or expand. This is normal.
Hissing noise is heard during cooling operation or after stopping. YES	It is the sound produced by the drain pump that discharges drain from the indoor unit. The pump continues to run for 5 minutes after stopping the cooling operation. This is normal.
NO	Apply the damper sealant at places considered to be the sources such as the pressure reducing mechanism (expansion valve), capillary, etc.

Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	–	–	Excessive noise/vibration (3/3)
	Outdoor	–	–	

1. Applicable model

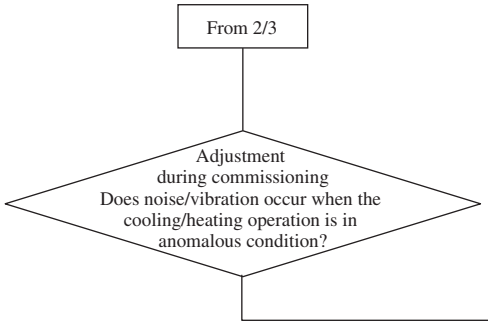
All models

2. Error detection method

3. Condition of Error displayed

4. Presumable cause

5. Troubleshooting

Diagnosis	Countermeasure
	If insufficient cooling/ heating problem happens due to anomalous operating conditions at cooling /heating, followings are suspicious. • Overcharge of refrigerant • Insufficient charge of refrigerant • Intrusion of air, nitrogen, etc. In such occasion, it is necessary to recover refrigerant, vacuum-dry and recharge refrigerant. * Since there could be many causes of noise/ vibration, the above do not cover all. In such case, check the conditions when, where, how the noise/vibration occurs according to following check point. • Indoor/outdoor unit • Cooling/heating/fan mode • Startup/stop/during operation • Operating condition (Indoor/outdoor temperatures, pressure) • Time it occurred • Operation data retained by the remote controller such as compressor rotation speed, heat exchanger temperature, EEV opening degree, etc. • Tone (If available, record the noise) • Any other anomalies

Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Keeps flashing	Stays Off	Louver motor failure
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

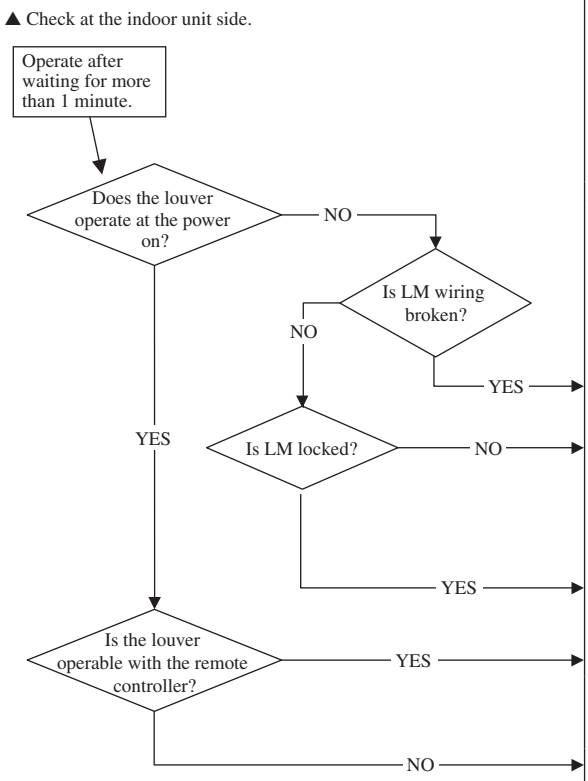
2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Defective LM
- LM wire breakage

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Stays Off	Stays Off	Power supply system error (Power supply to indoor unit PCB)
	Outdoor	Stays Off	2 times flash	

1. Applicable model

All models

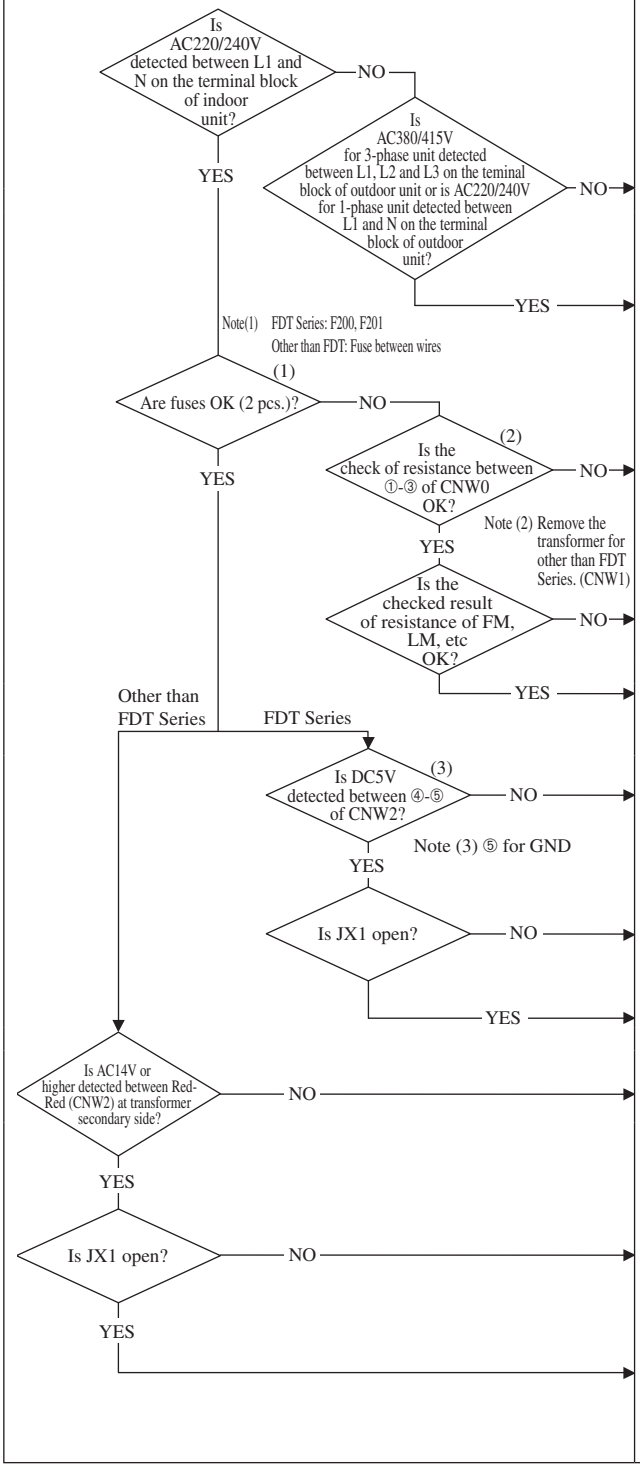
2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Misconnection or breakage of connecting wires
- Blown fuse
- Faulty transformer
- Faulty indoor power PCB
- Broken harness
- Faulty indoor control PCB

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Keeps flashing	Stays Off	Power supply system error (Power supply to remote controller)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

All models

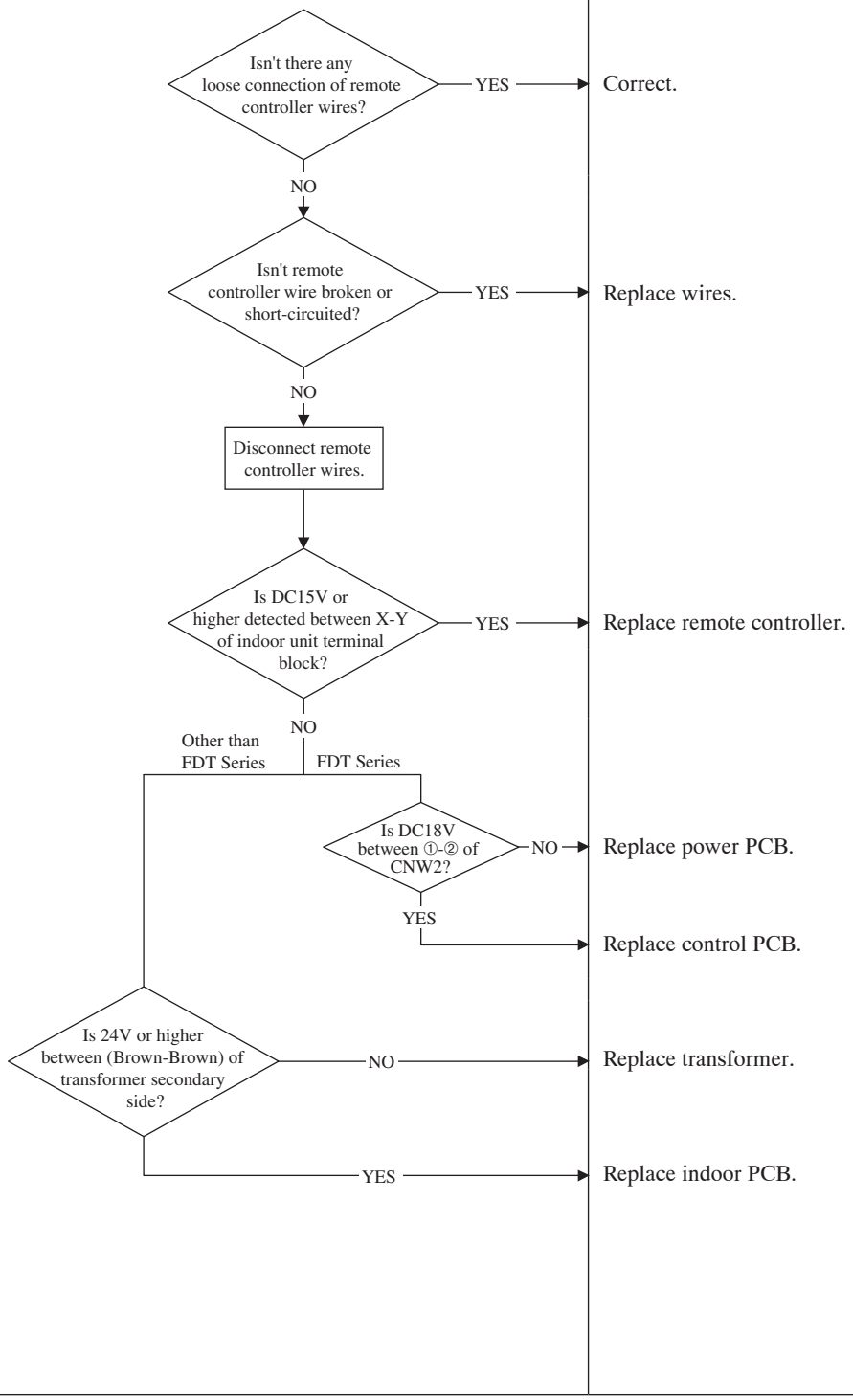
2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Remote controller wire breakage/short-circuit
- Defective remote controller
- Malfunction by noise
- Faulty indoor power PCB
- Broken harness
- Faulty indoor control PCB

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: Indoor unit check ON	Indoor	Keeps flashing	Stays Off	Indoor unit check ON (When1 or 2 remote controllers are connected)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

All models

2. Error detection method

Communication between indoor unit and remote controller is disabled for more than 30 minutes after the power on.

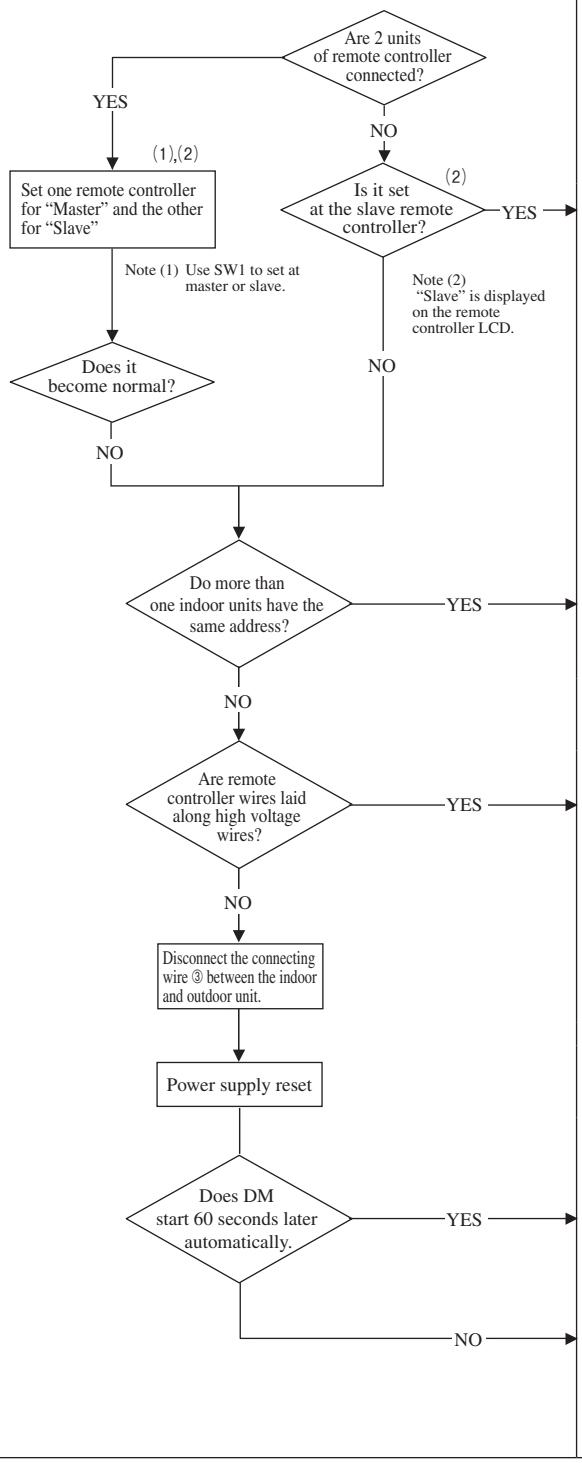
3. Condition of Error displayed

Same as above

4. Presumable cause

- Improper setting
- Surrounding environment
- Defective remote controller communication circuit

5. Troubleshooting



Note: If any error is detected 30 minutes after displaying "WAIT" on the remote controller, the display changes to "Indoor unit check ON".

Error code	LED	Green	Red	Content
Remote controller: Indoor unit check ON	Indoor	Keeps flashing	Stays Off	Indoor unit check ON (connection of 3 units or more remote controller)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

All models

2. Error detection method

Indoor unit cannot communicate for more than 30 minutes after the power on with remote controller.

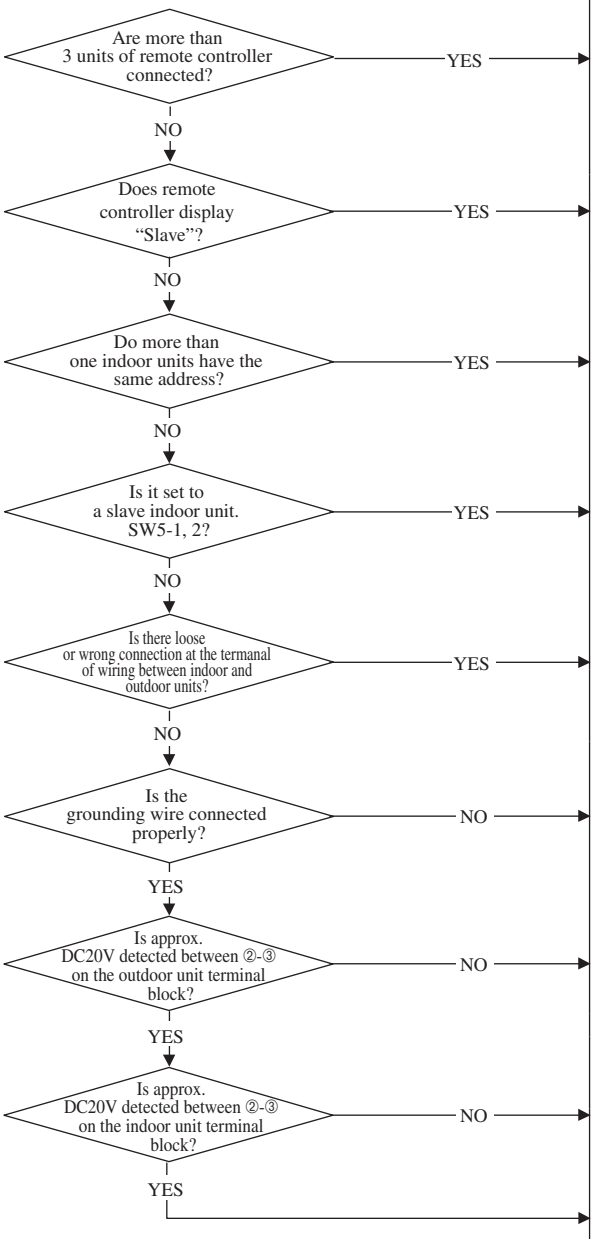
3. Condition of Error displayed

Same as above

4. Presumable cause

- Improper setting
- Surrounding environment
- Defective remote controller communication circuit

5. Troubleshooting



Note: If any error is detected 30 minutes after displaying "WAIT" on the remote controller, the display changes to "Indoor unit check ON".

Error code	LED	Green	Red	Content
Remote controller: WAIT	Indoor	Keeps flashing	Stays Off	WAIT (1/3) (Model SRC40 - 60)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

Model SRC40 – 60

When the remote controller LCD displays " WAIT " 2 minutes after the power on.

2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Blown fuse
- Faulty noise filter
- Connection between PCB's
- Blown fuse on single phase model
- Faulty indoor control PCB
- Defective remote controller
- Broken remote controller wire
- Faulty outdoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
The remote controller LCD displays " WAIT " 2 minutes after the power on. → Turn the breaker off once and then back on again 3 minutes later. → Is normal condition restored?	
NO → Isn't blown the power supply fuse (20A) on the outdoor unit controller?	
NO → Replace the power supply fuse.	See next page.
YES → Is AC220/240V detected at the secondary side of noise filter?	
NO →	Replace noise filter.
YES → Are OK the connection wires between the noise filter and the inverter PCB'S?	
NO →	Connect properly.
YES → Isn't F6 fuse (250V, 6A) blown.	
NO →	Replace fuse.
YES → Is the green LED of indoor unit flashing?	
NO →	Defective indoor control PCB→Replace.
YES → Is the green LED of indoor unit flashing twice?	
NO →	Replace indoor control PCB. Defective remote controller →Replace. Broken remote controller wire Y→Replace.
YES → Are wires connected properly between the indoor and the outdoor units?	
NO →	Correct connection wires between indoor and outdoor units.
YES → Is approx. DC20V detected between Ⓛ - Ⓝ on the outdoor unit terminal block?	
NO →	Replace outdoor control PCB.
YES → Is approx. DC20V detected between ① - ②/Ⓝ on the outdoor unit terminal block?	
NO →	Defective connection wire (broken wire) Noise
YES →	Defective indoor control PCB→Replace.

Note: If any anomaly is detected during communication, the error code E5 is displayed. (Outdoor unit red LED flashes twice.) Inspection procedure is same as above. (Excluding matters related to connection) When the power supply is reset after the occurrence of E5, the LED will display " WAIT " if the anomaly continues. If the breaker ON/OFF is repeated in a short period of time (within 1 minute), " WAIT " may be displayed. In such occasion, turn the breaker off and wait for 3 minutes.

Error code	LED	Green	Red	Content
Remote controller: WAIT	Indoor	Keeps flashing	Stays Off	WAIT (2/3) (Model SRC40 - 60)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

Model SRC40 – 60

When the fuse is blown, the method to inspect inverter before replacing the power supply fuse

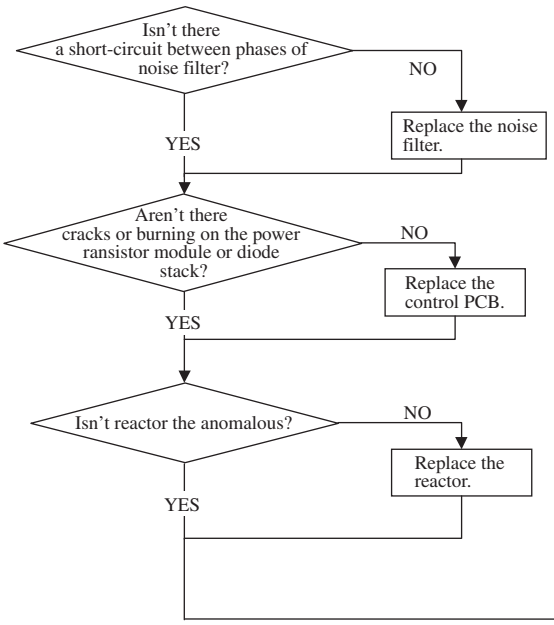
2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Blown fuse
- Faulty noise filter
- Connection between PCB's
- Blown fuse on single phase model
- Faulty indoor control PCB
- Defective remote controller
- Breakage of remote controller wire
- Faulty outdoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
	Replace fuse.

Note:

Error code	LED	Green	Red	Content
Remote controller: WAIT	Indoor	Keeps flashing	Stays Off	WAIT (3/3) (Model SRC40 - 60)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

Model SRC40 – 60

When the remote controller display is extinguished after the power on.

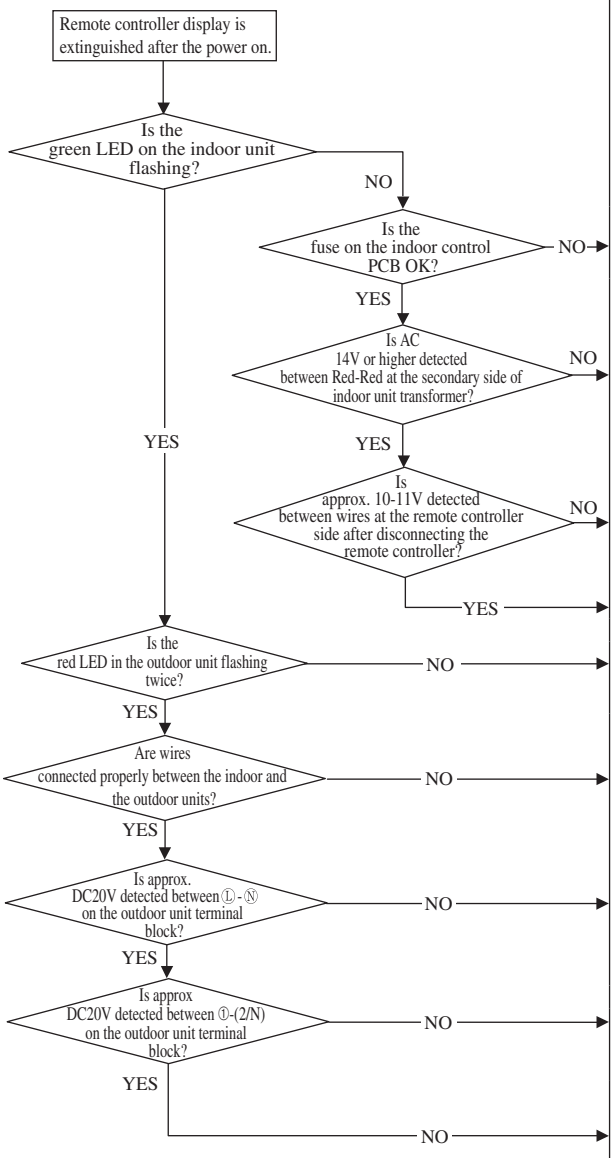
2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Blown fuse
- Faulty noise filter
- Connection between PCB's
- Blown fuse on single phase model
- Faulty indoor control PCB
- Defective remote controller
- Wire breakage on remote controller
- Faulty outdoor control PCB

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: WAIT	Indoor	Keeps flashing	Stays Off	WAIT (1/3) (Model 71 - 250)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

Model FDC71 – 250

2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Blown fuse
- Faulty noise filter
- Misconnection between PCB's
- Blown fuse on single phase model
- Faulty indoor control PCB
- Defective remote controller
- Broken remote controller wire
- Faulty outdoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
"WAIT" is still displayed on the remote controller LED 2 minutes after power ON.	
YES	
Is the outdoor unit control green LED flashing? NO → A	See next page.
YES	
Is the indoor unit green LED flashing? NO	Defective indoor control PCB
YES	
Is the outdoor unit control red LED flashing twice? NO	Defective indoor PCB Defective remote controller Broken remote controller wire Y
YES	
Are wires connected properly between indoor/ outdoor units? NO	Correct connection wires.
YES	
Is approx. DC20V detected between ②-③ on the outdoor unit terminal block? NO	Defective outdoor control PCB
YES	
Is approx. DC20V detected between ②-③ on the indoor unit terminal block? NO	Defective connection wire (Broken) Noise Defective indoor control PCB
YES	

Note:

Error code	LED	Green	Red	Content
Remote controller: WAIT	Indoor	Keeps flashing	Stays Off	WAIT (2/3) (Model 71 – 250)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

Model FDC71 - 250

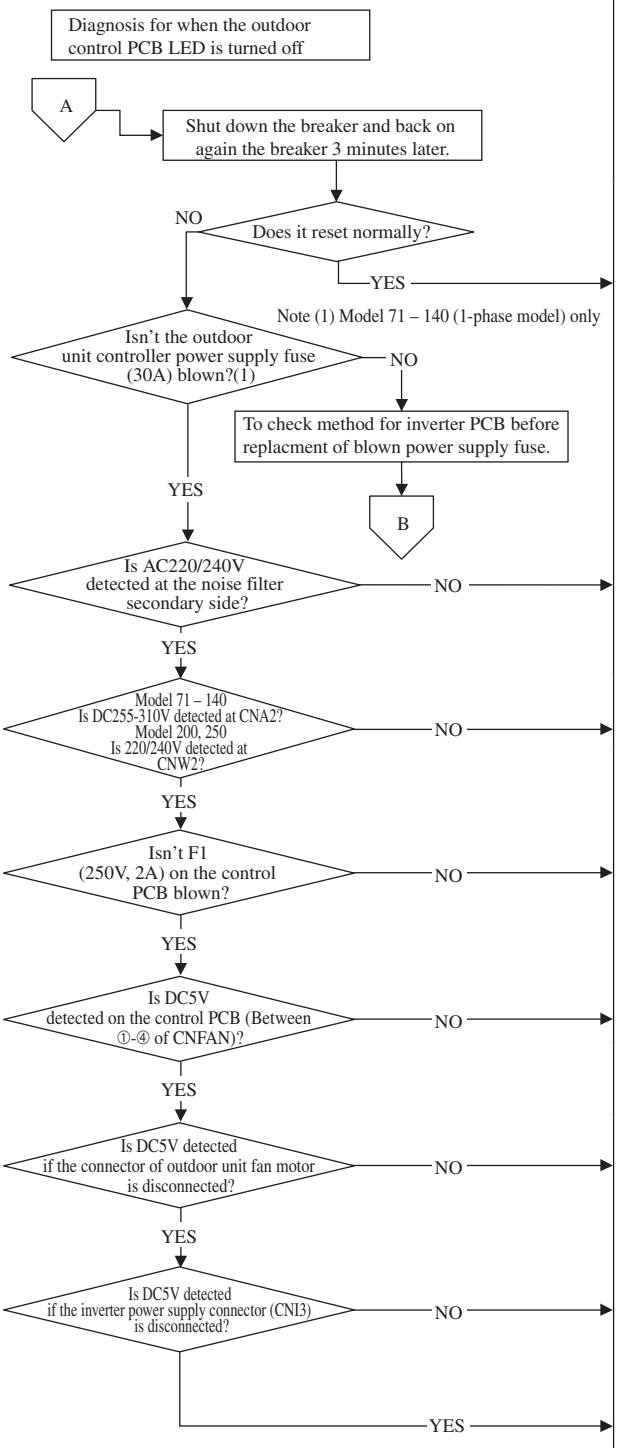
2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Blown fuse
- Faulty noise filter
- Misconnection between PCB's
- Blown fuse on single phase model
- Faulty indoor control PCB
- Defective remote controller
- Broken remote controller wire
- Faulty outdoor control PCB

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: WAIT	Indoor	Keeps flashing	Stays Off	WAIT (3/3) (Model 71 – 250)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

Model FDC71 - 250

2. Error detection method

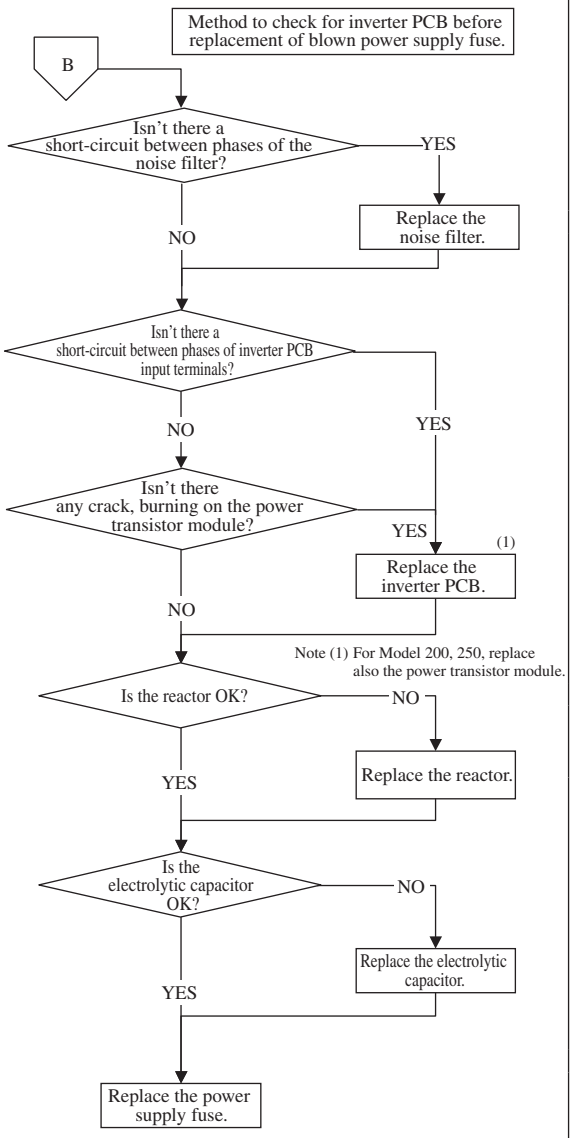
3. Condition of Error displayed

4. Presumable cause

- Blown fuse
- Faulty noise filter
- Misconnection between PCB's
- Blown fuse on single phase model
- Faulty indoor control PCB
- Defective remote controller
- Broken remote controller wire
- Faulty outdoor control PCB

5. Troubleshooting

Diagnosis



Countermeasure

Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Keeps flashing	Stays Off	No display (Model 71 – 250)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

Model FDC71 - 250

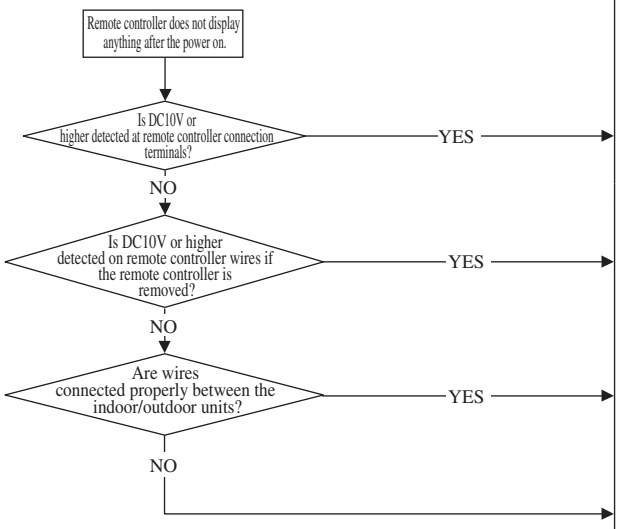
2. Error detection method

3. Condition of Error displayed

4. Presumable cause

- Blown fuse
- Faulty noise filter
- Connection between PCB's
- Blown fuse on single phase model
- Faulty indoor control PCB
- Defective remote controller
- Broken remote controller wire
- Faulty outdoor control PCB

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: E1	Indoor	Keeps flashing	Stays Off	Remote controller communication circuit error
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

2. Error detection method

When normal communication between the remote controller and the indoor unit is interrupted for more than 2 minutes. (Detectable only with the remote controller)

3. Condition of Error displayed

Same as above

4. Presumable cause

- Defective communication circuit between remote controller-indoor unit
- Noise

5. Troubleshooting

Diagnosis	Countermeasure
Is it possible to reset normally by the power reset? → YES	Malfunction by noise Check peripheral environment.
NO → Turn SW7-1 to OFF. → Remove the wire ③ connecting between indoor/outdoor units. → Power reset → Does the drain pump restart automatically 1 minute later? → YES	Defective indoor PCB → Replace.
NO	Defective remote controller → Replace.

Note (2) Does the remote controller still display "WAIT" even after 3 minutes?

Note: If the indoor unit cannot communicate normally with the remote controller for 180 seconds, the indoor unit PCB starts to reset automatically.

Error code	LED	Green	Red	Content
Remote controller: E5	Indoor	Keeps flashing	See below	Communication error during operation
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model

All models

2. Error detection method

When normal communication between indoor and outdoor unit is interrupted for more than 2 minutes.

3. Condition of Error displayed

Same as above is detected during operation.

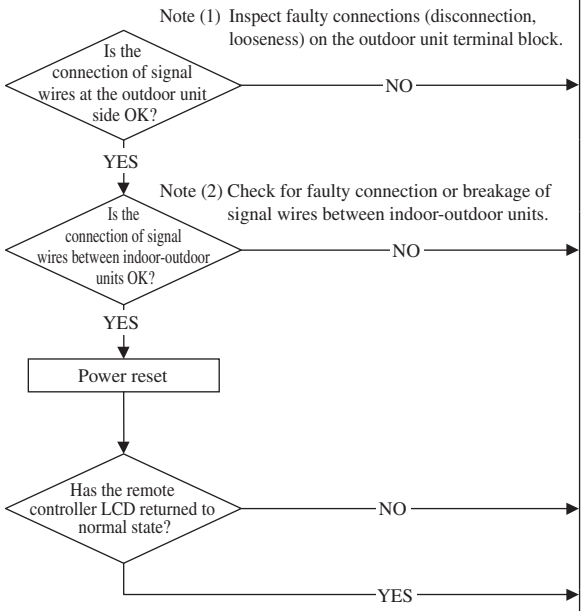
4. Presumable cause

- Unit No. setting error
- Broken remote controller wire
- Faulty remote controller wire connection
- Defective indoor control PCB

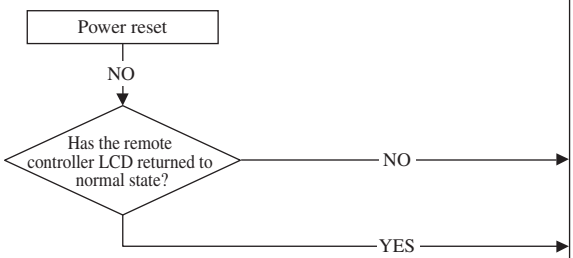
5. Troubleshooting

Diagnosis

In case that the indoor unit red LED flashes 2-times



In case that the indoor unit red LED stays OFF



Note: Pressing the pump-down switch cancels communications between indoor and outdoor unit so that "communication error-E5" is displayed on indoor unit and remote controller, but it is normal.

Error code	LED	Green	Red	Content
Remote controller: E6	Indoor	Keeps flashing	1 time flash	Indoor heat exchanger temperature thermistor anomaly
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

2. Error detection method

Anomalously low temperature or high temperature (resistance) is detected on the indoor heat exchanger thermistor (ThI-R1, R2 or R3).

3. Condition of Error displayed

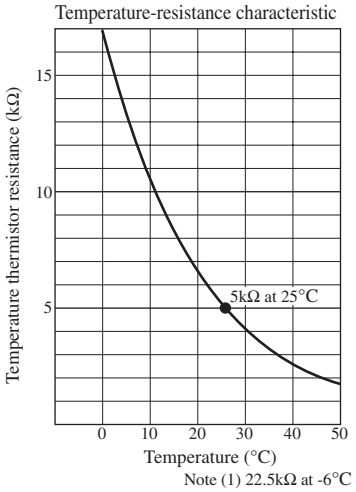
- When the temperature thermistor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.
- Or if 70°C or higher is detected for 5 seconds continuously.

4. Presumable cause

- Defective indoor heat exchanger thermistor connector
- Indoor heat exchanger temperature thermistor anomaly
- Faulty indoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the connection of indoor heat exchanger temperature thermistor connector OK? → NO	Correct. → Insert connector securely.
YES → Are characteristics of indoor heat exchanger temperature thermistor OK? → NO	Defective indoor heat exchanger temperature thermistor → Replace.
YES	Defective indoor control PCB → Replace. (Defective indoor unit heat exchanger temperature thermistor input circuit)



Note (1) 22.5kΩ at -6°C

Note:

Error code	LED	Green	Red	Content
Remote controller: E7	Indoor	Keeps flashing	1 time flash	Return air temperature thermistor anomaly
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

2. Error detection method

Anomalously low temperature or high temperature (resistance) is detected by indoor return air temperature thermistor (Thi-A)

3. Condition of Error displayed

- When the temperature thermistor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.
- Or if 48°C or higher is detected for 5 seconds continuously.

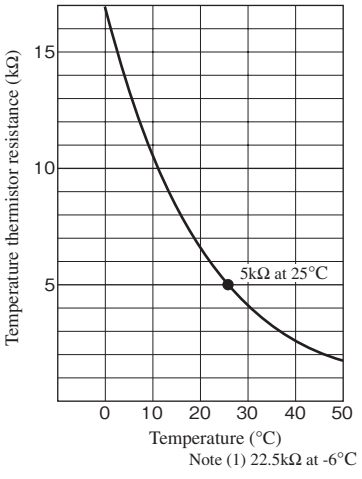
4. Presumable cause

- Defective return air temperature thermistor connector
- Defective return air temperature thermistor
- Faulty indoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the connection of return air temperature thermistor connector OK? — NO	Correct. → Connect connector.
YES → Are the characteristics of return air temperature thermistor OK? — NO	Defective return air temperature thermistor → Replace.
YES	Defective indoor control PCB → Replace. (Defective return air temperature thermistor input circuit)

Temperature-resistance characteristic



Note (1) 22.5kΩ at -6°C

Note:

Error code	LED	Green	Red	Content
Remote controller: E8	Indoor	Keeps flashing	1 time flash	Heating overload operation
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

2. Error detection method

Indoor heat exchanger temperature thermistor (ThI-R1, R2, R3)

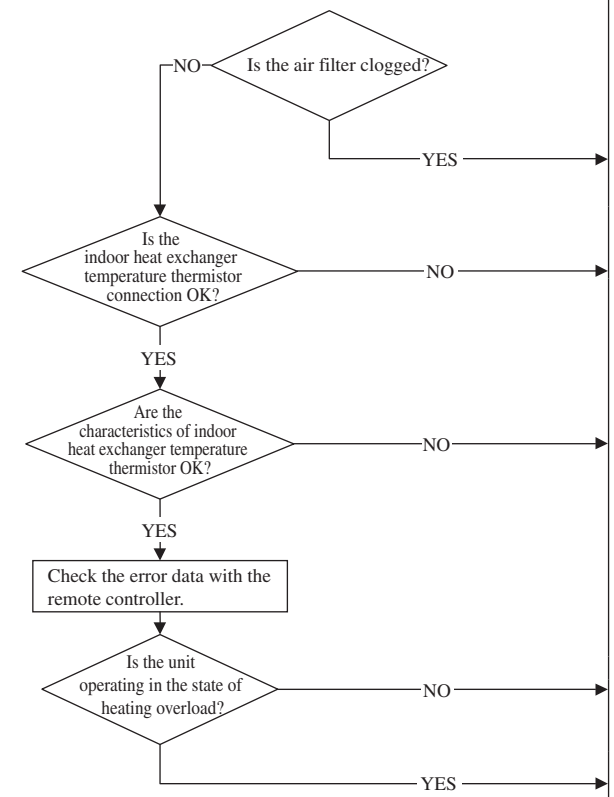
3. Condition of Error displayed

When it is detected 5 times within 60 minutes from initial detection or when the overload condition is detected for 6 minutes continuously.

4. Presumable cause

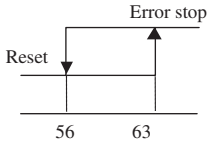
- Clogged air filter
- Defective indoor heat exchanger temperature thermistor connector
- Defective indoor heat exchanger temperature thermistor
- Anomalous refrigerant system

5. Troubleshooting



Note (1) Judge if it is in the state of overload or not as follows.
- ▲ Is there any short-circuit of air?
- ▲ Isn't there any fouling or clogging on the indoor heat exchanger?
- ▲ Is the outdoor fan control normal?
- ▲ Isn't the room and ambient air temperature too high?

Note (2) For characteristics of indoor heat exchanger temperature thermistor, see the error display E6.



Note: During heating operation; After starting compressor, compressor rotation speed is decreased by detecting indoor heat exchanger temperature (Thi-R) in order to control high pressure.

Error code	LED	Green	Red	Content
Remote controller: E9	Indoor	Keeps flashing	1 time flash	Drain trouble (FDT and FDTC Series)
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

FDT and FDTC Series only

2. Error detection method

Float switch is activated

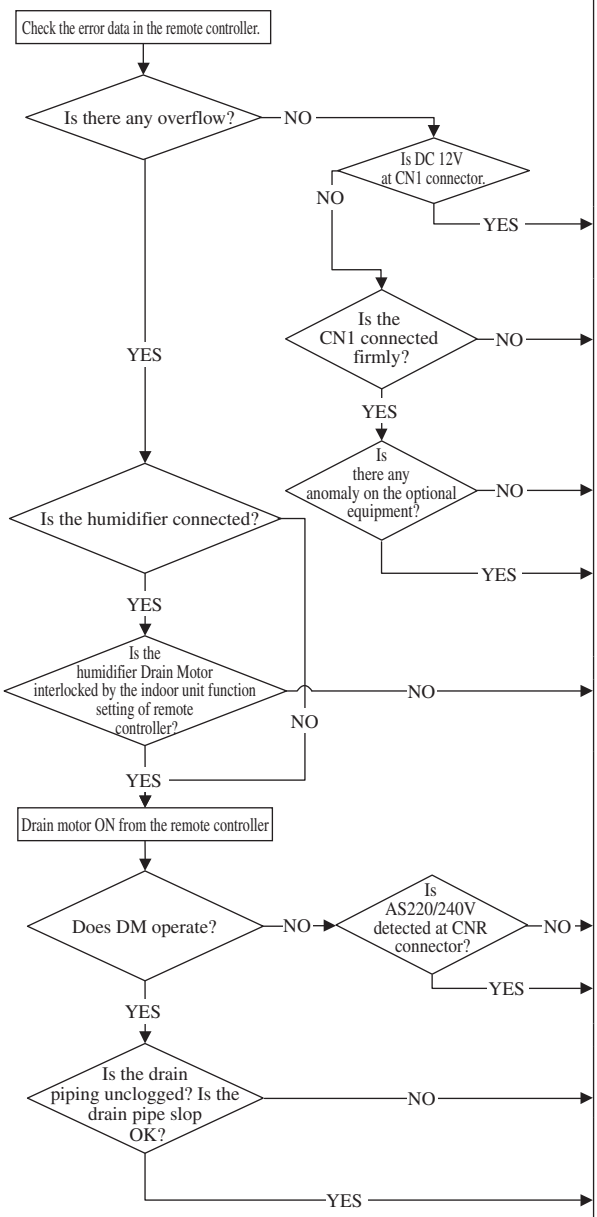
3. Condition of Error displayed

If the float switch OPEN is detected for 3 seconds continuously or if float switch connector or wire is disconnected.

4. Presumable cause

- Defective indoor control PCB
- Float switch setting error
- Humidifier DM interlock setting error
- Optional equipment setting error
- Drain piping error
- Defective drain motor
- Disconnection of drain motor wiring

5. Troubleshooting



Note: When this error occurred at power ON, disconnection of wire or connector of the float switch is suspected. Check and correct it (or replace it, if necessary).

Error code	LED	Green	Red	Content
Remote controller: E10	Indoor	Keeps flashing	Stays Off	Excessive number of connected indoor units (more than 17 units) by controlling with one remoto controller
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

2. Error detection method

When it detects more than 17 of indoor units connected to one remote contorller

3. Condition of Error displayed

Same as above

4. Presumable cause

- Excessive number of indoor units connected
- Defective remote controller

5. Troubleshooting

Diagnosis	Countermeasure
Aren't more than 17 indoor units connected to one remote controller? → NO	Defective remote controller → Replace.
YES	Reduce to 16 or less units.

Note:

Error code	LED	Green	Red	Content
Remote controller: E14	Indoor	Keeps flashing	1 time flash	Communication error between master and slave indoor units
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

2. Error detection method

When communication error between master and slave indoor units occurs

3. Condition of Error displayed

Same as above

4. Presumable cause

- Unit address setting error
- Broken remote controller wire
- Defective remote controller wire connection
- Defective indoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is it OK the unit address setting for master and slave indoor units? → NO	Correct unit address setting.
Isn't the remote controller wiring between indoor units defective? → YES	Correct wiring.
Is it restored by resetting the power supply? → NO	Defective indoor control PCB→Replace.
→ YES	• Malfunction by noise • Check surrounding environment.

Note (1) Set dip switches SW5-1 and SW5-2 as shown in the following table.
(Factory default setting – "Master")

		Indoor unit			
		Master	Slave-a	Slave-b	Slave-c
Dip switch	SW5-1	OFF	OFF	ON	ON
	SW5-2	OFF	ON	OFF	ON

Note:

Error code	LED	Green	Red	Content
Remote controller: E16	Indoor	Keeps flashing	Stays Off	Indoor fan motor anomaly (In case of FDTC and FDT)
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

FDTC, FDT series only

2. Error detection method

Detected by rotation speed of indoor fan motor

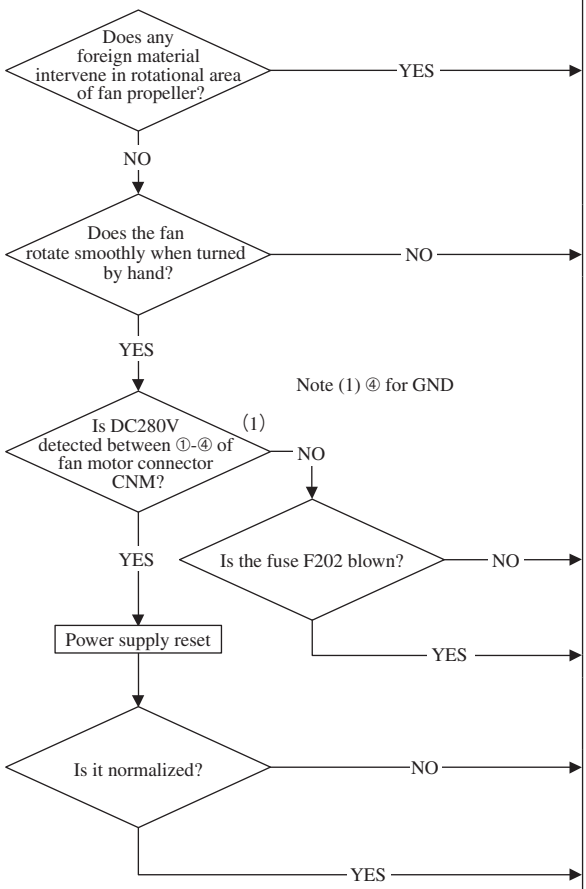
3. Condition of Error displayed

When actual rotation speed of indoor fan motor drops to lower than 200rpm for 30 minutes continuously, the compressor and the indoor fan motor stop. After 2-seconds, it starts again automatically, but if this error occurs 4 times within 60 minutes after the initial detection.

4. Presumable cause

- Defective indoor power PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on control PCB
- Blown fuse
- External noise, surge

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: E19	Indoor	Keeps flashing	1 time flash	Indoor unit operation check, drain motor check setting error
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

2. Error detection method

After indoor operation check, when the communication between indoor and outdoor unit is established and SW7-1 is still kept ON.

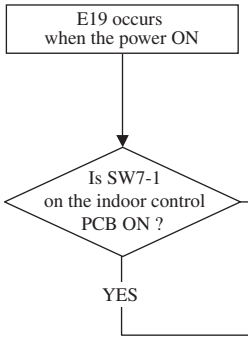
3. Condition of Error displayed

Same as above

4. Presumable cause

Mistake in SW7-1 setting
(Due to forgetting to turn OFF SW7-1 after indoor operation check)

5. Troubleshooting

Diagnosis	Countermeasure
	Defective indoor control PCB (Defective SW7) →Replace Turn SW7-1 on the indoor control PCB OFF and reset the power

Note:

Error code	LED	Green	Red	Content
Remote controller: E28	Indoor	Keeps flashing	Stays Off	Remote controller temperature thermistor anomaly
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) of remote controller temperature thermistor (Thc)

3. Condition of Error displayed

When the temperature thermistor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.

4. Presumable cause

- Faulty connection of remote controller temperature thermistor
- Defective remote controller temperature thermistor
- Defective remote controller PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the remote controller temperature thermistor connected properly? → NO	Correct.
YES → Are the characteristics of remote controller temperature thermistor OK? Is the thermistor wire OK? → NO	Defective remote controller temperature thermistor → Replace.
YES	Defective remote controller PCB → Replace. (Defective remote controller temperature thermistor input circuit)

Resistance-temperature characteristics of remote controller temperature thermistor (ThC)

Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)
0	65	14	33	30	16	46	8.5
1	62	16	30	32	15	48	7.8
2	59	18	27	34	14	50	7.3
4	53	20	25	36	13	52	6.7
6	48	22	23	38	12	54	6.3
8	44	24	21	40	11	56	5.8
10	40	26	19	42	9.9	58	5.4
12	36	28	18	44	9.2	60	5.0

Note: After 10 seconds has passed since remote controller thermistor was switched from valid to invalid, E28 will not be displayed even if the thermistor harness is disconnected. At same time the thermistor, which is effective, is switched from remote controller thermistor to indoor return air temperature thermistor. Even though the remote controller thermistor is set to be Effective, the return air temperature displayed on remote controller for checking still shows the value detected by indoor return air temperature thermistor, not by remote controller temperature thermistor.

Error code	LED	Green	Red	Content
Remote controller: E33	Indoor	Keeps flashing	–	Inverter primary current error (Model SRC40 – 60)
	Outdoor	–	8 times flash	

1. Applicable model

SRC40 – 60 types

2. Error detection method

Inverter primary current

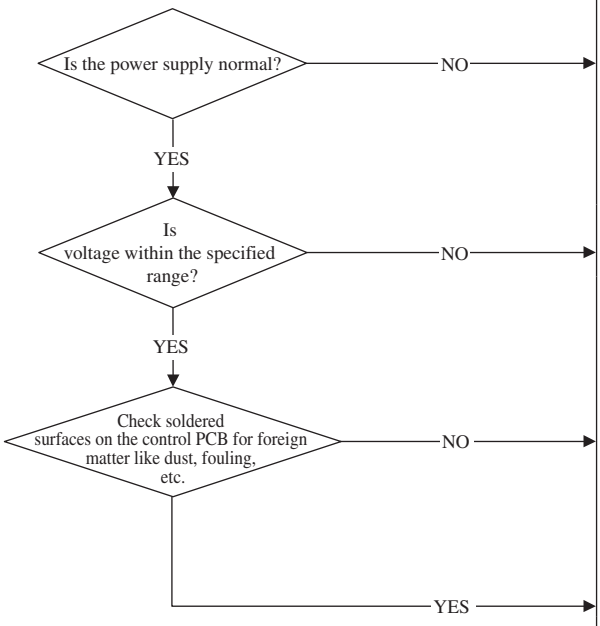
3. Condition of Error displayed

If the inverter primary current exceeds the setting value for 3 seconds, the compressor stops.

4. Presumable cause

- Faulty outdoor control PCB
- Dust on control PCB
- Anomalous power supply

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: E34	Indoor	Keeps flashing	Stays Off	Open L3 Phase on power supply (3-phase model only)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

3-phase models only

2. Error detection method

When 0V is detected on any of L1, L2, L3 for 5 seconds continuously after turning power on.

3. Condition of Error displayed

Same as above

4. Presumable cause

- Anomalous power supply
- Blown power supply fuse
- Defective noise filter
- Defective wire connection on noise filter control PCB
- Defective outdoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Measure the power supply voltage. Is AC380/415V between respective phases? — NO	Check power supply.
YES → Isn't the power supply fuse blown? — YES → Check the inverter. * See next page.	Replace fuse.
NO → Is AC380/415V detected between respective phases at the secondary side of noise filter? — NO	Replace noise filter.
YES → Is wiring between the noise filter and the outdoor control PCB connected properly? — NO	Connect properly.
YES	Defective outdoor control PCB→Replace.

Note:

Error code	LED	Green	Red	Content
Remote controller: E34	Indoor	Keeps flashing	Stays Off	Open L3 Phase on power supply (Continued) (3-phase model only)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

3-phase models only

2. Error detection method

When 0V is detected on any of L1, L2, L3 for 5 seconds continuously after turning power on

3. Condition of Error displayed

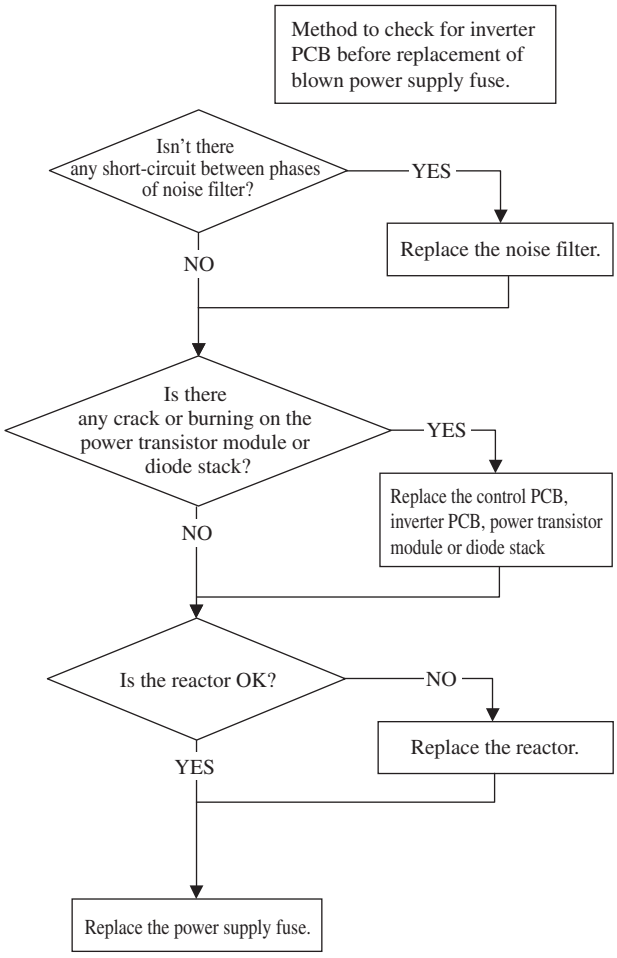
Same as above

4. Presumable cause

- Anomalous power supply
- Blow power supply fuse
- Defective noise filter
- Defective wire connection on noise filter control PCB
- Defective outdoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure



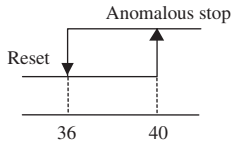
Note:

Error code	LED	Green	Red	Content
Remote controller: E35	Indoor	Keeps flashing	Stays Off	Cooling overload operation (Model SRC40 - 60 only)
	Outdoor	–	8 times flash	

1. Applicable model

Model SRC40 – 60

2. Error detection method



Outdoor unit heat exchanger temp. (°C)

3. Condition of Error displayed

When anomalous outdoor heat exchanger temperature occurs 5 times within 60 minutes or 40°C or higher continues for 10 minutes, including the compressor stop.

4. Presumable cause

- Defective outdoor heat exchanger temperature thermistor
- Defective outdoor control PCB
- Indoor, outdoor unit installation spaces
- Short-circuit of air on indoor, outdoor units
- Fouling, clogging of heat exchanger
- Excessive refrigerant quantity

5. Troubleshooting

Diagnosis	Countermeasure
* For the characteristics of outdoor unit heat exchanger temperature thermistor, refer to E37. Are normal the characteristics of outdoor unit heat exchanger temperature thermistor normal? — NO →	Replace outdoor heat exchanger temperature thermistor.
YES ↓ Is the unit operating in the state of cooling overload? — YES →	Check unit side. • Isn't the air circulation of outdoor unit short-circuited? • Are installation spaces adequate? • Isn't there any fouling or clogging on heater exchanger?
NO ↓ Is the high pressure control normal — NO →	Control operation check*
YES ↓ Is the temperature (measured actually) at direction of error correct? — NO →	Defective outdoor control PCB→Replace.
YES →	Excessive refrigerant amount: Recharge refrigerant by weighing proper amount on a scale.

* For the contents of control, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models.

Note:

Error code	LED	Green	Red	Content
Remote controller: E35	Indoor	Keeps flashing	Stays Off	Cooling overload operation (Model FDC71 - 250 only)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

Model FDC71 – 250

2. Error detection method

For the error detection method, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models.

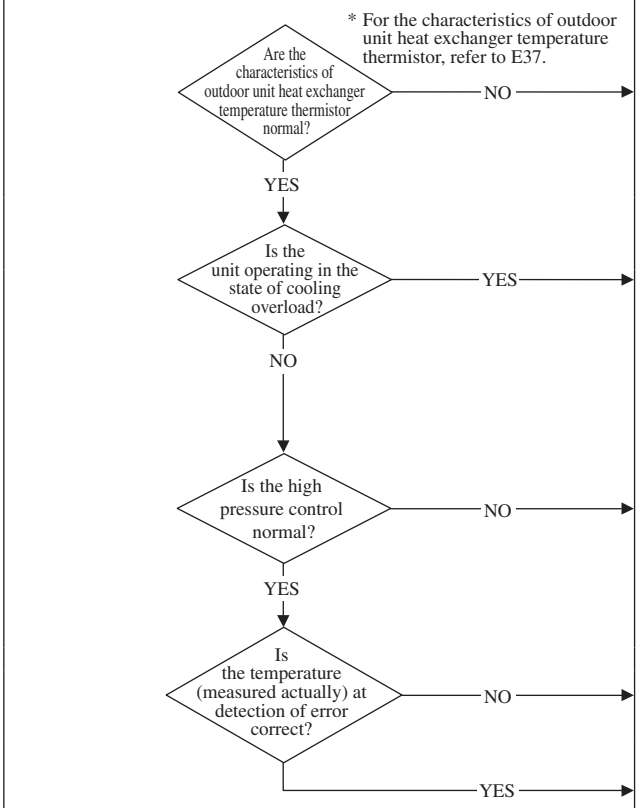
3. Condition of Error displayed

When outdoor heat exchanger temperature anomaly is detected 5 times within 60 minutes or this anomalous state is detected 60 minutes continuously including compressor stop.

4. Presumable cause

- Defective outdoor heat exchanger temperature thermistor
- Defective outdoor control PCB
- Indoor, outdoor unit installation spaces
- Short-circuit of air on indoor, outdoor units
- Fouling, clogging of heat exchanger
- Excessive refrigerant amount

5. Troubleshooting



* For the contents of control, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models.

Note:

Error code	LED	Green	Red	Content
Remote controller: E36	Indoor	Keeps flashing	Stays Off	Discharge pipe temperature error
	Outdoor	Keeps flashing	1(8) time flash	

Note (1) ( ) is for model 40~60.

1. Applicable model

All models

2. Error detection method

For the error detection method, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models.

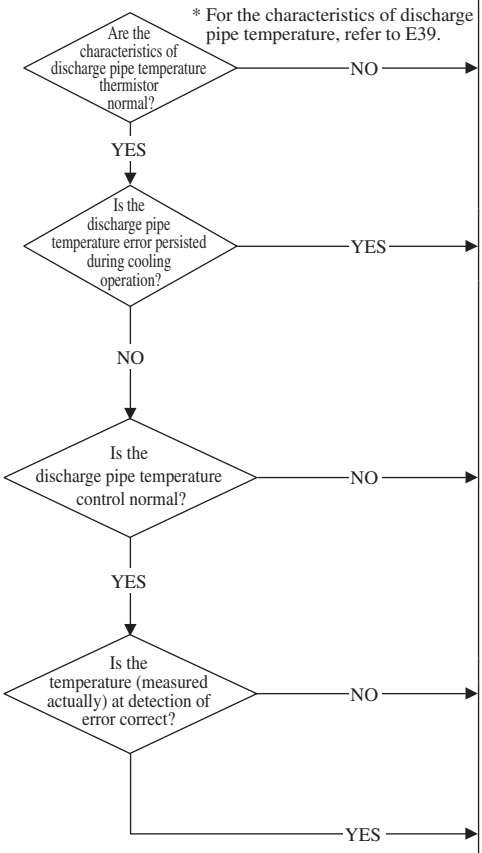
3. Condition of Error displayed

When discharge pipe temperature anomaly is detected 2 times within 60 minutes or this anomalous state is detected 60 minutes continuously including compressor stop.

4. Presumable cause

- Defective outdoor control PCB
- Defective discharge pipe temperature thermistor
- Clogged filter
- Indoor, outdoor unit installation spaces
- Short-circuit of air on indoor, outdoor units
- Fouling, clogging of heat exchanger

5. Troubleshooting



* For the contents of control, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models.

Note:

Error code	LED	Green	Red	Content
Remote controller: E37	Indoor	Keeps flashing	Stays Off	Outdoor heat exchanger temperature themistor anomaly
	Outdoor	Keeps flashing	1(8) time flash	

Note (1) ( ) is for model 40~60.

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) on the outdoor heat exchanger temperature thermistor

3. Condition of Error displayed

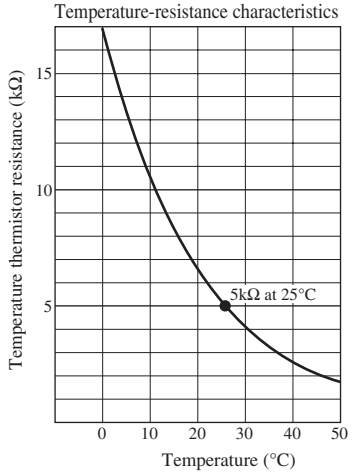
- When the temperature thermistor detects -50°C or lower for 20 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.
- When -50°C or lower is detected for 5 seconds continuously within 20 second after compressor ON.

4. Presumable cause

- Defective outdoor control PCB
- Broken thermistor harness or temperature sensing section
- Disconnected wire connection (connector)

5. Troubleshooting

Diagnosis	Countermeasure
Is the outdoor heat exchanger temperature thermistor connector connected properly? → NO	Correct connector.
YES → For the characteristics of outdoor unit heat exchanger temperature thermistor, see the following graph. Are the characteristics of outdoor heat exchanger temperature thermistor OK? → NO	Defective outdoor heat exchanger temperature thermistor→Replace.
YES	Defective outdoor control PCB→Replace. (Defective outdoor heat exchanger temperature thermistor input circuit)



Note:

Error code	LED	Green	Red	Content
Remote controller: E38	Indoor	Keeps flashing	Stays Off	Ambient air temperature thermistor anomaly
	Outdoor	Keeps flashing	1(8) time flash	

Note (1) ( ) is for model 40~60.

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) on ambient air temperature thermistor

3. Condition of Error displayed

- When the temperature thermistor detects -30°C or lower for 5 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.
- When -30°C or lower is detected for 5 seconds continuously within 20 second after compressor ON.

4. Presumable cause

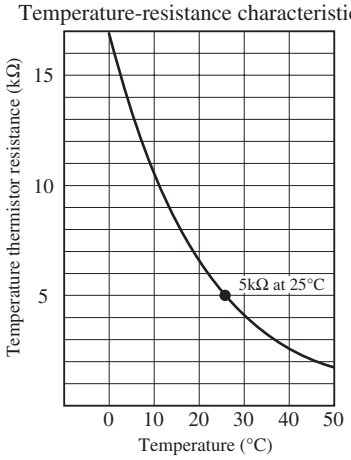
- Defective outdoor control PCB
- Broken thermistor harness or temperature sensing section (Check molding.)
- Disconnected wire connection (connector)

5. Troubleshooting

Diagnosis	Countermeasure
Is the ambient air temperature thermistor connector connected properly? → NO	Correct connector.
YES → Is the characteristics of the ambient air temperature thermistor OK? (For the characteristics of ambient air temperature thermistor, see the following graph.) → NO	Defective ambient air temperature thermistor→ Replace.
YES	Defective outdoor control PCB→Replace. (Defective ambient air temperature thermistor input circuit)

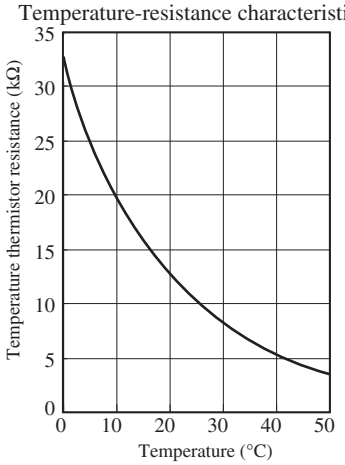
• Model 40~71

Temperature-resistance characteristics



• Model 100 - 250

Temperature-resistance characteristics



Note:

Error code	LED	Green	Red	Content
Remote controller: E39	Indoor	Keeps flashing	Stays Off	Discharge pipe temperature thermistor anomaly
	Outdoor	Keeps flashing	1(8) time flash	

Note (1) ( ) is for model 40~60.

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) on the discharge pipe temperature thermistor

3. Condition of Error displayed

When the temperature thermistor detects -10°C or lower for 5 seconds continuously within 10 minutes to 10 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.

4. Presumable cause

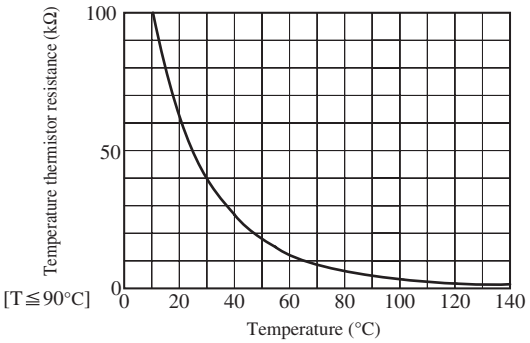
- Defective outdoor control PCB
- Broken thermistor harness or temperature sensing section (Check molding.)
- Disconnected wire connection (connector)

5. Troubleshooting

Diagnosis	Countermeasure
Is the discharge pipe temperature thermistor connector connected properly? → NO	Correct connector.
YES → Are the characteristics of discharge pipe temperature thermistor OK? (For the characteristics of discharge pipe temperature thermistor, see the following graph.) → NO	Defective discharge pipe temperature thermistor→ Replace.
YES	Defective outdoor control PCB→Replace. (Defective temperature thermistor input circuit)

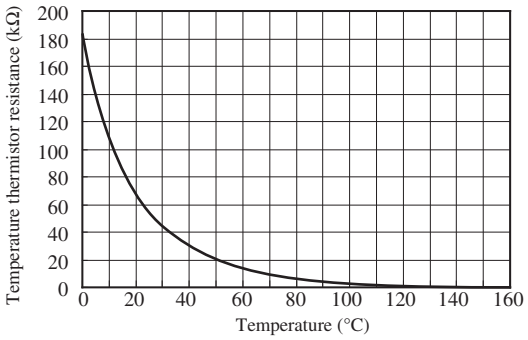
• Model 40~71

Temperature-resistance characteristics



• Model 100 - 250

Temperature-resistance characteristics



Note:

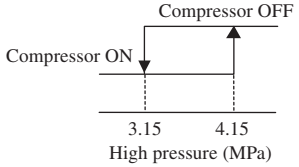
Error code	LED	Green	Red	Content
Remote controller: E40	Indoor	Keeps flashing	Stays Off	High pressure error (63H1 activated) (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

Model FDC 71 – 250

2. Error detection method

When the high pressure switch 63H1 is activated.



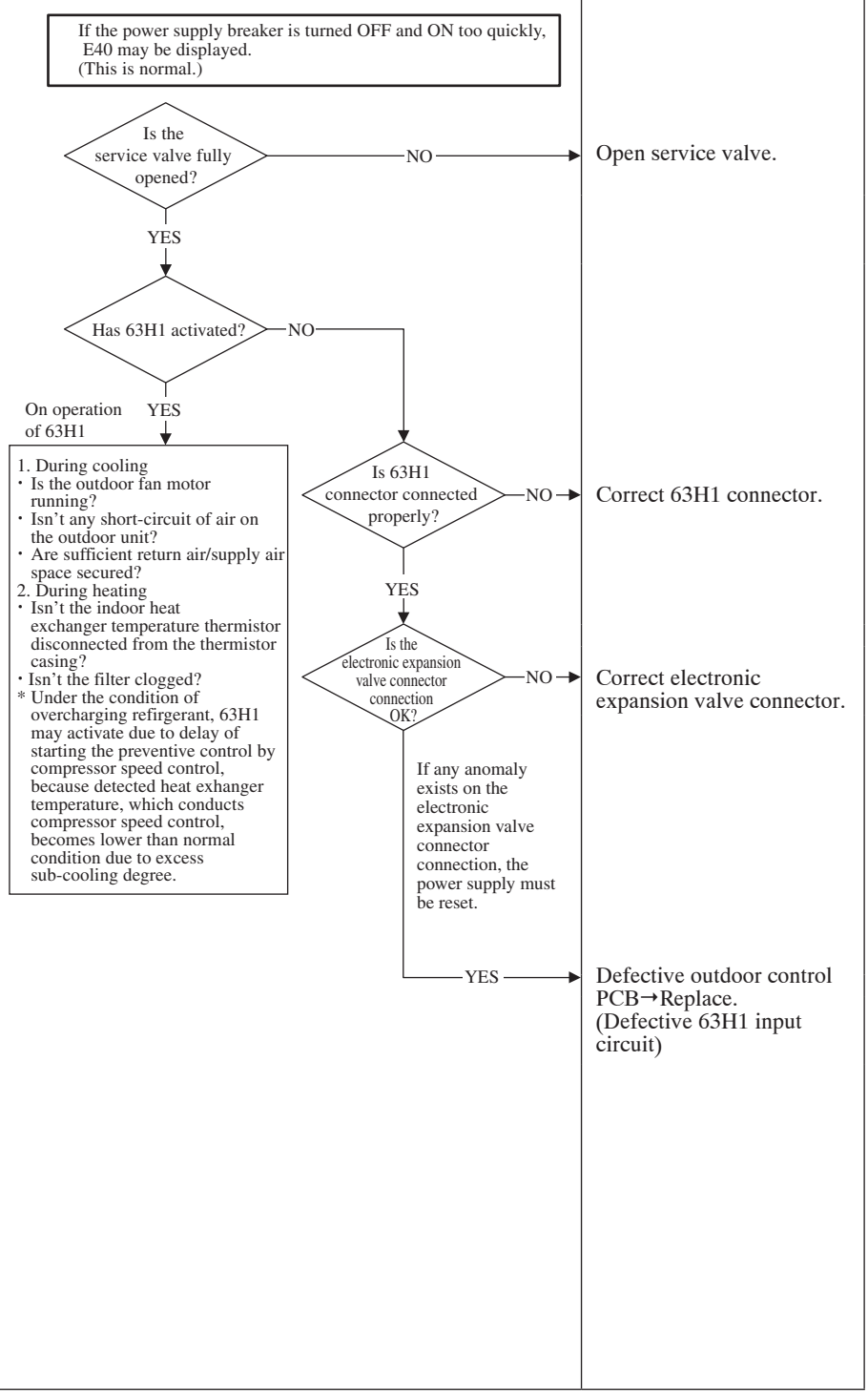
3. Condition of Error displayed

If 63H1 turns OFF (opened), the compressor stops. After 3-minutes delay, the compressor restarts. If this anomaly occurs 5 times within 60 minutes or continues for 60 minutes continuously.

4. Presumable cause

- Short circuit of air flow, disturbance of air flow and clogging filter at heat exchanger (Condenser side)/ Breakdown of fan motor
- Defective outdoor control PCB
- Defective 63H-1 connector
- Defective electronic expansion valve connector
- Closed service valve
- Mixing of non-condensing gas (nitrogen, etc.)

5. Troubleshooting



Note: In the protective control range for compressor startup (initial startup after power ON), even if 63H1 is activated only once (63H1turns OFF), immediately the error is displayed.

Error code	LED	Green	Red	Content
Remote controller: E41	Indoor	Keeps flashing	Stays Off	Power transistor overheat (Model FDC200, 250)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

Model FDC200, 250

2. Error detection method

Anomalous rise of the internal power transistor temperature

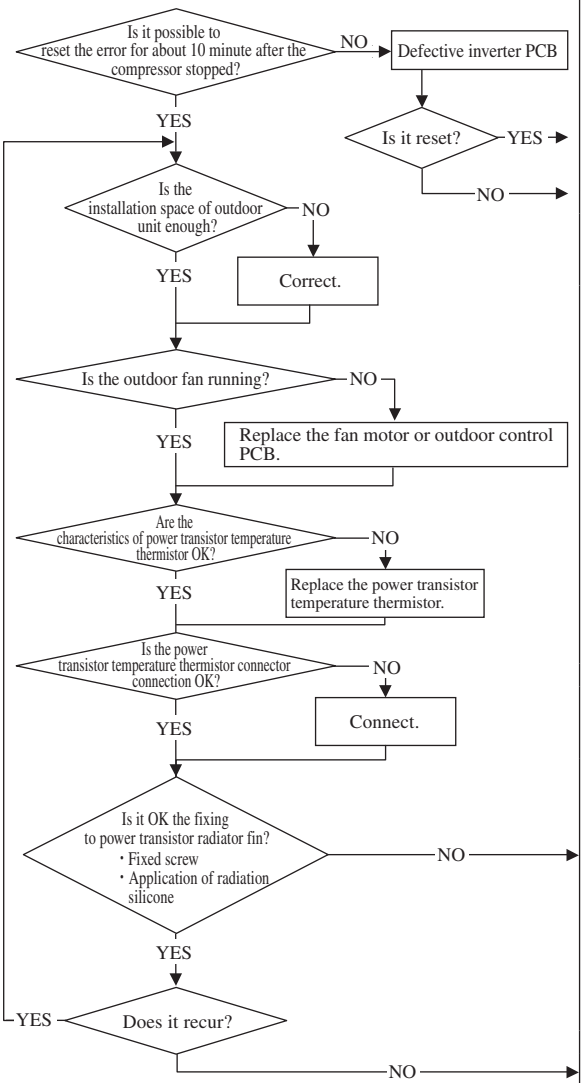
3. Condition of Error displayed

When anomalous rise of the internal power transistor temperature is detected 5 times within 1 hour.

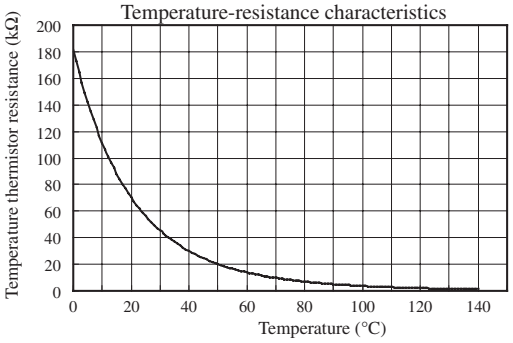
4. Presumable cause

- Defective inverter PCB
- Defective outdoor fan motor
- Improperly fixed power transistor radiator fin
- Delective power transistor temperature thermistor
- Inadequate installation space

5. Troubleshooting



* Characteristics of power transistor temperature thermistor



Note:

Error code	LED	Green	Red	Content
Remote controller: E42	Indoor	Keeps flashing	Stays Off	Current cut (1/2)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

All models

2. Error detection method

In order to prevent from overcurrent of inverter, if the current exceeds the specifications, it makes the compressor stopping.

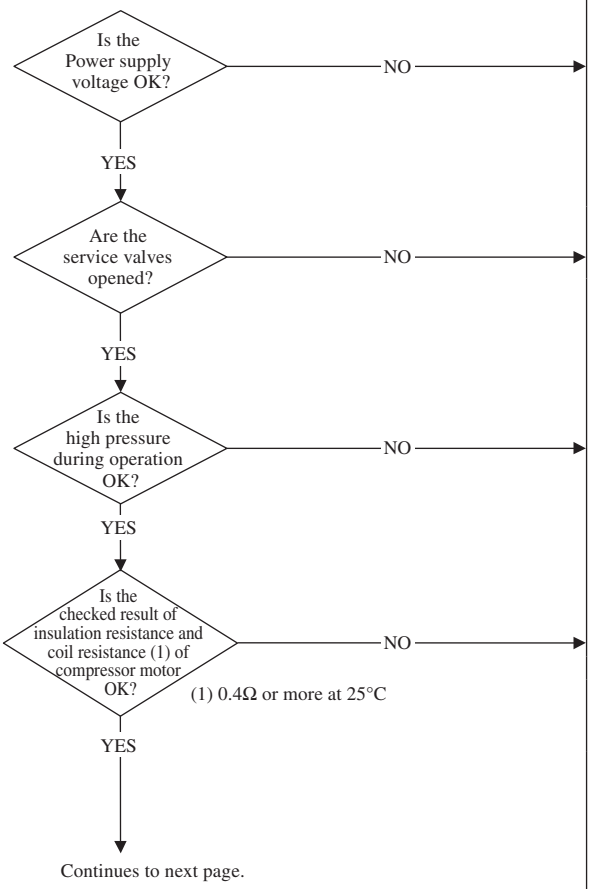
3. Condition of Error displayed

If the output current of inveter exceeds the specifications, it makes the compressor stopping. After 3-minute delay, the compressor restarts, but if this amonaly occurs 4 times within 30 minute after the intial detection.

4. Presumable cause

- The valves closed
- Faulty power supply
- Insufficient refrigerant amount
- Faulty compressor
- Faulty power transistor module

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: E42	Indoor	Keeps flashing	Stays Off	Current cut (2/2)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

All models

2. Error detection method

In order to prevent from overcurrent of inverter, if the current exceeds the specifications, it makes the compressor stopping.

3. Condition of Error displayed

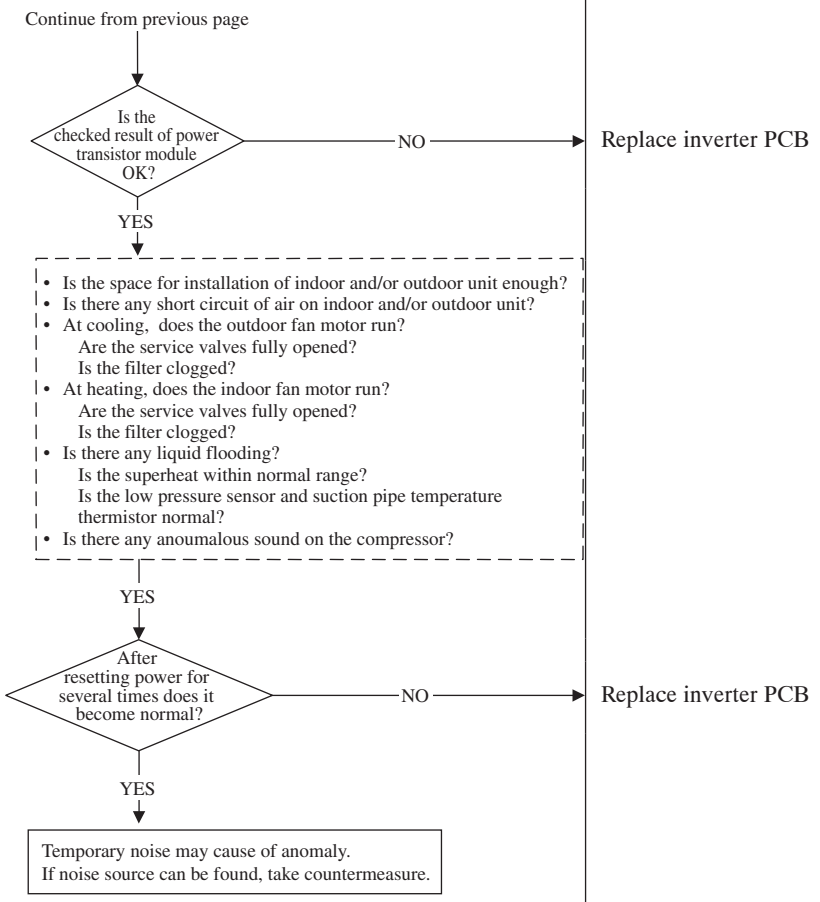
If the output current of inveter exceeds the specifications, it makes the compressor stopping. After 3-minute delay, the compressor restarts, but if this amonaly occurs 4 times within 30 minute after the intial detection.

4. Presumable cause

- Open the valves
- Faulty power supply
- Insufficient refrigerant amount
- Faulty compressor
- Faulty power transistor module

5. Troubleshooting

Diagnosis	Countermeasure



Note:

Error code	LED	Green	Red	Content
Remote controller: E45	Indoor	Keeps flashing	Stays Off	Inverter communication error (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

Model FDC 71 – 250

2. Error detection method

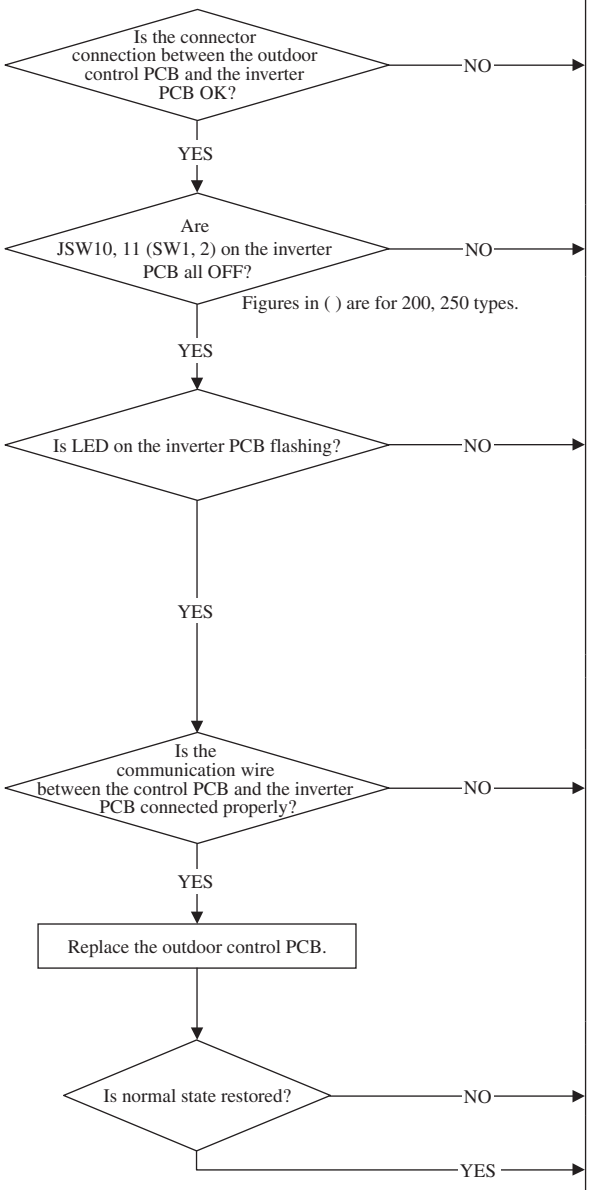
3. Condition of Error displayed

When communication is not established between the inverter PCB and the outdoor control PCB.

4. Presumable cause

- Defective inverter PCB
- Defective connector between the control PCB and inverter PCB
- Defective outdoor control PCB

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: E47	Indoor	Keeps flashing	Stays Off	Inverter over-current error (Model SRC40 – 60)
	Outdoor	–	1 time flash	

1. Applicable model

Model SRC40 – 60

2. Error detection method

Error is displayed if the converter voltage exceeds 340V (3 times within 20 minutes). Remote controller may be set after 3 minutes delay.

3. Condition of Error displayed

Same as above

4. Presumable cause

- Defective outdoor control PCB
- Dust on control PCB
- Blown F3 fuse

5. Troubleshooting

Diagnosis	Countermeasure
Check soldered surfaces on the control PCB for foreign matter like dust, fouling, etc. → NO	Remove foreign matter like dust, fouling, etc.
YES → Isn't F3 fuse (250V, 1A) blown? → NO	Replace fuse.
YES	Replace outdoor control PCB.

Note:

Error code	LED	Green	Red	Content
Remote controller: E48	Indoor	Keeps flashing	Stays Off	Outdoor DC fan motor error (Model SRC40 - 60)
	Outdoor	–	Keeps flashing	

1. Applicable model

Model SRC 40 – 60

2. Error detection method

Detected by rotation speed of outdoor fan motor

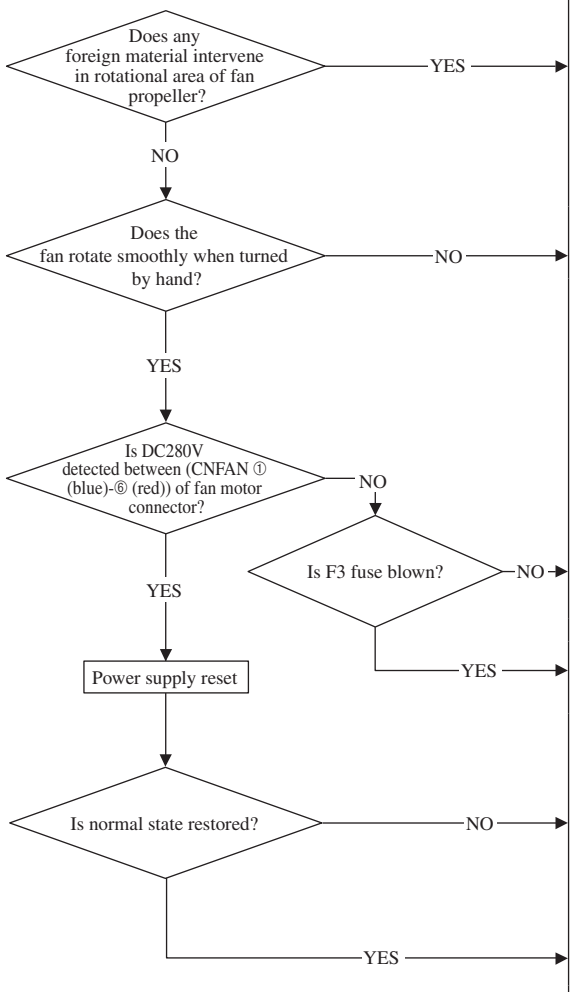
3. Condition of Error displayed

When actual rotation speed of outdoor fan motor drops to 75min^{-1} or lower for 30 minutes continuously, the compressor and the outdoor fan motor stop. After 3-minutes delay, it starts again automatically, but if this anomaly occurs 5 times within 60 minutes after the initial detection.

4. Presumable cause

- Defective outdoor control PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on control PCB
- Blown F3 fuse

5. Troubleshooting



Note: When E48 error occurs, in almost cases F3 fuse (1A) on the outdoor control PCB is blown. There are a lot of cases that fuse is blown and E48 occurs due to defective fan motor. And even though only the outdoor control PCB (or fuse) is replaced,, another trouble (*1) could occur. Therefore when fuse is blown, check whether the fan motor is OK or not.
After confirming the fan motor normal, check by power ON. (Don't power ON without confirming the fan motor normal.)
*1 The error which does not seem to relate E48 may occur like as "WAIT", Stay OFF of LED on outdoor control PCB, inverter communication error (E45) and etc.

Error code	LED	Green	Red	Content
Remote controller: E48	Indoor	Keeps flashing	Stays Off	Outdoor DC fan motor error (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

Model FDC 71 – 250

2. Error detection method

Detected by rotation speed of outdoor fan motor

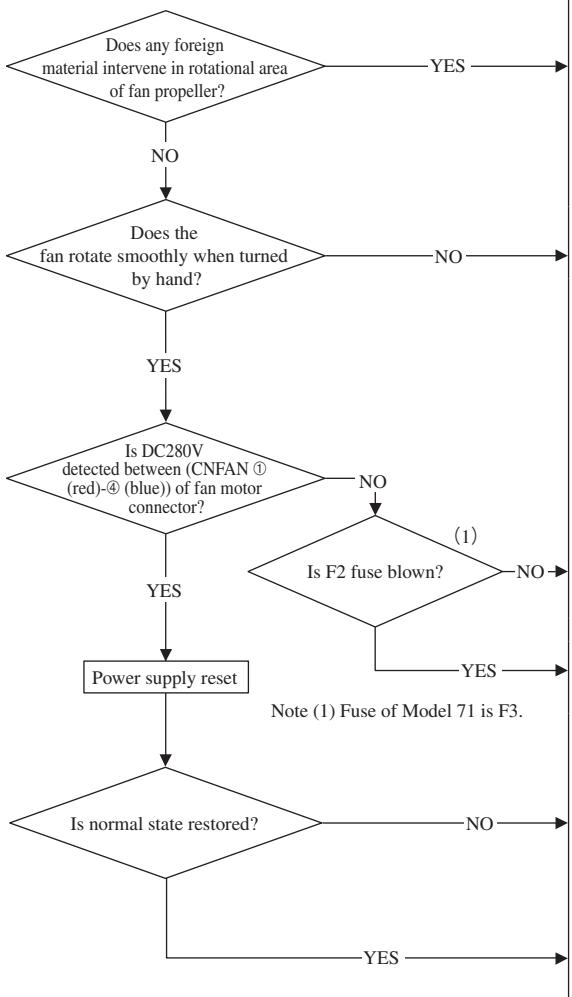
3. Condition of Error displayed

When actual rotation speed of outdoor fan motor (FMo1, 2) drops to 100min^{-1} or lower for 30 minutes continuously, the compressor and the outdoor fan motor stop. After 3-minutes delay, it starts again automatically, but if this anomaly occurs 5 times within 60 minutes after the initial detection.

4. Presumable cause

- Defective outdoor control PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on control PCB
- Blow fuse
- External noise, surge

5. Troubleshooting



Note: When E48 error occurs, in almost cases F2 fuse (4A) on the outdoor control PCB [Model 71: F3 fuse (2A)] is blown. There are a lot of cases that fuse is blown and E48 occurs due to defective fan motor. And even though only the outdoor control PCB (or fuse) is replaced,, another trouble (*1) could occur. Therefore when fuse is blown, check whether the fan motor is OK or not.
After confirming the fan motor normal, check by power ON. (Don't power ON without confirming the fan motor normal.)
*1 The error which does not seem to relate E48 may occur like as "WAIT", Stay OFF of LED on outdoor control PCB, inverter communication error (E45) and etc.

Error code	LED	Green	Red	Content
Remote controller: E49	Indoor	Keeps flashing	Stays Off	Low pressure error or low pressure sensor anomaly (1/2) (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

Model FDC 71 – 250

2. Error detection method

Detected by low pressure drop and suction superheat

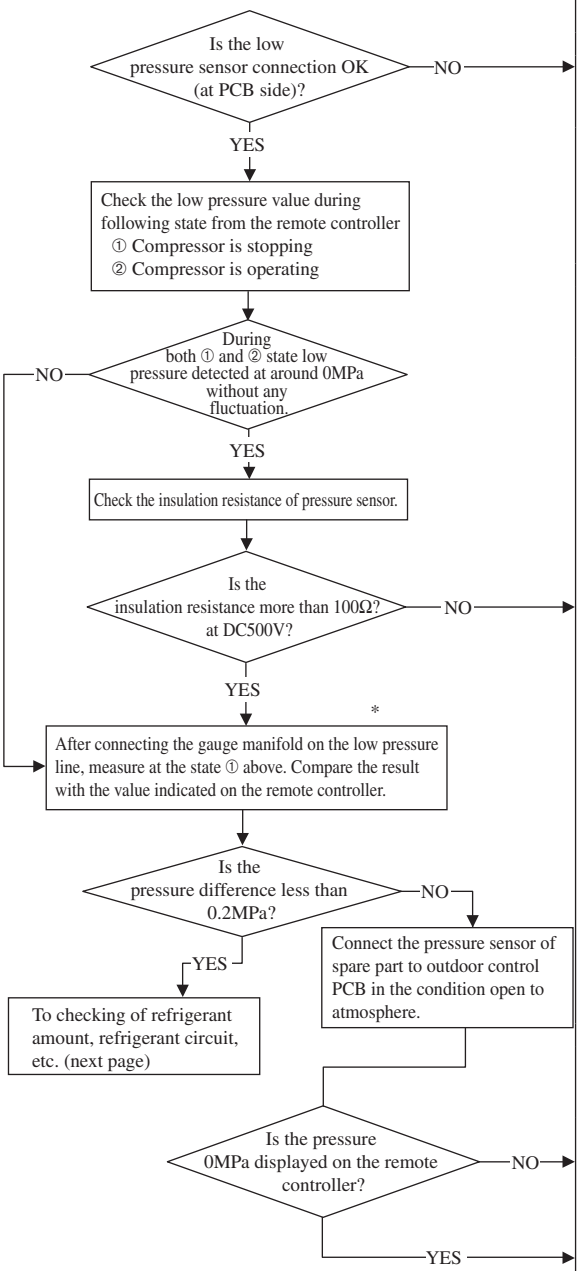
3. Condition of Error displayed

① When the low pressure sensor detects 0.079MPa or lower for 15 seconds continuously, compressor stops and it restarts automatically after 3-minutes delay. And if this anomaly occurs 3 times within 60 minutes,
② 10 minutes after the compressor starts, if the low pressure sensor detects 0.15MPa or lower for 60 minutes continuously and compressor suction superheat is detected 30degC or higher for 60 minutes continuously. And if this anomaly occurs 3 times within 60 minutes,
③ If low pressure sensor detects 0.079MPa or lower for 5 minutes continuously (including the compressor stop status),

4. Presumable cause

- Defective outdoor control PCB
- Defective low pressure sensor connector
- Defective low pressure sensor
- Defective suction pipe temperature thermistor connector
- Defective suction pipe temperature thermistor

5. Troubleshooting



Note: * Connect the gauge manifold to the service valve check joint during cooling, or connect it to the check joint at internal piping of outdoor unit during heating.

Error code	LED	Green	Red	Content
Remote controller: E49	Indoor	Keeps flashing	Stays Off	Low pressure error or low pressure sensor anomaly (2/2) (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

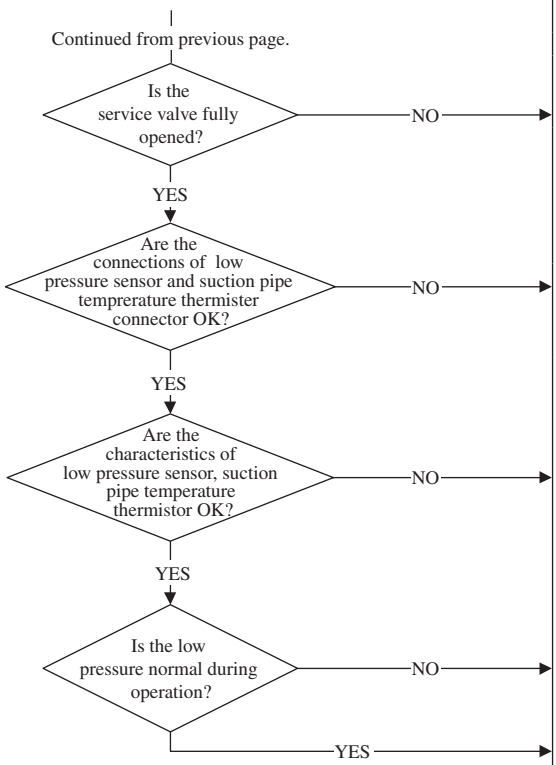
Model FDC 71 – 250

2. Error detection method

3. Condition of Error displayed

4. Presumable cause

5. Troubleshooting

Diagnosis	Countermeasure
	

Note:

Error code

Remote controller: E51

LED	Green	Red
Indoor	Keeps flashing	Stays Off
Outdoor	Keeps flashing	1 time flash

Content

Inverter and fan motor anomaly
(Model FDC71 - 250)

1. Applicable model

Model FDC71 – 250

2. Error detection method

When power transistor anomaly is detected for 15 minutes continuously

3. Condition of Error displayed

Same as above

4. Presumable cause

- Defective outdoor fan motor
- Defective inverter (control) PCB

5. Troubleshooting

Diagnosis	Countermeasure
• Model FDC 71 – 140 Is DC15V detected between the connector CNI4 ②-③ (CNI2 ②-③) on the inverter PCB? — YES → Replace inverter PCB. Figures in ( ) are for 3-phase models. NO Is DC15V detected between the hanesses at the control PCB side after disconnecting the connector (CNI3 or 1)? — YES → Broken harness wire NO Is DC15V detected on the fan motor connector? — YES → Replace fan motor. NO → Replace control PCB. • Model FDC 200, 250 Replace immediately the inverter PCB and the power transistor.	

Note:

Error code	LED	Green	Red	Content
Remote controller: E53	Indoor	Keeps flashing	Stays Off	Suction pipe temperature thermistor anomaly (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

Model FDC 71 – 250

2. Error detection method

When the suction pipe temperature thermistor detects anomalously low temperature

3. Condition of Error displayed

If the temperature thermistor detects -50°C or lower for 5 seconds continuously within 10 minutes to 10 minutes 20 seconds after compressor ON, the compressor stops. When the compressor is restarted automatically after 3-minutes delay, if this anomaly ocuurs 3 times within 40 minute.

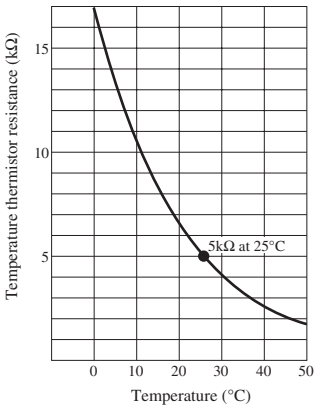
4. Presumable cause

- Defective suction pipe temperature thermistor connection
- Defective suction pipe temperature thermistor
- Defective outdoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the connection of suction pipe temperature thermistor connector OK? — NO	Correct connection of suction pipe temperature thermistor connector.
YES → Are the characteristics of suction pipe temperature thermistor OK? — NO	Defective suction pipe temperature thermistor→ Replace.
YES	Replace outdoor control PCB. (Defective suction pipe temperature thermistor input circuit)

Temperature-resistance characteristics



Note:

Error code	LED	Green	Red	Content
Remote controller: E54	Indoor	Keeps flashing	Stays Off	Low pressure sensor anomaly (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

Model FDC 71 – 250

2. Error detection method

When anomalous voltage (pressure) is detected

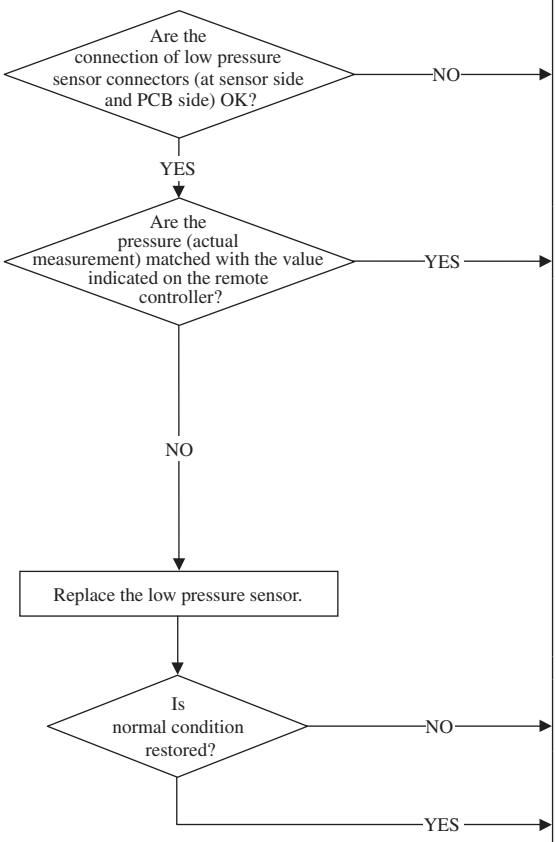
3. Condition of Error displayed

If the pressure sensor detects 0V or lower and 3.49V or higher for 5 seconds continuously within 2 minutes to 2 minutes 20 seconds after compressor ON, the compressor stops. When the compressor is restarted automatically after 3-minuts delay, if this anomaly occurs 3 times within 40 minutes

4. Presumable cause

- Defective low pressure sensor connection
- Defective low pressure sensor
- Defective outdoor control PCB
- Improper amount of refrigerant
- Anomalous refrigeration circuit

5. Troubleshooting



Note:

Error code	LED	Green	Red	Content
Remote controller: E55	Indoor	Keeps flashing	Stays Off	Underneath temperature thermistor anomaly (Model FDC200, 250)
	Outdoor	Keeps flashing	1 time flash	

1. Applicable model

FDC 200, 250 types

2. Error detection method

When anoumalous low temperature (resistance) is detected by the underneath temperature thermistor

3. Condition of Error displayed

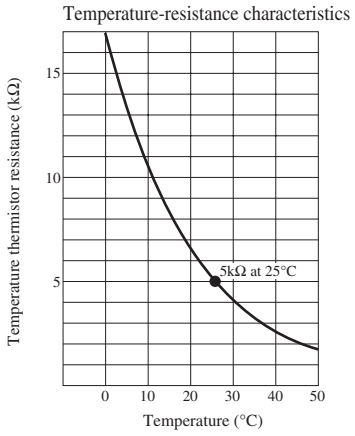
If the temperature thermistor detcts -50°C or lower for 5 seconds continuously within 10 minutes to 10 minutes 20 seconds after compressor ON, the compressor stops. When the compressor is restarted automatically after 3-minutes delay, if this anomaly ocuurs 3 times within 40 minute.

4. Presumable cause

- Defective underneath temperature thermistor connection
- Defective underneath temperature thermistor
- Defective outdoor control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the connection of underneath temperature thermistor connector OK? — NO	Correct connection of underneath temperature thermistor connector.
YES → Are the characteristics of underneath temperature thermistor OK? — NO	Defective underneath temperature thermistor→ Replace.
YES	Replace outdoor control PCB. (Defective underneath temperature thermistor input circuit)



Note:

Error code	LED	Green	Red	Content
Remote controller: E57	Indoor	Keeps flashing	Stays Off	Insufficient refrigerant amount or detection of service valve closure
	Outdoor	Keeps flashing	1(2) time flash	

Note (1) ( ) is for model 40~60.

1. Applicable model

All models

2. Error detection method

- Judge insufficient refrigerant amount by detecting the temperature differnce between indoor heat exchanger (Thi-R) and indoor return air (Thi-A).
- In case of model 100-250, it detects at initial startup in cooling or dehumidifying mode after power ON. (In case of model 40~71 it cannot detect)

3. Condition of Error displayed

When the insufficient refrigerant amount is detected 3 times within 30 minutes.
(In case of model 100-250 it makes anomalous stop at initial detection)

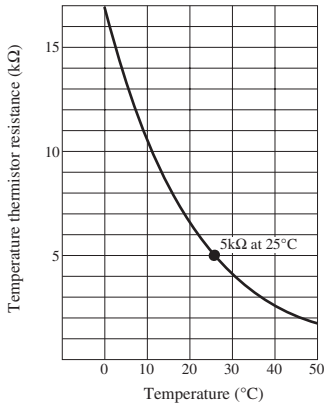
4. Presumable cause

- Defective indoor heat exchanger temperature thermistor
- Defective indoor return air temperature thermistor
- Defective indoor control PCB
- Insufficient refregerant amount

5. Troubleshooting

Diagnosis	Countermeasure
Is the service valve fully opened? NO	Open fully.
YES → Are the connections of indoor heat exchanger and/or return air temperature thermistor connectors OK? NO	Correct indoor heat exchanger, return air temperature thermistor connector connections.
YES → Are the characteristics of indoor heat exchanger and/or return air temperature thermistor OK? NO	Defective indoor heat exchanger, return air temperature thermistor → Replace.
YES → Is the low pressure during operation normal? NO	Charge refrigerant.
YES	Replace indoor control PCB (Defective indoor heat exchanger, return air temperature thermistor input circuits)

Indoor unit heat exchanger, return air temperature thermistor
Temperature-resistance characteristics



Note (1) 22.5rkΩ at -6°C

Note: Insufficient refrigerant amount preventive control makes compressor stopped, if it judges insufficient refrigerant amount by detecting the temperature difference between indoor heat exchanger (Thi-R) and indoor return air (Thi-A) for 1 minute after compressor ON in cooling or dehumidifying mode and for 9 minutes after compressor ON in heating mode. [in cooling mode: (Thi-A)-(Thi-R)>4degC, in heating mode: (Thi-R)-(Thi-A)<4degC]

Error code	LED	Green	Red	Content
Remote controller: E59	Indoor	Keeps flashing	Stays Off	Compressor startup failure (Model SRC40~60)
	Outdoor	–	2 times flash	

1. Applicable model

Model SRC40~60

2. Error detection method

If it fails to change over to the rotor detection operation of compressor motor (If the compressor speed cannot increase 11Hz or higher)

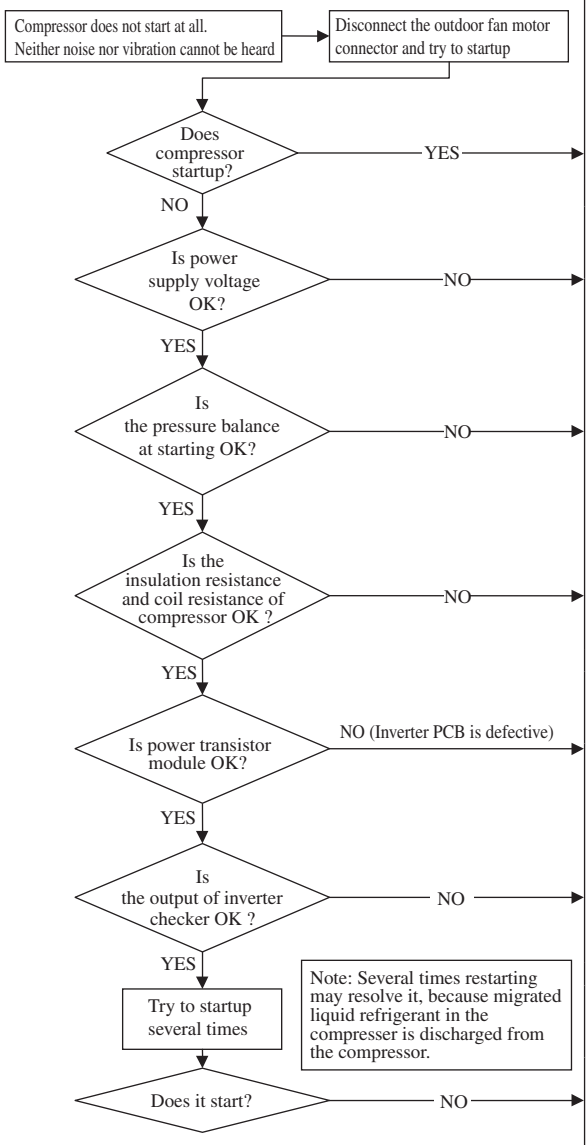
3. Condition of Error displayed

If compressor fails to startup for 14 times (7 patterns x 2 times). (It is availabel to reset by remote controller after 3 minutes delay)

4. Presumable cause

- Faulty outdoor fan motor
- Faulty outdoor control PCB
- Anomalous power supply voltage
- Improper refrigerant amount and refrigerant circuit
- Faulty compressor (Motor bearing)

5. Troubleshooting



Note: Insulation resistance
- The unit is left for long period without power supply or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
  ① Check whehter the insulation resistance can recover or not, ater 6 hours has passed since power ON. (By energize the crankcase heater, migrated liquid refrigerant in the refrigerant oil in compressor can be evaporated)
  ② Check whether the electric leakage breake conforms to high-hermonic specifications (As units has inverter, in order to prevent from improper operation, be sure to use high-hermonic one.)

Error code	LED	Green	Red	Content
Remote controller: E59	Indoor	Keeps flashing	Stays Off	Compressor startup failure (Model FDC71~250)
	Outdoor	Keeps flashing	5 times flash	

1. Applicable model

Model FDC71-250

2. Error detection method

If it fails to change over to the rotor detection operation of compressor motor (If the compressor speed cannot increase 11Hz or higher)

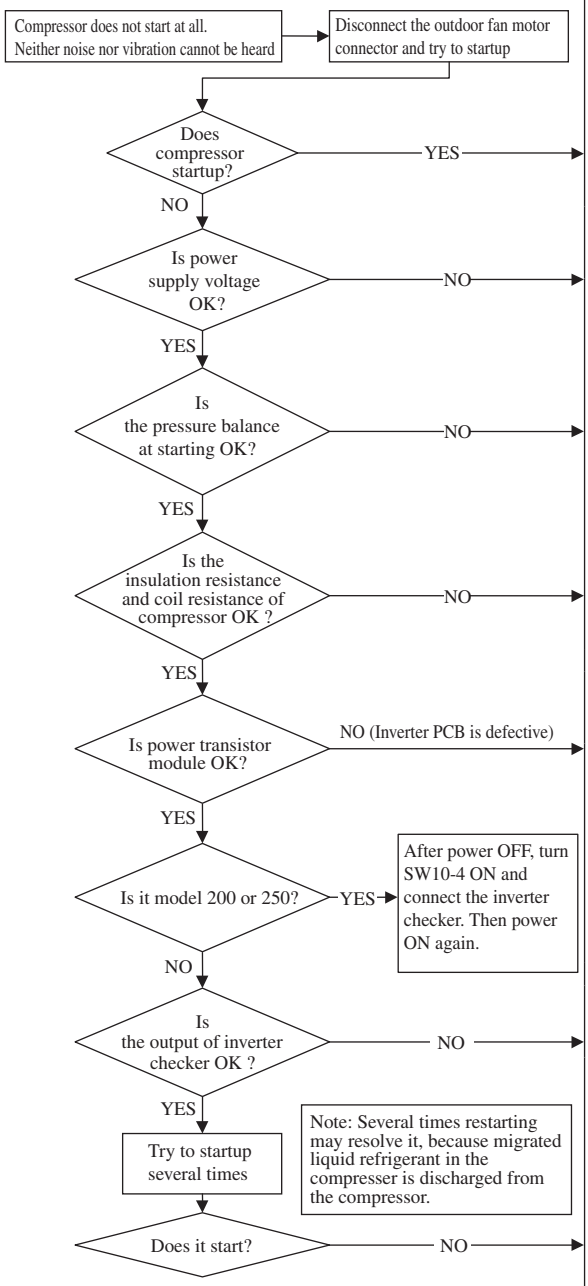
3. Condition of Error displayed

If compressor fails to startup for 20 times (10 patterns x 2 times). (It is availabel to reset by remote controller after 3 minutes delay)

4. Presumable cause

- Faulty outdoor fan motor
- Faulty outdoor control PCB
- Faulty inverter PCB
- Anomalous power supply voltage
- Improper refrigerant amount and refrigerant circuit
- Faulty compressor (Motor bearing)

5. Troubleshooting



Note: Insulation resistance
- The unit is left for long period without power supply or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
  ① Check whehter the insulation resistance can recover or not, ater 6 hours has passed since power ON.
  (By energize the crankcase heater, migrated liquid refrigerant in the refrigerant oil in compressor can be evaporated)
  ② Check whether the electric leakage breake conforms to high-hermonic specifications
  (As units has inverter, in order to prevent from improper operation, be sure to use high-hermonic one.)

Error code	LED	Green	Red	Content
Remote controller: E60	Indoor	Keeps flashing	Stays Off	Compressor rotor lock error (Model SRC40~60, FDC200, 250)
	Outdoor	Keeps flashing	1(7) time flash	

Note (1) ( ) is for model 40~60.

1. Applicable model

Model SRC40~60, FDC 200, 250

2. Error detection method

Compressor rotor position

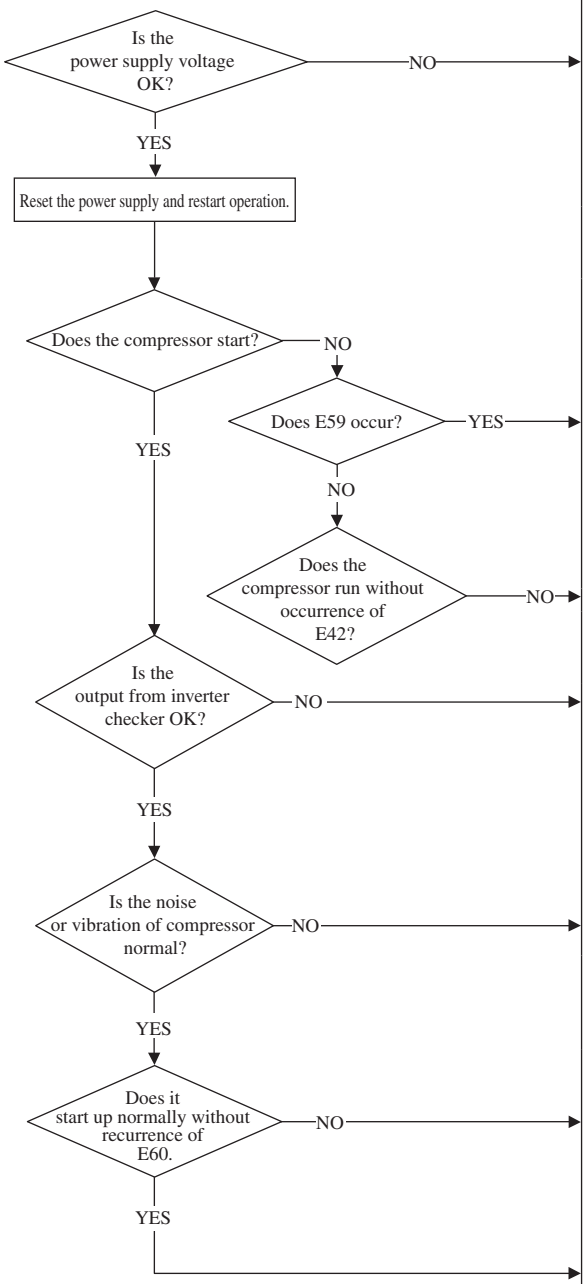
3. Condition of Error displayed

If it fails again to detect the rotor position after shifting to the compressor rotor position detection operation, the compressor stops. When it is restart automatically after 3 minutes, it is detected 4 times within 15 minutes.

4. Presumable cause

- Defective outdoor fan motor
- Defective outdoor control PCB
- Defective inverter PCB
- Anomalous power supply voltage
- Improper refrigerant amount and refrigerant circuit
- Defective compressor (motor, bearing)

5. Troubleshooting



Note: Insulation resistance
- The unit is left for long period without power supply or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
  ① Check whehter the insulation resistance can recover or not, ater 6 hours has passed since power ON. (By energize the crankcase heater, migrated liquid refrigerant in the refrigerant oil in compressor can be evaporated)
  ② Check whether the electric leakage breake conforms to high-hermonic specifications (As units has inverter, in order to prevent from improper operation, be sure to use high-hermonic one.)

2. MULTI-TYPE (V MULTI) PACKAGED AIR-CONDITIONER

CONTENTS

2.1 GENERAL INFORMATION

2.1.1 Specific features

Ideal for the installation in Large, single zone open Areas and L-shaped rooms, the Muliti-Type V series allows an extensive degree of flexibility in the selection of indoor units. Specifically, the selection of indoor units with differing capacities and differing or similar types is available, as is the selection of indoor units with similar capacities and differing types. Furthermore, a maximun of up to four individual indoor units can be opened with a single outdoor unit.

(1) All models employ R410A, with RoHS compliance.

(2) Industry leading COP.
Thanks to achievement of the highest COP level in the industry, the energy consumption has been cut by 39~49% compared with our former models (constant speed models).

(3) Energy labeling "Class A"
MHI models have cleared the class A standard, the highest energy saving level, with their high COP (coefficient of performance).

(4) The microcomputer chip is installed in the indoor unit and outdoor unit. There is no need for the unit to communicate between the outdoor and indoor units so the unit is more resistant to electromagnetic noise thus the incidence of microcomputer malfunction has been reduced. The compressor in the outdoor unit has its own self protection function, that reacts according to abnormal high pressure and excessive high temperature.

(5) Wide range of operation
Heating and cooling operation at -15°C Our new advanced technology has expanded the heating and cooling operation range. This permits installation of the units considering a heating and cooling operation under a low ambient temperature condition down to -15°C .

(6) New remote control for all indoor units
Applying nonpolar 2-core in new remote control line, it is very convenient for installation including renewal case.

(7) There are only three power lines between the outdoor and indoor unit. One cabtyre cable with 3 wires encased in one sheath is enough for conducting the wiring work between the outdoor unit and the indoor unit. This contributes to simpler wiring work in the field.

(8) All air supply ports have auto swing louvers. (Only case of FDTC, FDT and FDEN models). The indoor fan motor has three speeds of high, medium and low.

(9) All models have service valves protruding from the outdoor unit for faster flare connection (FDC200, 250: Only a gas side is brazing) work in the field.

(10) The size and weight of the outdoor units in the FDC71 series have been greatly reduced.Use of an inverter has also improved energy conservation and economy.

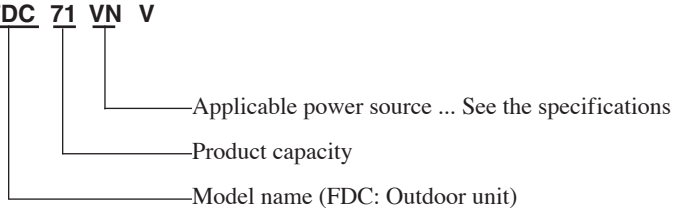
(11) Compared to the previous models, a single fan is used in the FDC 100 ~ 140 outdoor unit models and forward blowing is used in the 802 and 1002 models, resulting in markedly reduced weight and greater compactness. In addition, use of an inverter makes these units much more economical compared to the previous fixed speed units.

2.1.2 How to read the model name

Example: FDT 40 V

FDTC : Ceiling cassette-4way Compact (600 × 600mm)-type unit with wired remote controller
FDT : Ceiling cassette-4way-type unit with wired remote controller
FDEN : Ceiling suspended type unit with wireless remote controller
FDUM : Duct connected-Middle static pressure-type unit with wired remote controller

Example: FDC 71 VN V



2.1.3 Table of models

Model \ Capacity	40	50	60	71	100	125
Ceiling cassette-4way Compact (600 x 600mm)-type (FDTC)	○	○				
Ceiling cassette-4way-type (FDT)	○	○	○	○	○	○
Ceiling suspended type (FDEN)	○	○	○	○	○	○
Duct connected-Middle static pressure-type (FDUM)		○	○	○	○	○
Outdoor unit to be combined (FDC)	FDC71VN (3 Horse Power) FDC100VN FDC100VS (4 Horse Power)	FDC125VN FDC125VS (5 Horse Power)	FDC140VN FDC140VS (6 Horse Power)	FDC200VS (8 Horse Power)		FDC250VS (10 Horse Power)

2.1.4 Table of system combinations

Outdoor unit	Type	Indoor unit assembly capacity	Branch pipe set (Optional)
FDC71VN	Twin	40+40	DIS-WA1
FDC100VN FDC100VS		50+50	
FDC125VN FDC125VS		60+60 50+71	
FDC140VN FDC140VS	Twin	71+71	
	Triple	50+50+50	DIS-TA1
FDC200VS	Twin	100+100	DIS-WB1
		71+125	
	Triple	71+71+71	DIS-TB1
	Double twin	50+50+50+50	DIS-WA1 x 2set DIS-WB1 x 1set
FDC250VS	Twin	125+125	DIS-WB1
	Triple	60+60+125	DIS-TB1
		71+71+100	
	Double twin	60+60+60+60	DIS-WA1 x 2set DIS-WB1 x 1set

Notes (1) It is possible to used different models (FDT, FDEN, FDUM) when combining indoor units.
(2) Always use the branch piping set (optional) at branches in the refrigerant piping.
(3) If wireless specifications are used, use 1 wireless indoor unit in combination with wired indoor units.

Exception: In case of FDTC, FDKNVA series are selected, same model and capacity combination is required.

2.2 SELECTION DATA

2.2.1 Specifications

(1) Indoor unit

(a) Ceiling cassette-4way Compact (600 × 600mm)-type (FDTC)

Models FDTC40V, 50V

Item \ Model		FDTC40V	FDTC50V
Nominal cooling capacity(1)	**kW**	**4.0**	**5.0**
Nominal heating capacity(1)	**kW**	**4.5**	**5.4**
Power source		**1 Phase, 220-240V 50Hz / 220V 60Hz**	
Noise level	dB(A)	Hi: 42 Me : 38 Lo: 35	
Exterior dimensions Height × Width × Depth	**mm**	**Unit:248 × 570 × 570 Panel:35 × 700 × 700**	
Net weight	**kg**	**18.5 (Unit: 15 Panel: 3.5)**	
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing	
Refrigerant control		—	
Air handling equipment Fan type & Q'ty		Turbo fan × 1	
Motor	**W**	**52×1**	
Starting method		Direct line start	
Air flow(Standard)	**CMM**	**Hi: 11.5 Me : 10 Lo: 8**	
Outside air intake		Not possible	
Air filter, Q'ty		Pocket plastic net × 1 (Washable)	
Shock & vibration absorber		Rubber sleeve (for fan motor)	
Operation control Operation switch		Wired remote control switch (Optional: RC-E3) Wireless kit (Optional)	
Room temperature control		Thermostat by electronics	
Safety equipment		Overload protection for fan motor. Frost protection thermostat.	
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ6.35 (1/4") Gas line: ϕ12.7 (1/2")**	
Connecting method		**Flare piping**	
Drain hose		Connectable with VP20 (I.D.20 mm, O.D.26 mm)	
Insulation for piping		Necessary (both Liquid & Gas lines)	
Accessories		**Mounting kit. Drain hose**	
Optional parts		**Decorative Panel**	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO-T1
Heating	20℃		7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

● Decorative Panel model or Wireless kit (Optional)

Model \ Item	Panel Part No.	Wireless kit
FDT40V, 50V	TC-PSA-24W-ER	RCN-TC-24W-ER

(b) Ceiling cassette-4way-type (FDT)

Models FDTA40V, 50V, 60V

Item \ Model		FDT40V	FDT50V	FDT60V
Nominal cooling capacity(1)	**kW**	**4.0**	**5.0**	**5.6**
Nominal heating capacity(1)	**kW**	**4.5**	**5.4**	**6.7**
Power source		**1 Phase, 220-240V 50Hz / 220V 60Hz**		
Noise level	dB(A)	Hi: 33 Me : 31 Lo: 30		Hi: 33 Me : 31 Lo: 30
Exterior dimensions Height × Width × Depth	**mm**	**Unit:246 × 840 × 840 Panel:35 × 950 × 950**		
Net weight	**kg**	**27.5 (Unit: 22 Panel: 5.5)**	**29.5 (Unit: 24 Panel: 5.5)**	
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing		
Refrigerant control		—		
Air handling equipment Fan type & Q'ty		Turbo fan × 1		
Motor	**W**	**50×1**		
Starting method		Direct line start		
Air flow(Standard)	**CMM**	**Hi: 18 Me : 16 Lo: 14**		
Outside air intake		Possible		
Air filter, Q'ty		Pocket plastic net × 1 (Washable)		
Shock & vibration absorber		Rubber sleeve (for fan motor)		
Operation control Operation switch		Wired remote control switch (Optional: RC-E3) Wireless kit (Optional)		
Room temperature control		Thermostat by electronics		
Safety equipment		Overload protection for fan motor. Frost protection thermostat.		
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ6.35 (1/4") Gas line: ϕ12.7 (1/2")**		**Liquid line: ϕ6.35 (1/4") Gas line: ϕ15.88 (5/8")**
Connecting method		**Flare piping**		
Drain hose		Connectable with VP20 (I.D.20 mm, O.D.26 mm)		
Insulation for piping		Necessary (both Liquid & Gas lines)		
Accessories		**Mounting kit. Drain hose**		
Optional parts		**Decorative Panel**		

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO-T1
Heating	20℃		7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

● Decorative Panel model or Wireless kit (Optional)

Item / Model	Panel Part No.	Wireless kit
FDT40V, 50V, 60V	T-PSA-36W-E	RCN-T-36W-E

Models FDT71V, 100V

Item	Model	FDT71V	FDT100V
Nominal cooling capacity(1)	**kW**	**7.1**	**10.0**
Nominal heating capacity(1)	**kW**	**8.0**	**11.2**
Power source		**1 Phase, 220-240V 50Hz / 220V 60Hz**	
Noise level	dB(A)	Hi: 35 Me: 33 Lo: 31	Hi: 40 Me: 37 Lo: 35
Exterior dimensions Height × Width × Depth	**mm**	**Unit:246 × 840 × 840 Panel:35 × 950 × 950**	**Unit:298 × 840 × 840 Panel:35 × 950 × 950**
Net weight	**kg**	**29.5 (Unit:24 Panel:5.5)**	**32.5 (Unit:27 Panel:5.5)**
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing	
Refrigerant control		—	
Air handling equipment Fan type & Q'ty		Turbo fan × 1	
Motor	**W**	**50×1**	**140×1**
Starting method		Direct line start	
Air flow(Standard)	**CMM**	**Hi: 21 Me: 19 Lo: 17**	**Hi: 27 Me: 24 Lo: 20**
Outside air intake		Possible	
Air filter, Q'ty		Pocket plastic net × 1 (Washable)	
Shock & vibration absorber		Rubber sleeve (for fan motor)	
Operation control Operation switch		Wired remote control switch (Optional: RC-E3) Wireless kit (Optional)	
Room temperature control		Thermostat by electronics	
Safety equipment		Overload protection for fan motor. Frost protection thermostat.	
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ9.52 (3/8") Gas line: ϕ15.88 (5/8")**	
Connecting method		**Flare piping**	
Drain hose		Connectable with VP20 (I.D.20 mm, O.D.26 mm)	
Insulation for piping		Necessary (both Liquid & Gas lines)	
Accessories		**Mounting kit. Drain hose**	
Optional parts		**Decorative Panel**	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO-T1
Heating	20℃		7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

● Decorative Panel model or Wireless kit (Optional)

Model / Item	Panel Part No.	Wireless kit
FDT71V, 100V	T-PSA-36W-E	RCN-T-36W-E

Model FDT125V

Item \ Model		FDT125V
Nominal cooling capacity(1)	**kW**	**12.5**
Nominal heating capacity(1)	**kW**	**14.0**
Power source		**1 Phase, 220-240V 50Hz / 220V 60Hz**
Noise level	dB(A)	Hi: 42 Me: 40 Lo: 37
Exterior dimensions Height × Width × Depth	**mm**	**Unit:298 × 840 × 840 Panel:35 × 950 × 950**
Net weight	**kg**	**32.5 (Unit:27 Panel:5.5)**
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing
Refrigerant control		—
Air handling equipment Fan type & Q'ty		Turbo fan × 1
Motor	**W**	**140×1**
Starting method		Direct line start
Air flow(Standard)	**CMM**	**Hi: 30 Me: 27 Lo: 23**
Outside air intake		Possible
Air filter, Q'ty		Pocket plastic net × 1 (Washable)
Shock & vibration absorber		Rubber sleeve (for fan motor)
Operation control Operation switch		Wired remote control switch (Optional: RC-E3) Wireless kit (Optional)
Room temperature control		Thermostat by electronics
Safety equipment		Overload protection for fan motor. Frost protection thermostat.
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ9.52 (3/8") Gas line: ϕ15.88 (5/8")**
Connecting method		**Flare piping**
Drain hose		Connectable with VP20 (I.D.20 mm, O.D.26 mm)
Insulation for piping		Necessary (both Liquid & Gas line)
Accessories		**Mounting kit. Drain hose**
Optional parts		**Decorative Panel**

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO-T1
Heating	20℃		7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

● Decorative Panel model or Wireless kit (Optional)

Model \ Item	Panel Part No.	Wireless kit
FDT125V	T-PSA-36W-E	RCN-T-36W-E

(c) Ceiling suspended type (FDEN)

Models FDEN40V, 50V, 60V

Item \ Model		FDEN40V	FDEN50V	FDEN60V
Nominal cooling capacity(1)	**kW**	**4.0**	**5.0**	**5.6**
Nominal heating capacity(1)	**kW**	**4.5**	**5.4**	**6.7**
Power source		**1 Phase, 220-240V 50Hz / 220V 60Hz**		
Noise level	dB(A)	Hi: 39 Me : 38 Lo: 37		Hi: 41 Me : 39 Lo: 38
Exterior dimensions Height × Width × Depth	**mm**	**210 × 1070 × 690**		**210 × 1320 × 690**
Net weight	**kg**	**30**		**36**
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing		
Refrigerant control		—		
Air handling equipment Fan type & Q'ty		Centrifugal fan × 2		Centrifugal fan × 4
Motor	**W**	**25×1**		**20×2**
Starting method		Direct line start		
Air flow(Standard)	**CMM**	**Hi: 11 Me : 9 Lo: 7**		**Hi: 18 Me : 14 Lo: 12**
Outside air intake		Not possible		
Air filter, Q'ty		Pocket plastic net × 2 (Washable)		
Shock & vibration absorber		Rubber sleeve (for fan motor)		
Operation control Operation switch		Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optional: RC-E3)		
Room temperature control		Thermostat by electronics		
Safety equipment		Internal thermostat for fan motor. Frost protection thermostat.		
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: φ6.35 (1/4")** **Gas line: φ12.7 (1/2")**		
Connecting method		**Flare piping**		
Drain hose		Connectable with VP20 (I.D.20 mm, O.D.26 mm)		
Insulation for piping		Necessary (both Liquid & Gas line)		
Accessories		**Mounting kit. Drain hose**		
Optional parts		—		

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO-T1
Heating	20℃		7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

Models FDEN71V, 100V

Item \ Model		FDEN71V	FDEN100V
Nominal cooling capacity(1)	**kW**	**7.1**	**10.0**
Nominal heating capacity(1)	**kW**	**8.0**	**11.2**
Power source		**1 Phase, 220-240V 50Hz / 220V 60Hz**	
Noise level	dB(A)	Hi: 41 Me: 39 Lo: 38	Hi: 44 Me: 41 Lo: 39
Exterior dimensions Height × Width × Depth	**mm**	**210 ×1320 × 690**	**250 ×1620 × 690**
Net weight	**kg**	**36**	**46**
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing	
Refrigerant control		—	
Air handling equipment Fan type & Q'ty		Centrifugal fan × 4	
Motor	**W**	**20×2**	**30×2**
Starting method		Direct line start	
Air flow (Standard)	**CMM**	**Hi: 18 Me: 14 Lo: 12**	**Hi: 26 Me: 23 Lo: 21**
Outside air intake		Not possible	
Air filter, Q'ty		Pocket plastic net × 2 (Washable)	
Shock & vibration absorber		Rubber sleeve (for fan motor)	
Operation control Operation switch		Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optioanl: RC-E3)	
Room temperature control		Thermostat by electronics	
Safety equipment		Internal thermostat for fan motor. Frost protection thermostat	
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ9.52 (3/8")** **Gas line: ϕ15.88 (5/8")**	
Connecting method		**Flare piping**	
Drain hose		Connectable with VP20 (I.D.20 mm, O.D.26 mm)	
Insulation for piping		Necessary (both Liquid & Gas lines)	
Accessories		**Mounting kit. Drain hose**	
Optional parts		**—**	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO-T1
Heating	20℃		7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

Model FDEN125V

Item	Model	FDEN125V
Nominal cooling capacity(1)	**kW**	**12.5**
Nominal heating capacity(1)	**kW**	**14.0**
Power source		**1 Phase, 220-240V 50Hz / 220V 60Hz**
Noise level	dB(A)	Hi: 46 Me: 44 Lo: 43
Exterior dimensions Height × Width × Depth	**mm**	**250 × 1620 × 690**
Net weight	**kg**	**46**
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing
Refrigerant control		—
Air handling equipment Fan type & Q'ty		Centrifugal fan × 4
Motor	**W**	**40×2**
Starting method		Direct line start
Air flow(Standard)	**CMM**	**Hi: 29 Me: 26 Lo: 23**
Outside air intake		Not possible
Air filter, Q'ty		Pocket plastic net × 2 (Washable)
Shock & vibration absorber		Rubber sleeve (for fan motor)
Operation control Operation switch		Wireless remote control switch (Optional: RCN-E1R) Wired remote control switch (Optioanl: RC-E3)
Room temperature control		Thermostat by electronics
Safety equipment		Internal thermostat for fan motor. Frost protection thermostat.
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ9.52 (3/8") Gas line: ϕ15.88 (5/8")**
Connecting method		**Flare piping**
Drain hose		Connectable with VP20 (I.D.20 mm, O.D.26 mm)
Insulation for piping		Necessary (both Liquid & Gas lines)
Accessories		**Mounting kit. Drain hose**
Optional parts		**—**

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO-T1
Heating	20℃		7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(d) Duct connected-Middle static pressure-type (FDUM)

Models FDUM50V, 60, 71V

Item \ Models		FDUM50V	FDUM60V	FDUM71V
Nominal cooling capacity*1	**kW**	**5.0**	**5.6**	**7.1**
Nominal heating capacity*2	**kW**	**5.4**	**6.7**	**8.0**
Power source		**1 Phase 220-240V 50Hz/220V 60Hz**		
Noise level	dB(A)	Hi: 34 Me: 31 Lo: 28		Hi: 35 Me: 32 Lo: 29
Exterior dimensions Height × Width × Depth	**mm**	**299 × 750 × 635**	**299 × 950 × 635**	
Net weight	**kg**	**34**	**40**	
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing		
Refrigerant control		–		
Air handling equipment Fan type & Q'ty		Centrifugal fan × 2		
Motor	**W**	**60×1**	**100×1**	**100×1**
Starting method		Direct line start		
Air flow(Standard)	**CMM**	**Hi: 14 Me: 12 Lo: 11**	**Hi: 18 Me: 16 Lo: 14**	**Hi: 20 Me: 18 Lo: 15**
Available static pressure (at Hi)	**Pa**	**Standard:50/40, Max:85/90**	**Standard:50/40, Hi Max:85/100**	
Outside air intake		Possible		
Air filter, Q'ty		Installed on site		
Shock & vibration absorber		Rubber sleeve(for fan motor)		
Insulation (noise & heat)		Polyurethane foam		
Operation control Operation switch		**Wired remote control switch (Optional:RC-E3) Wireless kit (Optional)**		
Room temperature control		Thermostat by electronics		
Safety equipment		Internal thermostat for fan motor. Frost protection thermostat		
Installation data Refrigerant piping size	**mm(in)**	**Liquid line:ϕ6.35(1/4") Gas line:ϕ12.7(1/2")**		**Liquid line:ϕ9.52(3/8") Gas line:ϕ15.88(5/8")**
Connecting method		**Flare piping**		
Drain hose		Connectable with VP20 (I.D.20mm, O.D.26mm)		
Insulation for piping		Necessary (both Liquid & Gas lines)		
Accessories		**Drain hose**		
Optional parts		**Filter kit**		

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling*1	27℃	19℃	35℃	24℃	ISO-T1
Heating*2	20℃		7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

• Filter kit (Optional)

Model \ Item	Filter kit No.
FDUM50V	UM-FL1E
FDUM60V, 71V	UM-FL2E

• Wireless kit (Optional)

Model \ Item	Wireless kit
FDUM50V~71V	RCN-KIT3-E

Models FDUM100V, 125V

Item \ Models		FDUM100V	FDUM125V
Nominal cooling capacity*1	**kW**	**10.0**	**12.5**
Nominal heating capacity*2	**kW**	**11.2**	**14.0**
Power source		**1 Phase 220-240V 50Hz/220V 60Hz**	
Noise level	dB(A)	Hi: 37 Me: 35 Lo: 32	Hi: 38 Me: 36 Lo: 33
Exterior dimensions Height × Width × Depth	**mm**	**350 × 1370 × 635**	
Net weight	**kg**	**59**	
Refrigerant equipment Heat exchanger		Louver fin & inner grooved tubing	
Refrigerant control		–	
Air handling equipment Fan type & Q'ty		Centrifugal fan × 3	
Motor	**W**	**50 × 1, 100 × 1**	**50 × 1, 100 × 1**
Starting method		Direct line start	
Air flow(Standard)	**CMM**	**Hi: 28 Me: 25 Lo: 22**	**Hi: 34 Me: 31 Lo: 27**
Available static pressure (at Hi)	**Pa**	**Standard:60/60, Max:90/100**	**Standard:60/55, Max:85/100**
Outside air intake		Possible	
Air filter, Q'ty		Installed on site	
Shock & vibration absorber		Rubber sleeve(for fan motor)	
Insulation (noise & heat)		Polyurethane foam	
Operation control Operation switch		**Wired remote control switch (Optional:RC-E3) Wireless kit (Optional)**	
Room temperature control		Thermostat by electronics	
Safety equipment		Internal thermostat for fan motor. Frost protection thermostat	
Installation data Refrigerant piping size	**mm(in)**	**Liquid line:ϕ9.52(3/8"),Gas line:ϕ15.88(5/8")**	
Connecting method		**Flare piping**	
Drain hose		Connectable with VP20 (I.D.20mm, O.D.26mm)	
Insulation for piping		Necessary (both Liquid & Gas lines)	
Accessories		**Drain hose**	
Optional parts		**Filter kit**	

Notes (1) The data are measured at the following conditions.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling*1	27℃	19℃	35℃	24℃	ISO-T1
Heating*2	20℃		7℃	6℃	

(2) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

• Filter kit (Optional)

Model \ Item	Filter kit No.
FDUM100V, 125V	UM-FL3E

• Wireless kit (Optional)

Model \ Item	Wireless kit
FDUM100V, 125V	RCN-KIT3-E

(2) Outdoor unit

Model FDC71VN

Item \ Model		FDC71VN
Power source		**1 Phase, 220-240V 50Hz / 220V 60Hz**
Nominal cooling capacity(1)	**kW**	**7.1 [3.2~8.0]**
Nominal heating capacity(1)	**kW**	**8.0 [3.6~9.0]**
Noise level	dB(A)	48
Exterior dimensions Height × Width × Depth	**mm**	**750 × 968 × 340**
Net weight	**kg**	**60**
Refrigerant equipment compressor type & Q' ty		2YC45DXD × 1
Starting method		Direct line start
Crankcase heater	W	20
Heat exchanger		Straight fin & inner grooved tubing
Refrigerant control		Electronic expansion valve
Refrigerant		**R410A**
Quantity	**kg**	**2.95 (Pre-charged up to the piping length of 30m)**
Refrigerant oil	ℓ	**0.65 (FVC50K)**
Defrost control		Microcomputer controlled de-icer
Air handling equipment Fan type & Q'ty		Propeller fan × 1
Motor	**W**	**86 × 1**
Starting method		Direct line start
Air flow(Standard)	**CMM**	**Cooling: 60, Heating: 50**
Shock & vibration absorber		Rubber sleeve (for compressor)
Safety equipment		Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ9.52 (3/8") Gas line: ϕ15.88 (5/8")**
Connecting method		**Flare piping**
Drain		Hole size ϕ20 × 3pcs.
Insulation for piping		Necessary (both Liquid & Gas lines)
Accessories		**—**

Notes (1) The cooling and heating capabilities imply the values when the indoor unit of rated capacity is connected under the condition specified in ISO-T1.

(2) The refrigerant quantity in the connecting pipe is not included. Charge it additionally at the site.

(3) Values in [~] show the minimum and maximum capacities.

Model FDC100VN

Item \ Model		FDC100VN
Power source		**1 Phase, 220-240V 50Hz/220V 60Hz**
Nominal cooling capacity(1)	**kW**	**10.0 [4.0~11.2]**
Nominal heating capacity(1)	**kW**	**11.2 [4.0~12.5]**
Noise level	dB(A)	49
Exterior dimensions Height × Width × Depth	**mm**	**845 × 970 × 370**
Net weight	**kg**	**74**
Refrigerant equipment compressor type & Q' ty		RMT5126MDE2 × 1
Starting method		Direct line start
Crankcase heater	W	20
Heat exchanger		Straight fin & inner grooved tubing
Refrigerant control		Electronic expansion valve
Refrigerant		**R410A**
Quantity	**kg**	**3.8 (Pre-charged up to the piping length of 30m)**
Refrigerant oil	ℓ	**0.9 (M-MA68)**
Defrost control		Microcomputer controlled de-icer
Air handling equipment Fan type & Q'ty		Propeller fan × 1
Motor	**W**	**86 ×1**
Starting method		Direct line start
Air flow(Standard)	**CMM**	**Cooling: 75, Heating: 73**
Shock & vibration absorber		Rubber sleeve (for compressor)
Safety equipment		Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ9.52 (3/8") Gas line: ϕ15.88 (5/8")**
Connecting method		**Flare piping**
Drain		Hole size ϕ20 × 3pcs.
Insulation for piping		Necessary (both Liquid & Gas lines)
Accessories		**Edging**

Notes (1) The cooling and heating capabilities imply the values when the indoor unit of rated capacity is connected under the condition specified in ISO-T1.

(2) The refrigerant quantity in the connecting pipe is not included. Charge it additionally at the site.

(3) Values in [~] show the minimum and maximum capacities.

Model FDC100VS

Item	Model	FDC100VS
Power source		**3 Phase, 380-415V 50Hz/380V 60Hz**
Nominal cooling capacity(1)	**kW**	**10.0 [4.0~11.2]**
Nominal heating capacity(1)	**kW**	**11.2 [4.0~12.5]**
Noise level	dB(A)	49
Exterior dimensions Height × Width × Depth	**mm**	**845 × 970 × 370**
Net weight	**kg**	**74**
Refrigerant equipment compressor type & Q' ty		RMT5126MDE3 × 1
Starting method		Direct line start
Crankcase heater	W	20
Heat exchanger		Straight fin & inner grooved tubing
Refrigerant control		Electronic expansion valve
Refrigerant		**R410A**
Quantity	**kg**	**3.8 (Pre-charged up to the piping length of 30m)**
Refrigerant oil	ℓ	**0.9 (M-MA68)**
Defrost control		Microcomputer controlled de-icer
Air handling equipment Fan type & Q'ty		Propeller fan × 1
Motor	**W**	**86×1**
Starting method		Direct line start
Air flow(Standard)	**CMM**	**Cooling: 75, Heating: 73**
Shock & vibration absorber		Rubber sleeve (for compressor)
Safety equipment		Internal thermostat for fan motor. Anomalous discharge temperature protection.
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ9.52 (3/8") Gas line: ϕ15.88 (5/8")**
Connecting method		**Flare piping**
Drain		Hole size ϕ20 × 3pcs.
Insulation for piping		Necessary (both Liquid & Gas lines)
Accessories		**Edging**

Notes (1) The cooling and heating capabilities imply the values when the indoor unit of rated capacity is connected under the condition specified in ISO-T1.

(2) The refrigerant quantity in the connecting pipe is not included. Charge it additionally at the site.

(3) Values in [~] show the minimum and maximum capacities.

Models FDC125VN, 140VN

Item \ Model		FDC125VN	FDC140VN
Power source		**1 Phase, 220-240V 50Hz/220V 60Hz**	
Nominal cooling capacity(1)	**kW**	**12.5 [5.0~14.0]**	**14.0 [5.0~14.5]**
Nominal heating capacity(1)	**kW**	**14.0 [4.0~16.0]**	**16.0 [4.0~16.5]**
Noise level	dB(A)	Cooling: 50, Heating: 51	51
Exterior dimensions Height × Width × Depth	**mm**	**845 × 970 × 370**	
Net weight	**kg**	**74**	
Refrigerant equipment compressor type & Q' ty		RMT5126MDE2 × 1	
Starting method		Direct line start	
Crankcase heater	W	20	
Heat exchanger		Straight fin & inner grooved tubing	
Refrigerant control		Electronic expansion valve	
Refrigerant		**R410A**	
Quantity	**kg**	**3.8 (Pre-charged up to the piping length of 30m)**	
Refrigerant oil	ℓ	**0.9 (M-MA68)**	
Defrost control		Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty		Propeller fan × 1	
Motor	**W**	**86 ×1**	
Starting method		Direct line start	
Air flow(Standard)	**CMM**	**Cooling: 75, Heating: 73**	
Shock & vibration absorber		Rubber sleeve (for compressor)	
Safety equipment		Internal thermostat for fan motor. Anomalous discharge temperature protection.	
Installation data Refrigerant piping size	**mm(in)**	**Liquid line: ϕ9.52 (3/8") Gas line: ϕ15.88 (5/8")**	
Connecting method		**Flare piping**	
Drain		Hole size ϕ20 × 3pcs.	
Insulation for piping		Necessary (both Liquid & Gas lines)	
Accessories		**Edging**	

Notes (1) The cooling and heating capabilities imply the values when the indoor unit of rated capacity is connected under the condition specified in ISO-T1.

(2) The refrigerant quantity in the connecting pipe is not included. Charge it additionally at the site.

(3) Values in [~] show the minimum and maximum capacities.

Models FDC125VS, 140VS

Item \ Model		FDC125VS	FDC140VS
Power source		**3 Phase, 380-415V 50Hz/380V 60Hz**	
Nominal cooling capacity(1)	**kW**	**12.5 [5.0~14.0]**	**14.0 [5.0~14.5]**
Nominal heating capacity(1)	**kW**	**14.0 [4.0~16.0]**	**16.0 [4.0~16.5]**
Noise level	dB(A)	Cooling: 50, Heating: 51	51
Exterior dimensions Height × Width × Depth	**mm**	**845 × 970 × 370**	
Net weight	**kg**	**74**	
Refrigerant equipment compressor type & Q' ty		RMT5126MDE2 × 1	
Starting method		Direct line start	
Crankcase heater	W	20	
Heat exchanger		Straight fin & inner grooved tubing	
Refrigerant control		Electronic expansion valve	
Refrigerant		**R410A**	
Quantity	**kg**	**3.8 (Pre-charged up to the piping length of 30m)**	
Refrigerant oil	ℓ	**0.9 (M-MA68)**	
Defrost control		Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty		Propeller fan × 1	
Motor	**W**	**86×1**	
Starting method		Direct line start	
Air flow(Standard)	**CMM**	**Cooling: 75, Heating: 73**	
Shock & vibration absorber		Rubber sleeve (for compressor)	
Safety equipment		Internal thermostat for fan motor. Anomalous discharge temperature protection.	
Installation data Refrigerant piping size	**mm(in)**	**Liquid line:ϕ9.52 (3/8") Gas line: ϕ15.88 (5/8")**	
Connecting method		**Flare piping**	
Drain		Hole size ϕ20 × 3pcs.	
Insulation for piping		Necessary (both Liquid & Gas lines)	
Accessories		**Edging**	

Notes (1) The cooling and heating capabilities imply the values when the indoor unit of rated capacity is connected under the condition specified in ISO-T1.

(2) The refrigerant quantity in the connecting pipe is not included. Charge it additionally at the site.

(3) Values in [~] show the minimum and maximum capacities.

Models FDC200VS, 250VS

Item \ Model		FDC200VS	FDC250VS
Power source		**3 Phase, 380-415V 50Hz/380V 60Hz**	
Nominal cooling capacity(1)	**kW**	**20.0 [7.0~22.4]**	**25.0 [10.6~28.0]**
Nominal heating capacity(1)	**kW**	**22.4 [7.6~25.0]**	**28.0 [9.5~31.5]**
Noise level	dB(A)	57	Cooling: 57, Heating: 58
Exterior dimensions Height × Width × Depth	**mm**	**1300 ×970 × 370**	**1505 ×970 × 370**
Net weight	**kg**	**122**	**140**
Refrigerant equipment compressor type & Q' ty		GTC5150ND70K × 1	
Starting method		Direct line start	
Crankcase heater	W	33	
Heat exchanger		Straight fin & inner grooved tubing	
Refrigerant control		Electronic expansion valve	
Refrigerant		**R410A**	
Quantity	**kg**	**5.4 (Pre-charged up to the piping length of 30m)**	**7.2 (Pre-charged up to the piping length of 30m)**
Refrigerant oil	ℓ	**1.45 (M-MA32R)**	
Defrost control		Microcomputer controlled de-icer	
Air handling equipment Fan type & Q'ty		Propeller fan × 2	
Motor	**W**	**86 × 2**	
Starting method		Direct line start	
Air flow(Standard)	**CMM**	**Cooling: 150, Heating: 145**	
Shock & vibration absorber		Rubber sleeve (for compressor)	
Safety equipment		Internal thermostat for fan motor. Anomalous discharge temperature protection.	
Installation data Refrigerant piping size	**mm(in)**	**Liquid line:ϕ9.52 (3/8") Gas line:ϕ22.22 (7/8")**	**Liquid line:ϕ12.7 (1/2") Gas line:ϕ22.22 (7/8")**
Connecting method		**Liquid line: Flare piping, Gas line: Brazing**	
Drain		Hole size ϕ20 × 3pcs.	
Insulation for piping		Necessary (both Liquid & Gas lines)	
Accessories		Reducer kit (Please see 1.5.3), Accessory pipe (Please see 1.5.3)	

Notes (1) The cooling and heating capabilities imply the values when the indoor unit of rated capacity is connected under the condition specified in ISO-T1.

(2) The refrigerant quantity in the connecting pipe is not included. Charge it additionally at the site.

(3) Values in [~] show the minimum and maximum capacities.

(3) Operation chart

The Multi-Type V series is a system that allows for different models and capacities of indoor units to be connected so the individual operating characteristics of the indoor and outdoor are provided. Use the procedure shown in Item (c) to calculate the combined operating characteristics.

(a) Operating characteristic of outdoor unit

(220-240V 50Hz/220V 60Hz)

Item \ Model		FDC71VN	FDC100VN	FDC125VN	FDC140VN
Cooling power consumption	kW	2.02/2.02	2.62/2.62	3.91/3.91	4.51/4.51
Heating power consumption		2.16/2.16	2.60/2.60	3.63/3.63	4.40/4.40
Cooling running current	A	10.4/10.4	11.7/12.3	17.3/18.2	20.4/21.4
Heating running current		11.1/11.1	11.6/12.2	16.2/16.9	19.5/20.4
Inrush current (L.R.A) <Max. running current>	A	5 <17>	5 <24>		

(380-415V 50Hz/380V 60Hz)

Item \ Model		FDC100VS	FDC125VS	FDC140VS
Cooling power consumption	kW	2.62/2.62	3.91/3.91	4.51/4.51
Heating power consumption		2.60/2.60	3.63/3.63	4.40/4.40
Cooling running current	A	3.8/4.0	5.5/5.9	6.5/6.9
Heating running current		3.8/4.0	5.1/5.5	6.3/7.0
Inrush current (L.R.A) <Max. running current>	A	5 <15>		

(380-415V 50Hz/380V 60Hz)

Item \ Model		FDC200VS	FDC250VS
Cooling power consumption	kW	6.34/6.34	8.71/8.71
Heating power consumption		6.20/6.20	7.75/7.75
Cooling running current	A	9.1/9.1	12.7/12.7
Heating running current		9.0/9.0	11.4/11.4
Inrush current (L.R.A) <Max. running current>	A	5 <24>	5 <27>

Note (1) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"

(b) Operating characteristic of indoor unit

FDTC Series (220-240V 50Hz/220V 60Hz)

Item \ Model		FDTC40V	FDTC50V
Cooling power consumption	kW	0.04-0.04/0.04	
Heating power consumption		0.04-0.04/0.04	
Cooling running current	A	0.15-0.14/0.15	
Heating running current		0.15-0.14/0.15	

FDT Series (220-240V 50Hz/220V 60Hz)

Item \ Model		FDT40V	FDT50V	FDT60V	FDT71V	FDT100V	FDT125V
Cooling power consumption	kW	0.030-0.030/0.030	0.040-0.040/0.040	0.100-0.100/0.100		0.136-0.136/0.136	
Heating power consumption		0.030-0.030/0.030	0.040-0.040/0.040	0.100-0.100/0.100		0.136-0.136/0.136	
Cooling running current	A	0.20-0.18/0.20	0.20-0.18/0.20	0.30-0.28/0.30		0.45-0.40/0.45	
Heating running current		0.20-0.18/0.20	0.20-0.18/0.20	0.30-0.28/0.30		0.45-0.40/0.45	

FDEN Series (220-240V 50Hz/220V 60Hz)

Item \ Model		FDEN40V	FDEN50V	FDEN60V	FDEN71V	FDEN100V	FDEN125V
Cooling power consumption	kW	0.05-0.06/0.06		0.10-0.11/0.11		0.14-0.16/0.16	0.16-0.18/0.20
Heating power consumption		0.05-0.06/0.06		0.09-0.10/0.10		0.13-0.15/0.15	0.15-0.17/0.18
Cooling running current	A	0.25-0.26/0.29		0.46-0.48/0.50		0.65-0.67/0.77	0.77-0.78/0.91
Heating running current		0.23-0.25/0.28		0.42-0.44/0.46		0.59-0.63/0.70	0.70-0.72/0.83

Notes (1) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"
(2) The values shown in the above table are common to both cooling and heating operations.

FDUM Series (220-240V 50Hz/220V 60Hz)

Item \ Model		FDUM50V	FDUM60V	FDUM71V	FDUM100V	FDUM125V
Cooling power consumption	kW	0.14-0.16/0.14	0.15-0.17/0.15	0.16-0.19/0.16	0.24-0.28/0.24	0.28-0.32/0.32
Heating power consumption		0.14-0.16/0.14	0.15-0.17/0.15	0.16-0.19/0.16	0.24-0.28/0.24	0.28-0.32/0.32
Cooling running current	A	0.63-0.67/0.63	0.68-0.71/0.68	0.73-0.79/0.73	1.07-1.17/1.07	1.28-1.32/1.28
Heating running current		0.63-0.67/0.63	0.68-0.71/0.68	0.73-0.79/0.73	1.07-1.17/1.07	1.28-1.32/1.28

Notes (1) This packaged air-conditioner is manufactured and tested in conformity with the following standard.
ISO-T1 "UNITARY AIR-CONDITIONERS"
(2) The values shown in the above table are common to both cooling and heating operations.

(c) Calculation of total operation characteristics

Since the operation characteristics of series Multi depend on combination of indoor unit, calculate the total operation characteristics of the system by using the formulas below according to specifications of each indoor unit or outdoor unit.

1) 1 Phase models

a) Total power consumption

Total power consumption (kW) = Power consumption of outdoor unit + ∑ (Power consumption of indoor unit)

b) Total running current

Total running current (A) = Running current of outdoor unit + ∑ (Running current of indoor unit)

c) Total power factor

Total power factor (%) = [Total power consumption (W) / Total running current (A) × Power source] × 100

Total operation characteristics = Operation characteristic value of outdoor unit + Operation characteristic value of indoor unit

[Example]

(Conditions) Operation Voltage ····· Indoor unit: 220 V, 50 Hz
Outdoor unit: 220 V, 50 Hz
Operation mode ····· Cooling and Heating
Unit····· Outdoor unit: FDC140VN × 1 unit
Indoor unit: FDT71V × 2 units

Operation characteristics of each unit (Cooling/Heating)

Item \ Model	FDC140VN	FDT71V
Power consumption (kW)	4.51/4.40	0.100/0.100
Running current (A)	20.4/19.5	0.30/0.30

① Total power consumption (kW)

(Cooling) 4.51 + (0.100 × 2) = 4.71

(Heating) 4.40 + (0.100 × 2) = 4.60

② Total running current (A)

(Cooling) 20.4 + (0.30 × 2) = 21.0

(Heating) 19.5 + (0.30 × 2) = 20.1

③ Total power factor (%)

(Cooling) $\frac{4.71 \times 1000}{21.0 \times 220} \times 100 \fallingdotseq 99\ \%$

(Heating) $\frac{4.60 \times 1000}{20.1 \times 220} \times 100 \fallingdotseq 99\ \%$

2) 3 Phase models

a) Total power consumption

Total power consumption (kW) = Power consumption of outdoor unit + ∑ (Power consumption of indoor unit)

b) Total running current

Total running current (A) = Running current of outdoor unit + [∑ (Running current of indoor unit) × 1/3]

c) Total power factor

Total power factor (%) = [Total power consumption (W) /$\sqrt{3}$ × Total running current (A) × Power source] × 100

Total operation characteristics = Operation characteristic value of outdoor unit + Operation characteristic value of indoor unit

[Example]

(Conditions) Operation Voltage ····· Indoor unit: 220 V, 50 Hz
Outdoor unit: 380 V, 50 Hz
Operation mode ····· Cooling and Heating
Unit····· Outdoor unit: FDC200VS × 1 unit
Indoor unit: FDT71V × 1 unit, FDT125V × 1 unit

Operation characteristics of each unit

(Cooling/Heating)

Item \ Model	FDC200VS	FDT71V	FDT125V
Power consumption (kW)	6.34/6.20	0.100/0.100	0.136/0.136
Running current (A)	9.1/9.0	0.30/0.30	0.45/0.45

① Total power consumption (kW)

(Cooling) 6.34 + 0.100 + 0.136 ≒ 6.58 (kW)

(Heating) 6.20 + 0.100 + 0.136 ≒ 6.44 (kW)

② Total running current (A)

(Cooling) $9.1 + \left[(0.30 + 0.45) \times \frac{1}{3}\right] \fallingdotseq 9.6$ (A)

(Heating) $9.0 + \left[(0.30 + 0.45) \times \frac{1}{3}\right] \fallingdotseq 9.5$ (A)

③ Total power factor (%)

(Cooling) $\frac{6.58 \times 1000}{\sqrt{3} \times 9.6 \times 380} \times 100 \fallingdotseq 99\ \%$

(Heating) $\frac{6.44 \times 1000}{\sqrt{3} \times 9.5 \times 380} \times 100 \fallingdotseq 99\ \%$

2.2.2 Range of usage & limitations

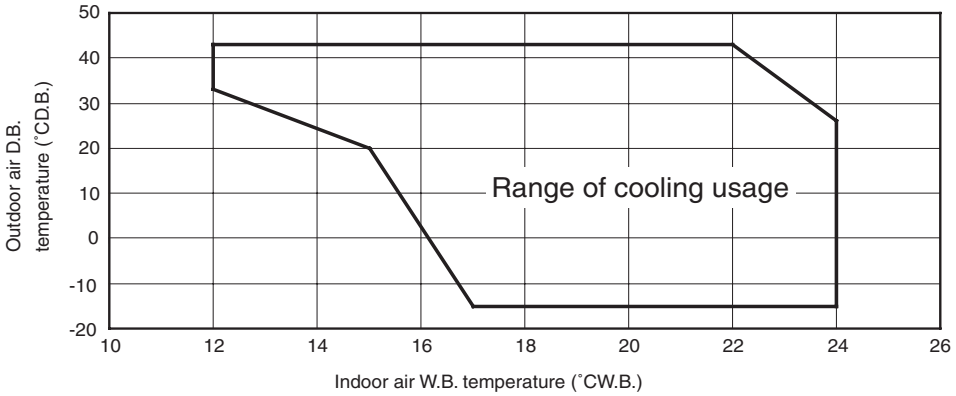
Item \ Model		FDC71~140	FDC200, 250
Indoor return air temperature (Upper, lower limits)		Please see the next page.	
Outdoor air temperature (Upper, lower limits)			
Operating temperature		**When used under -5ºC, install a snow hood (option).**	
Indoor unit atmosphere (behind ceiling) temperature and humidity		Dew point temperature: 28ºC or less, relative humidity: 80% or less	
Airflow volume/static pressure		Use ducts and blow outlets of better heat insulation within the characteristics of blower. (FDUM)	
Heat insulation of refrigerant pipes		Heat insulation of 20 mm or more in thickness is necessary in the ceiling, etc, where the relative humidity exceeds 70%.	
Heat insulation of drain pipes		Heat insulation of 10 mm or more in thickness is necessary in the ceiling, etc, where the relative humidity exceeds 70%.	
Refrigerant line (one way) length(5)		**Max. 50m**	**Max. 70m***
Vertical height difference between outdoor unit and indoor unit		Max. 30m (Outdoor unit is higher) Max. 15m (Outdoor unit is lower)	
Installation site		**The outline drawing contains restrictions concerning the installation space. Install the indoor unit 2.5m or above higher than the floor surface.**	
Power source voltage		Rating ± 10%	
Voltage at starting		Min. 85% of rating	
Compressor ON - OFF Frequency	Cycle Time	7 minutes or more (from OFF to OFF) or (from ON to ON)	
	Stop Time	3 minutes or more	

Notes (1) Do not install the unit at the following places.
- Places exposed to oil splashes or steam (e.g. kitchens and machine plants).
- Places where inflammable gas may leak.
- Places containing a great amount of sulfide gases (e.g. hot spring area).
- Places directly exposed to sea breeze (e.g. coastal area).
- Places containing acid or alkaline air.
- Places adjacent to equipment generating electromagnetic waves or high-frequency waves.
- Places sucking the exhaust gas from heat exchanger.
- Do not install the unit on an object moistened with water.
- Places where carbon fiber and metal particles, powder, etc. are floating.
- Places where chimney smoke is hanging.
- Places at an elevation of 1000m and above.
- Places splashed with water (laundry room, etc.).
- The indoor unit is not protected against water penetration.
- Do not install indoor units of twin, triple and double-twin specifications separately in a room with partition.
- Where matters affecting devices, such as sulfuric gas, chlorine gas, acid, alkali, etc, may generate or accumulate.
- Where cosmetics or special sprays are used frequently.
- Installation on mobile thing such as vehicle, ship, etc.
- Where snow falls heavily. (Including where snow melting agent is spreaded)
- Where light beams that affect the receiving device fly arond, in case of the wireless specification.

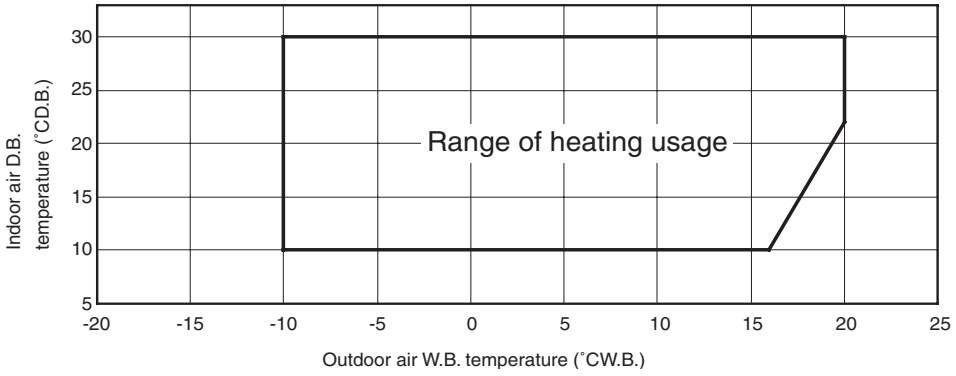
(2) If ambient temperature and humidity exceed the above values, please add polyurethane foam insulation to the outer plate (t10 and above).
(3) Please set the lower limit of one-way piping length to 5m and above.
(4) When ø22.22 gas pipe is used for piping lengths with the ∗ mark, let the maximum one-way length be 30m.
(5) For details of the pipe length specification, refer to next page.

Operating temperature range

■ Cooling

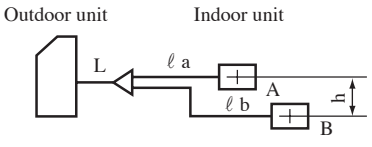


■ Heating



Height and length restrictions for refrigerant piping

Twin type



Models 71~140

One-way pipe length (m) $L + \ell a + \ell b \leqq 50$

Branch pipe length (m) $|\ell a - \ell b| \leqq 10,\ \ell a \leqq 30,\ \ell b \leqq 30$

Difference in height between indoor units (m) h=0.5 or less

Models 200, 250

One-way pipe length (m) $L + \ell a \leqq 70,\ L + \ell b \leqq 70$

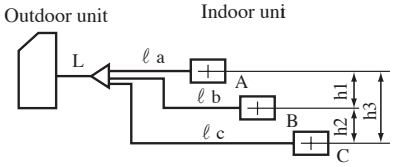
Branch pipe length (m) $|\ell a - \ell b| \leqq 10,\ \ell a \leqq 30,\ \ell b \leqq 30$

Difference in height between indoor units (m) h=0.5 or less

Triple type

■ The Indoor_outdoor piping length differences among indoor units are less than 3m.

Model 140, 200 only



Model 140

One-way pipe length (m) $L + \ell a + \ell b + \ell c \leqq 50$

Branch pipe length (m) $|\ell a - \ell b| < 3,\ |\ell a - \ell c| < 3,\ |\ell b - \ell c| < 3$
$\ell a \leqq 30,\ \ell b \leqq 30,\ \ell c \leqq 30$

Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less, h3=0.5 or less

Model 200

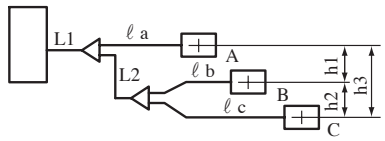
One-way pipe length (m) $L + \ell a \leqq 70,\ L + \ell b \leqq 70,\ L + \ell c \leqq 70$

Branch pipe length (m) $|\ell a - \ell b| < 3,\ |\ell a - \ell c| < 3,\ |\ell b - \ell c| < 3$
$\ell a \leqq 30,\ \ell b \leqq 30,\ \ell c \leqq 30$

Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less, h3=0.5 or less

Model 250 only

Outdoor unit Indoor unit



Note(1) The unit that requires the longest one-way piping length should be connected to the ℓ a piping line.

Model 250

One-way pipe length (m) L1 + ℓ a ≦ 70, L1 + L2 + ℓ b ≦ 70, L1 + L2 + ℓ c ≦ 70

Branch pipe length (m) ℓ a – (L2 + ℓ b) < 3, ℓ a – (L2 + ℓ c) | < 3, | ℓ b – ℓ c | < 3
ℓ a ≦ 30, L2 + ℓ b ≦ 30, L2 + ℓ c ≦ 30, L2 ≦ 5

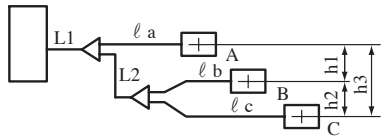
Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less, h3=0.5 or less

Note(2) In case of model 250, the application that the indoor_outdoor piping length differences among indoor units are 3m or more is prohibited.

■ **The Indoor_outdoor piping length differences among indoor units are 3m or more.**

Models 140, 200 only

Outdoor unit Indoor unit



Note(1) The unit that requires the longest one-way piping length should be connected to the ℓ a piping line.

Model 140

One-way pipe length (m) L1 + L2 + ℓ a + ℓ b + ℓ c ≦ 50

Branch pipe length (m) 3 ≦ ℓ a – (L2 + ℓ b) ≦ 10, 3 ≦ ℓ a – (L2 + ℓ c) ≦ 10, | ℓ b – ℓ c | ≦ 10
ℓ a ≦ 30, L2 + ℓ b ≦ 27, L2 + ℓ c ≦ 27, L2 ≦ 5

Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less, h3=0.5 or less

Model 200

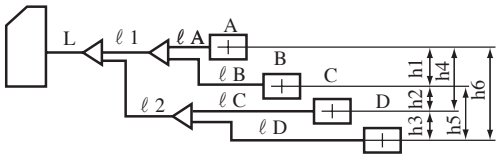
One-way pipe length (m) L1 + ℓ a ≦ 70, L1 + L2 + ℓ b ≦ 70, L1 + L2 + ℓ c ≦ 70

Branch pipe length (m) 3 ≦ ℓ a – (L2 + ℓ b) ≦ 10, 3 ≦ ℓ a – (L2 + ℓ c) ≦ 10, | ℓ b – ℓ c | ≦ 10
ℓ a ≦ 30, L2 + ℓ b ≦ 27, L2 + ℓ c ≦ 27, L2 ≦ 5

Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less, h3=0.5 or less

Double-twin type

Outdoor unit Indoor unit



Models 200, 250

One-way pipe length (m) L + ℓ 1 + ℓ A ≦ 70, L + ℓ 1 + ℓ B ≦ 70, L + ℓ 2 + ℓ C ≦ 70,
L + ℓ 2 + ℓ D ≦ 70

Branch pipe length (m) ℓ A – ℓ B ≦ 10, ℓ C – ℓ D ≦ 10
(ℓ 1 + ℓ A) – (ℓ 2 + ℓ C) ≦ 10, (ℓ 1 + ℓ A) – (ℓ 2 + ℓ D) ≦ 10
(ℓ 1 + ℓ B) – (ℓ 2 + ℓ C) ≦ 10, (ℓ 1 + ℓ B) – (ℓ 2 + ℓ D) ≦ 10
ℓ 1 + ℓ A ≦ 30, ℓ 1 + ℓ B ≦ 30, ℓ 2 + ℓ C ≦ 30, ℓ 2 + ℓ D ≦ 30
ℓ A + ℓ B ≦ 15, ℓ C + ℓ D ≦ 15

Difference in height between indoor units (m) h1=0.5 or less, h2=0.5 or less
h3=0.5 or less, h4=0.5 or less
h5=0.5 or less, h6=0.5 or less

In the illustration the L is main piping and ℓ 1, ℓ 2, ℓ A, ℓ B, ℓ C and ℓ D are branch piping.

Request

(1) When 40-60 models of indoor units are applied to V-multi usage, be sure to use the liquid piping size ø9.52mm for the piping between branch and indoor unit. (for double-twin type only)
For the connections to the indoor units, be sure to reduce the liquid piping size to ø6.35mm just before the indoor unit by using reducer included in the branch piping kit as optional part.

(2) Regarding the branching, be sure to use the specified branch piping kit as optional part and install it to have a level or perpendicular position according to the description of instruction manual attached to the branch piping kit.

2.2.3 Exterior dimensions

Details are the same as in chapter 1.2.3 see page 90.

2.2.4 Exterior appearance

Details are the same as in chapter 1.2.4 see page 109.

2.2.5 Piping system

Details are the same as in chapter 1.2.5 see page 111.

2.2.6 Selection chart

Details are the same as in chapter 1.2.6 see page 118.

2.2.7 Characteristics of fan

Details are the same as in chapter 1.2.7 see page 130.

2.2.8 Noise level

Details are the same as in chapter 1.2.8 see page 136.

2.3 ELECTRICAL WIRING

Details are the same as in chapter 1.3 see page 140.

2.4 OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

Details are the same as in chapter 1.4 see page 151.

2.5 APPLICATION DATE

Except below mentioned items, see chapter 1.5 in page 178.

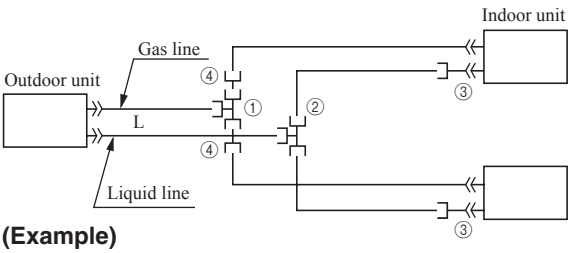
(1) Refrigerant piping work

Select the piping to match the specification of indoor unit and installation.

(a) Decision of piping specification

(i) Twin type

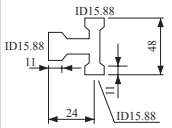
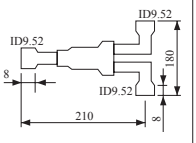
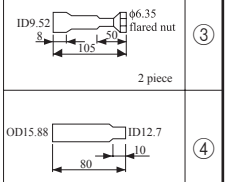
Models FDC71~140 [Branch pipe set : DIS-WA1]



(Example)

Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC71	40 + 40	φ 9.52 × t 0.8	φ 9.52 × t 0.8	φ 15.88 × t 1.0	φ12.7 × t 0.8
FDC100	50 + 50				
FDC125	60 + 60				φ 15.88 × t 1.0
FDC140	71 + 71				

Chart of shapes of branch piping parts (DIS-WA1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③ ④

Notes (1) Symbol ① to ④ in the drawing shows the symbols of branch piping parts in the chart respectivelys.

(2) Branch piping should always be arranged to have level or perpendicular position.

(See the next page.)

Notes (1) When 40-60 models of indoor units are applied to this combination, the reducer ③ supplied with the branch piping set should be used in order to reduce the liquid piping size from φ9.52mm to φ6.35mm at indoor unit side (flare connection). Accordingly be sure to select the liquid piping size φ9.52mm from branch to indoor unit.

(2) The reducer ④ is for FDC71 and 100 models only

Models FDC200, 250 [Branch pipe set : DIS-WB1]

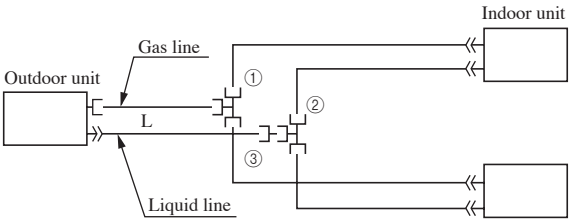
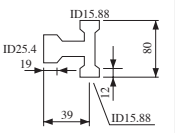
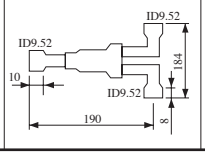
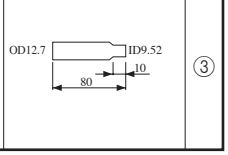


Chart of shapes of branch piping parts (DIS-WB1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③

(Example)

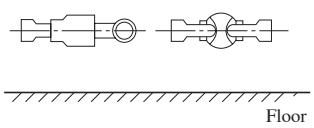
Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC200	100 + 100	ϕ 9.52 × t 0.8	ϕ 9.52 × t 0.8	ϕ 22.22 × t 1.6	ϕ 15.88 × t 1.0
FDC250	125 + 125	ϕ 12.7 × t 0.8			

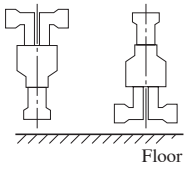
Notes (1) Symbol ① to ③ in the drawing shows the symbols of branch piping parts in the chart respectivelys.
(2) Branch piping should always be arranged to have level or perpendicular position. (See the below figure.)

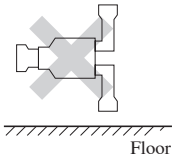
Notes (1) For model FDC200, when the length of the main piping "L" exceeds 30m, ϕ12.7mm liquid pipe should be used. If ϕ9.52mm liquid pipe is used instead of ϕ12.7mm, it may cause performance degradation and/or leakage of condensate from indoor unit.
(2) Minimum one-way piping length should be 3m. If the piping length is less than 3m, the precharged amount of refrigerant should be reduced at site by recovering refrigerant and recharging proper amount according to the instruction of our distributor.

- **The branch piping (both gas and liquid lines) should always be arranged to have a level or perpendicular position.**

< 2-Way Branch >



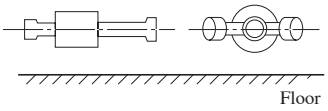


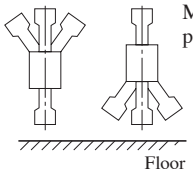


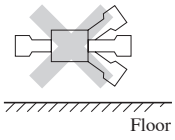
Mount —·— sections level with the floor.

Mount —·— sections perpendicular to the floor.

< 3-Way Branch >







(ii) Triple type

■ The indoor_outdoor piping length differences among indoor units are less than 3m.

Model FDC140 [Branch pipe set : DIS-TA1]

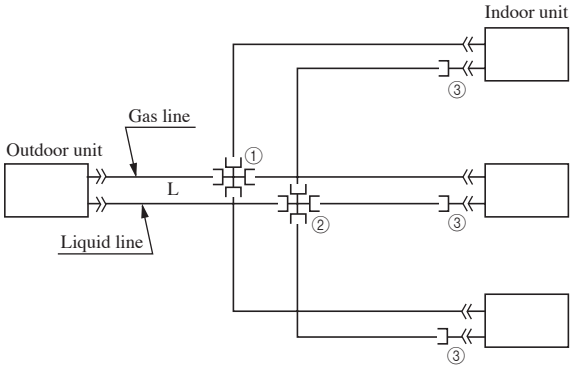
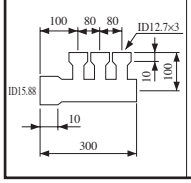
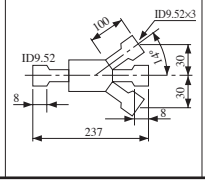
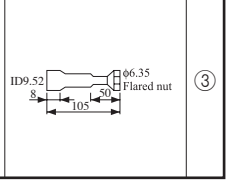


Chart of shapes of branch piping parts (DIS-TA1)

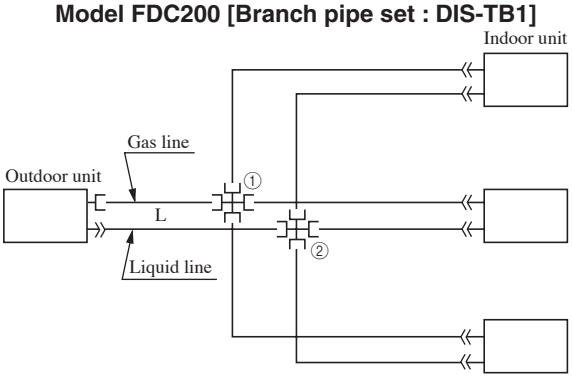
Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③

Notes (1) Symbol ① to ③ in the drawing shows the symbols of branch piping parts in the chart respectively.
(2) Branch piping should always be arranged to have level or perpendicular position. (See the above figure.)

Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC140	50 + 50 + 50	ϕ 9.52 × t 0.8	ϕ 9.52 × t 0.8	ϕ 15.88 × t 1.0	ϕ 12.7 × t 0.8

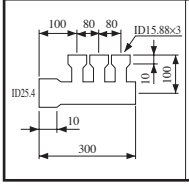
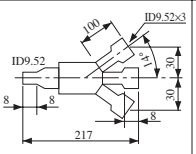
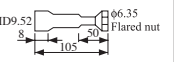
Notes (1) The reducer ③ supplied with the branch piping set should be used in order to reduce the liquid piping size from ϕ9.52mm to ϕ6.35mm at indoor unit side (flare connection). Accordingly be sure to select the liquid piping size ϕ9.52mm from branch to indoor unit.

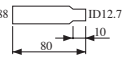
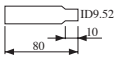
Model FDC200 [Branch pipe set : DIS-TB1]



Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC200	71 + 71 + 71	ϕ 9.52 × t 0.8	ϕ 9.52 × t 0.8	ϕ 22.22 × 1.6	ϕ 15.88 × t 0.8

Chart of shapes of branch piping parts (DIS-TB1)

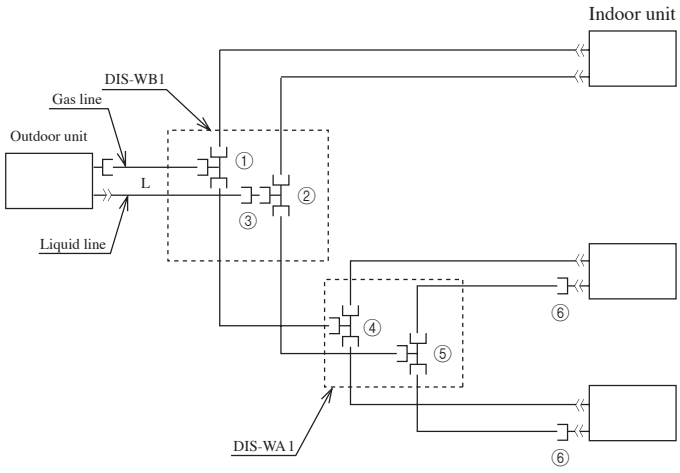
Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		–

Reducer	Symbol	Reducer	Symbol
	–		–

Notes (1) Symbol ① to ② in the drawing shows the symbols of branch piping parts in the chart respectively.
(2) Branch piping should always be arranged to have level or perpendicular position. (Refer to the 348 page for details)

Notes (1) For model FDC200, when the length of the main piping "L" exceeds 30m, ϕ12.7mm liquid pipe should be used. If ϕ9.52mm liquid pipe is used instead of ϕ12.7mm, it may cause performance degradation and/or leakage of condensate from indoor unit.

Model FDC250 [Branch pipe set : DIS-WA1×1set, DIS-WB1×1set]



Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC250	60 + 60 + 125	12.7 × t 0.8	9.52 × t 0.8	22.22 × t 1.0	15.88 × t 1.0
	71 + 71 + 100				

Chart of shapes of branch piping parts (DIS-WB1)

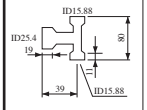
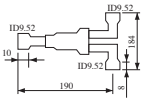
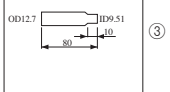
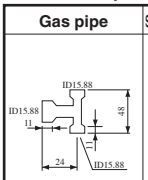
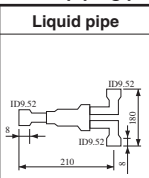
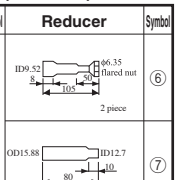
Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③

Chart of shapes of branch piping parts (DIS-WA1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	④		⑤		⑥ ⑦

Notes (1) Symbol ① to ⑦ in the drawing shows the symbols of branch piping parts in the chart respectively.
(2) Branch piping should always be arranged to have level or perpendicular position. (Refer to the 348 page for details.)

Notes (1) The reducer ⑥ supplied with the branch piping set should be used in order to reduce the liquid piping size from ϕ9.52mm to ϕ6.35mm at indoor unit side (flare connection). Accordingly be sure to select the liquid piping size ϕ9.52mm from branch to indoor unit.
(2) The reducer ⑥ is for indoor unit model 60 only

■ **The indoor_outdoor piping length differences among indoor units are 3m or more. (In case of model 250, the application that the indoor_outdoor piping length differences among indoor units are 3m or more is prohibited.)**

Model FDC140 [Branch pipe set : DIS-WA1 × 2set]

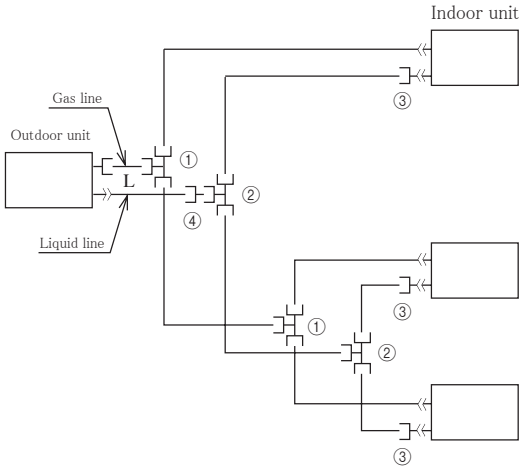
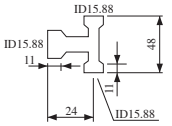
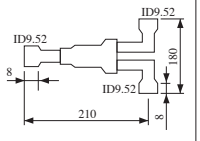
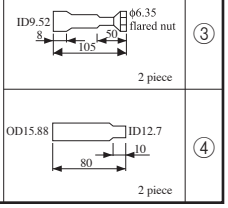


Chart of shapes of branch piping parts (DIS-WA1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③ ④

Notes (1) Symbol ① to ④ in the drawing shows the symbols of branch piping parts in the chart respectively.
(2) Branch piping should always be arranged to have level or perpendicular position. (Refer to the 348 page for details)

Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC140	50+50+50	ϕ9.52 × t 0.8	ϕ9.52 × t 0.8	ϕ15.88 × t 1.0	ϕ15.88 × t 1.0

Note (1) When 50 model of indoor unit is applied to this combination, the reducer ③ supplied with the branch piping set should be used in order to reduce the liquid piping size from ϕ9.52mm to ϕ6.35mm at indoor unit side (flare connection). Accordingly be sure to select the liquid piping size ϕ9.52mm from branch to indoor unit.

Model FDC200 [Branch pipe set : DIS-WB1 × 1set, DIS-WA1 × 1set]

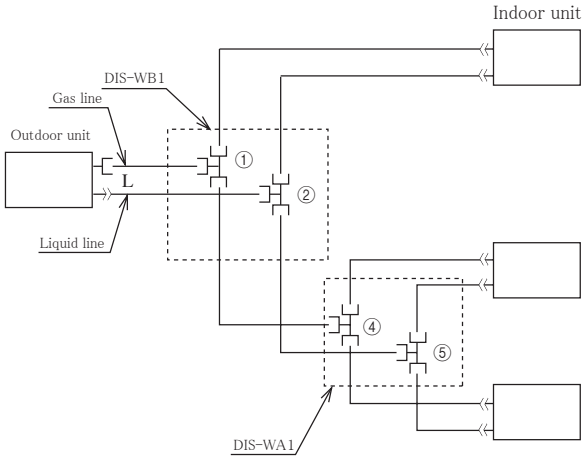


Chart of shapes of branch piping parts (DIS-WB1)

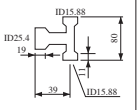
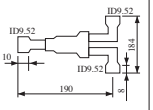
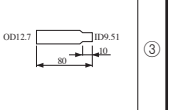
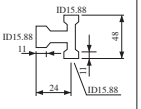
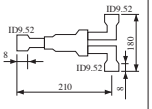
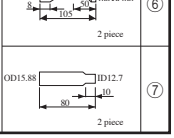
Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③

Chart of shapes of branch piping parts (DIS-WA1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	④		⑤		⑥ ⑦

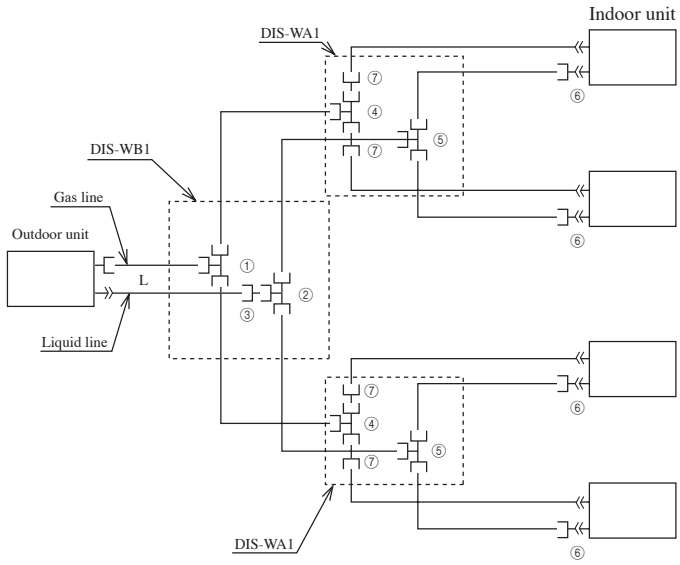
Notes (1) Symbol ① to ⑦ in the drawing shows the symbols of branch piping parts in the chart respectively.
(2) Branch piping should always be arranged to have level or perpendicular position. (Refer to the 348 page for details.)

Item / Model	Indoor unit combinations	Liquid pipe		Gas pipe	
		Main pipe	Branch pipe	Main pipe	Branch pipe
FDC200	71 + 71 + 71	ϕ9.52 × t 0.8	ϕ9.52 × t 0.8	ϕ22.22 × 1.6	ϕ15.88 × t 0.8

Note (1) For model FDC200, when the length of the main piping "L" exceeds 30m, ϕ12.7mm liquid pipe should be used. If ϕ9.52mm liquid pipe is used instead of ϕ12.7mm, it may cause performance degradation and/or leakage of condensate from indoor unit.

(iii) Double twin type

Models FDC200, 250 [Branch pipe set : DIS-WA1 × 2set, DIS-WB1 × 1set]



Item / Model	Indoor unit combinations	Liquid pipe			Gas pipe		
		Main pipe	1st branch pipe	2nd branch pipe	Main pipe	1st branch pipe	2nd branch pipe
FDC200	50 + 50 + 50 + 50	ϕ 9.52 × t 0.8	ϕ 9.52 × t 0.8	ϕ 9.52 × t 0.8	ϕ 22.22 × t 1.6	ϕ 15.88 × t 1.0	ϕ 12.7 × t 0.8
FDC250	60 + 60 + 60 + 60	ϕ 12.7 × t 0.8					ϕ 15.88 × t 1.0

Notes (1) The reducer ⑥ supplied with the branch piping set should be used in order to reduce the liquid piping size from ϕ9.52mm to ϕ6.35mm at indoor unit side (flare connection). Accordingly be sure to select the liquid piping size ϕ9.52mm from branch to indoor unit.
(2) The reducer ⑦ is for FDC200 model only

Chart of shapes of branch piping parts (DIS-WB1)

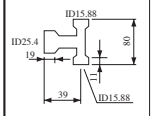
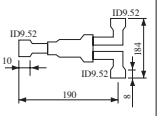
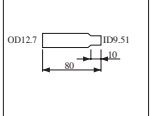
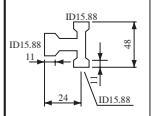
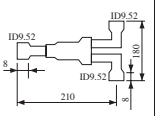
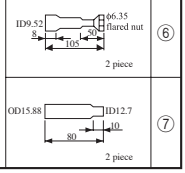
Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	①		②		③

Chart of shapes of branch piping parts (DIS-WA1)

Gas pipe	Symbol	Liquid pipe	Symbol	Reducer	Symbol
	④		⑤		⑥ ⑦

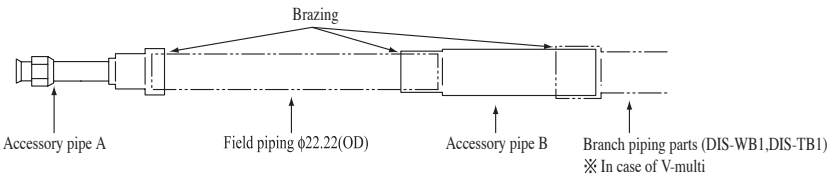
Notes (1) Symbol ① to ⑦ in the drawing shows the symbols of branch piping parts in the chart respectively.
(2) Branch piping should always be arranged to have level or perpendicular position. (Refer to the 348 page for details.)
(3) The reducer ③ is for FDC200 model only

Notes (1) For model FDC200, when the length of the main piping "L" exceeds 30m, ϕ12.7mm liquid pipe should be used. If ϕ9.52mm liquid pipe is used instead of ϕ12.7mm, it may cause performance degradation and/or leakage of condensate from indoor unit.
(2) Minimum one-way piping length should be 3m. If the piping length is less than 3m, the precharged amount of refrigerant should be reduced at site by recovering refrigerant and recharging proper amount according to the instruction of our distributor.

(b) How to use pipe reducer (Attached to FDC200, 250 only)

- ϕ22.22 (OD) size of the refrigerant gas pipe can be used by using the accessory pipe B, although ϕ25.4 (OD) size of the refrigerant gas pipe is standard.
  (When ϕ25.4 (OD) size of the refrigerant gas pipe is used, the accessory pipe B is unnecssary.)
  (∗) OD: Outer diameter.

● Install this accessory pipe according to the following.



2.6 MAINTENANCE DATE

Details are the same as in chapter 1.6 see page 245.

3. WIRELES KIT (OPTIONAL PARTS)

⚠ WARNING

- Fasten the wiring to the terminal securely and hold the cable securely so as not to apply unexpected stress on the terminal.
  Loose connection or hold will cause abnormal heat generation or fire.

- Make sure the power supply is turned off when electric wiring work.
  Otherwise, electric shock, malfunction and improper running may occur.

⚠ CAUTION

- DO NOT install the wireless kit at the following places in order to avoid malfunction.
  (1) Places exposed to direct sunlight
  (2) Places near heat devices
  (3) High humidity places
  (4) Hot surface or cold surface enough to generate condensation
  (5) Places exposed to oil mist or steam directly
  (6) Uneven surface
  (7) Places affected by the direct airflow of the AC unit.
  (8) Places where the receiver is influenced by the fluorescent lamp (especially inverter type) or sunlight.
  (9) Places where the receiver is affected by infrared rays of any other communication devices
  (10) Places where some object may obstruct the communication with the remote controller

- DO NOT leave the wireless kit without the cover.
  In case the cover needs to be detached, protect the receiver with a packaging box or bag in order to keep it away from water and dust.

3.1 FDT SERIES

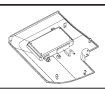
The FDT series is an exclusive series with all wired models. However, these models can also be used wireless units by using the optional wireless kit.

(1) Wireless kit model

Model
RCN-T-36-W-E

(2) Accessories

Please make sure that you have all of the following accessories.

Receiver		1
Wireless remote controller		1
Parts set		1

Remote controller holder		1
Wood screw for holder		2
AAA dry cell battery (RO3)		2

(3) How to install the receiver

The receiver can be installed by replacing with a corner panel on the applicable decorative panel.

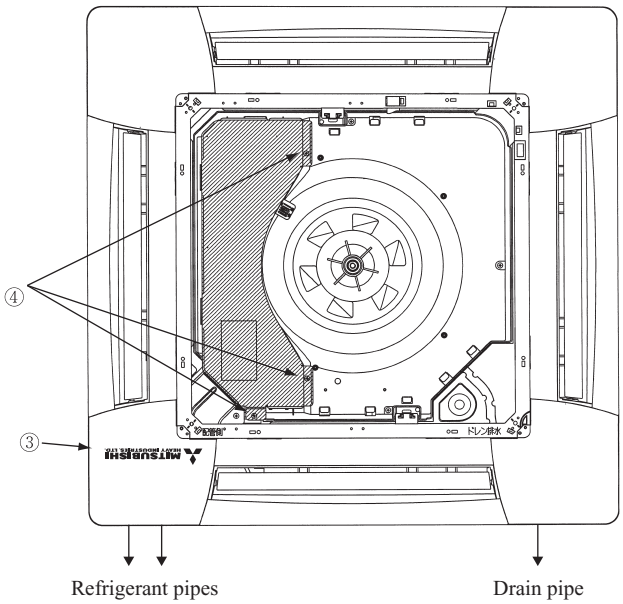
Preparation before installation

① Attach the decorative panel onto the air conditioner according to the installation manual for the panel.

② Remove the air return grille.

③ Remove a corner panel located on the refrigerant pipes side.

④ Remove three screws and detach the cover (indicated as shadowed area) from the control box of the air conditioner.



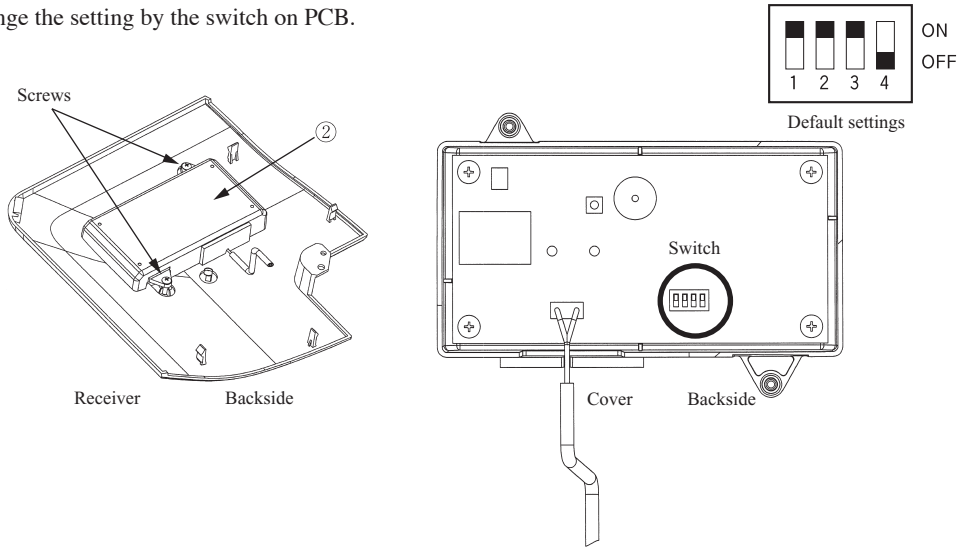
Setting on site

① PCB on the receiver has the following switches to set the functions. Default setting is shown with ☐ mark.

SW1	Customized signal setting to avoid mixed communication	☐ ON : Normal OFF : Remote
SW2	Receiver master/slave setting	☐ ON : Master OFF : Slave
SW3	Buzzer valid/Invalid	☐ ON : Valid OFF : Invalid
SW4	Auto restart	ON : Valid ☐ OFF : Invalid

② Remove the cover by unscrewing two screws from the back of receiver.

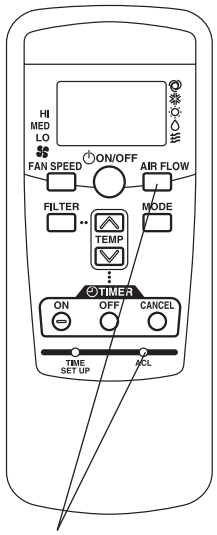
③ Change the setting by the switch on PCB.



④ When SW1 is turned to OFF position, change the corresponding remote controller setting as follows:

How to change the remote controller setting

Pressing ACL and AIR FLOW button at the same time or inserting the batteries with pressing AIR FLOW button will customize the signal.



Radio interference prevention mode

Note

* When the batteries are removed, the setting will return to the default setting. Please make sure to reset it when the batteries are replaced.

Caution

Instruct the customer to set the mentioned above when replacing the batteries. (How to set is also mentioned in the user's manual attached on the air conditioner.)

Installation of the receiver

① Loosen the bolts which fix the panel and make a gap between the panel and the indoor unit

② Put the wiring of the receiver through the opening.

③ Put the wiring on the notch on the control box so as not to be pinched by the control box and lid as shown below.

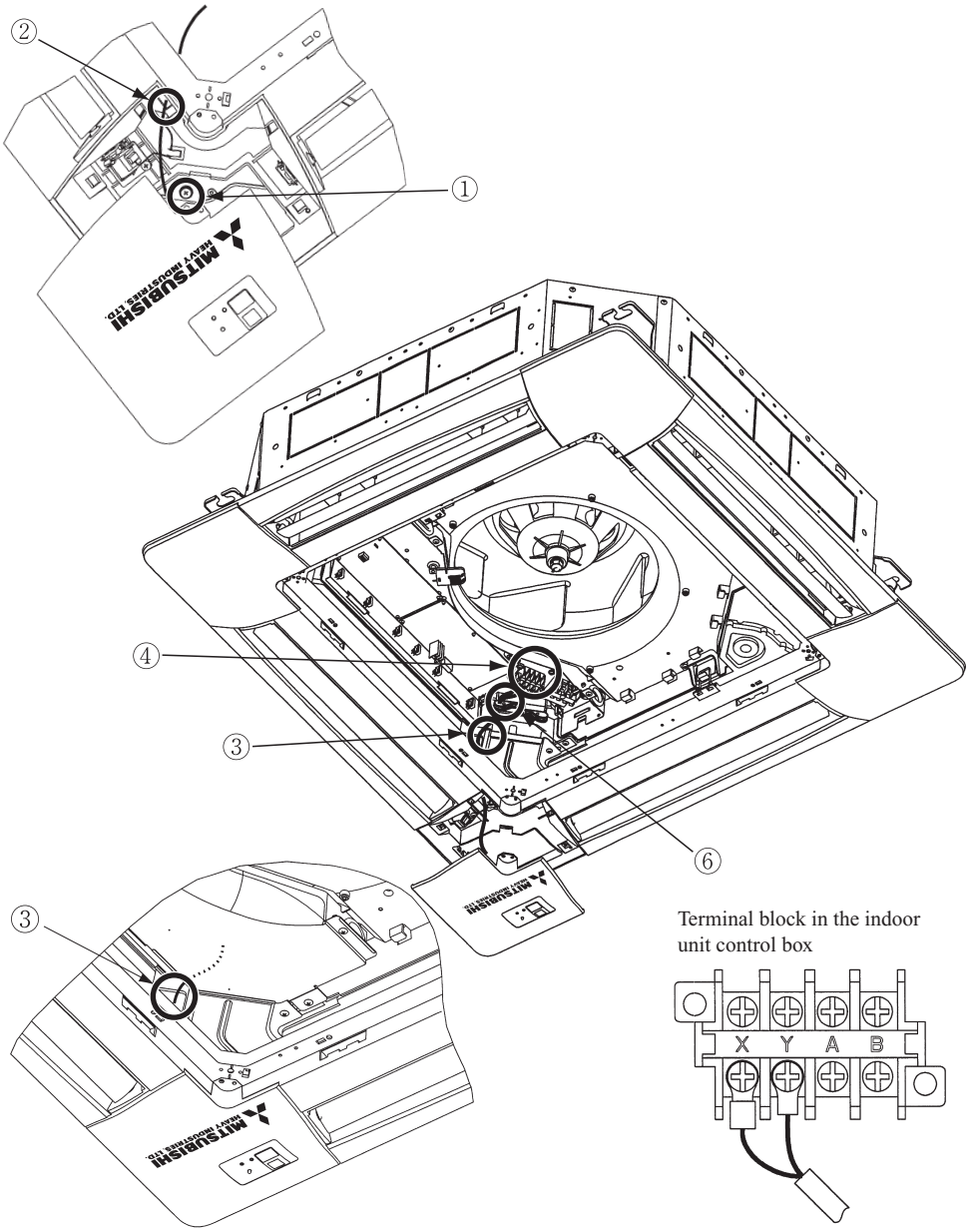
④ Connect the wiring to the terminal block provided in the control box. (Non- polarized)

⑤ Attach the receiver to the panel according to the panel installation manual.

⑥ Fix the wiring with the clamp so that the wiring do not contact the edge of control box's metal sheet.

⑦ Reattach the control box lid with 3 screws removed.

*Note: Make sure the wires not to be pinched by any other parts like panel, control box and indoor unit.



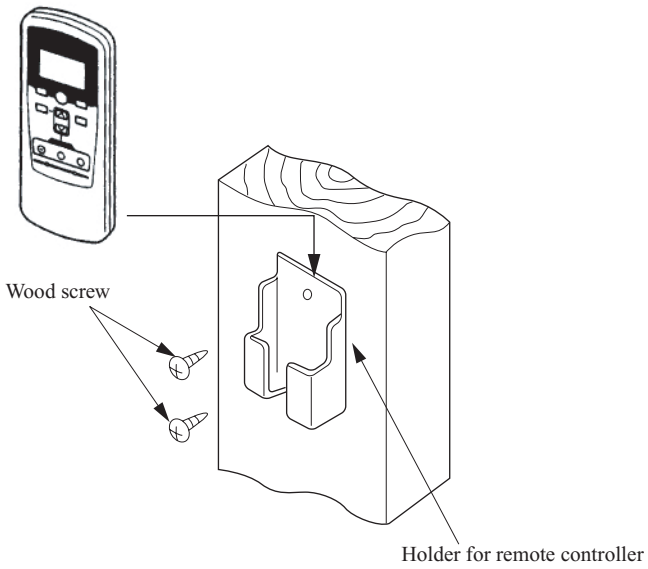
(4) Remote controller

Installation of the controller holder

Caution

DO NOT install it on the following places

1. Places exposed to direct sunlight
2. Places near heat devices
3. High humidity places
4. Hot surface or cold surface enough to generate condensation
5. Places exposed to oil mist or steam directly.
6. Uneven surface



Installation tips for the remote controller holder

· Adjust and keep the holder upright

· Tighten the screw to the end to avoid scratching the remote controller.

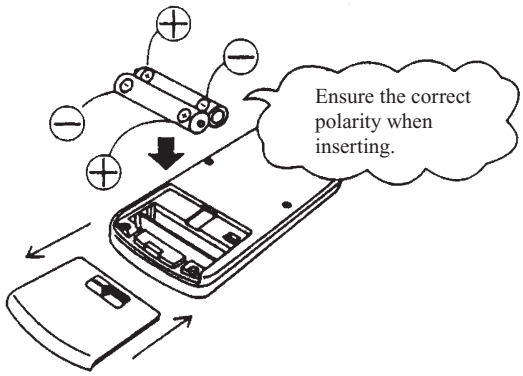
· DO NOT attach the holder on plaster wall.

How to insert batteries

① Detach the back lid.

② Insert the batteries. (two AAA batteries)

③ Reattach the back lid.



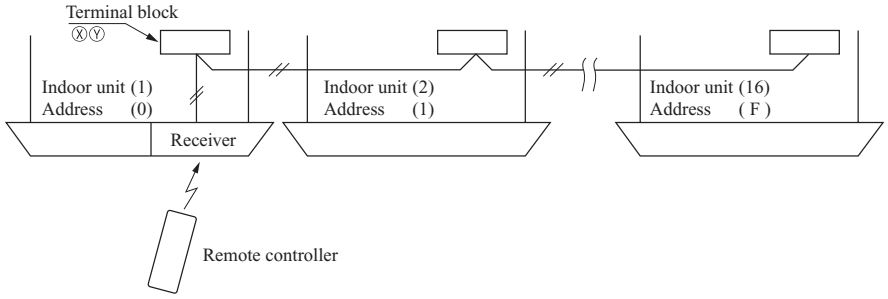
Control plural indoor units with one remote controller

Up to 16 indoor units can be connected.

① Connect the XY terminal with 2-core wire. As for the size, refer to the following note.

② For Packaged air conditioner series, set the indoor unit address with SW2 on the indoor unit PCB from [0] to [F] so as not to duplicate.

Restrictions on the thickness and length of wire (Maximun total extension 600m.)	
Standard	Within 100m x 0.3 mm^2
	Within 200m x 0.5 mm^2
	Within 300m x 0.75mm^2
	Within 400m x 1.25mm^2
	Within 600m x 2.0 mm^2



Master/Slave setting when using plural remote controllers

Up to two receivers can be installed in one indoor unit group.

When two receivers are used, it is necessary for a receiver to turn OFF SW2 on the receiver PCB to set it as slave.

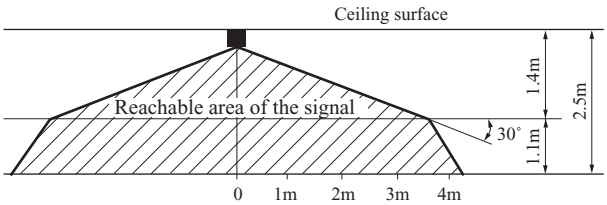
(For the method of switching, please see **Setting on site** in the section of **How to install the receiver** in this manual.)

Wireless remote controller's operable area

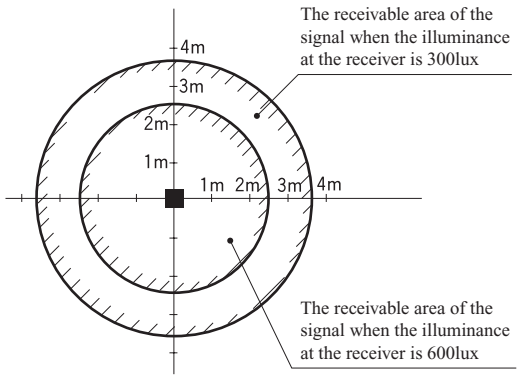
① Standard reachable area of the signal

[condition] Illuminance at the receiver: 300lux

(when no lighting is installed within 1m of the receiver in an ordinary office.)



② Correlation between illuminance at the receiver and reachable area of the signal in a plain view. The drawing in the right shows the correlation between the reachable area of the signal and illuminance at the receiver when the remote controller is operated at 1.1m high under the condition of ceiling height of 2.5m. When the illuminance becomes double, the area is narrowed down to two thirds.



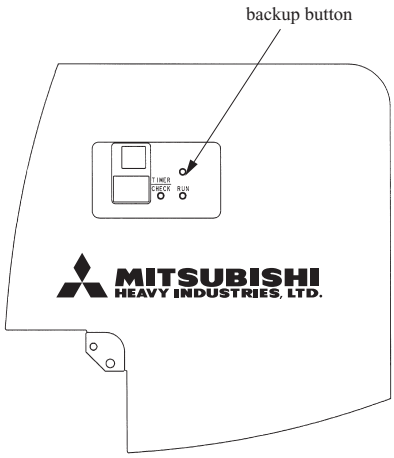
③ Installation tips when several receivers are installed close Minimum distance between the indoor units which can avoid cross communication is 5m under the condition of 300lux of illuminance at the receiver.
(When no lighting is installed within 1m of the receiver in an ordinary office)

(5) Backup button

A Backup button is provided on the receiver.
Even when the operation from the wireless remote controller is not possible (due to flat batteries, controller lost, or controller failure), still it possible to operate as temporary means. Press the button directly when operating it.

(a) The air conditioner starts the operation with the condition of Auto mode, 23˚C of set point, High fan speed and horizontal louver position.

(b) The air conditioner stops the operation when the button is pressed when in operation.



(6) Cooling test run operation

- After safety confirmation, turn on the power.
- Transmit a cooling operation command with wireless remote controller, while the backup button on the receiver is pressed.
- If the backup button on the receiver is pressed during a test run, it will end the test run.
- If you cannot operate the unit properly during a test run, please check by consulting with inspection guides on the wiring diagram of outdoor units.

(7) How to read the two-digit display

On the receiver of a wireless kit, a two-digit (7-segment) display is provided.

(a) An indication will be displayed for one hour after power on.

(b) An indication will be displayed for 3.5 seconds after transmitting a “STOP” command from the wireless remote controller or the operation of the backup button to stop the unit.

(c) An indication appearing in (a) or (b) above will go off as soon as the unit starts operation.

(d) When there are no error records to indicate, addresses of all the connected units are displayed.

(e) When there are some error records remaining, the error records are displayed.

(f) Error records can be cleared by transmitting a “STOP” command from the wireless remote controller, while the backup button is pressed.

3.2 FDTC SERIES

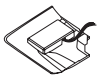
The FDTC series is an exclusive series with all wired models. However, these models can also be used wireless units by using the optional wireless kit.

(1) Wireless kit model

Model
RCN-TC-24W-ER

(2) Accessories

Please make sure that you have all of the following accessories.

Receiver		1	Remote controller holder		1
Wireless remote controller		1	Wood screw for holder		2
Parts set		1	AAA dry cell battery (RO3)		2

(3) How to install the receiver

The receiver can be installed by replacing with a corner panel on the applicable decorative panel.

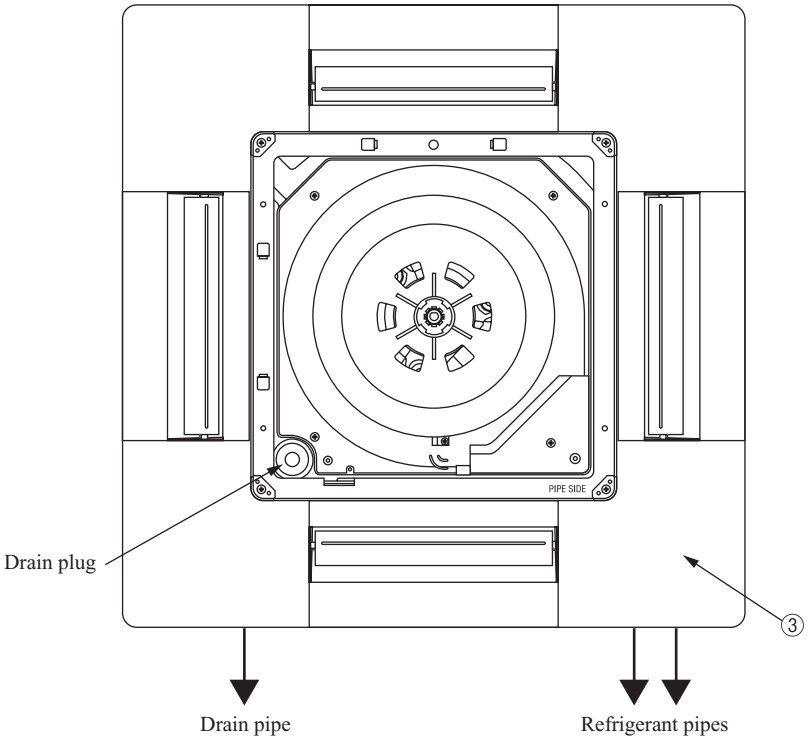
Preparation before installation

① Attach the decorative panel onto the air conditioner according to the installation manual for the panel.

② Remove the air return grille.

③ Remove a corner panel located on the refrigerant pipes side.

④ Remove to screws and detach the lid from the control box of the air conditioner.



Setting on site

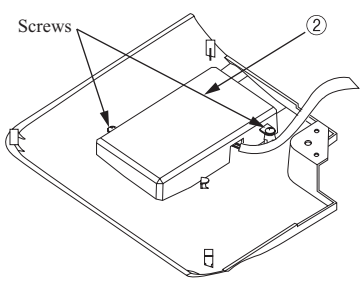
① PCB on the receiver has the following switches to set the functions. Default setting is shown with ☐ mark.

SW1	Customized signal setting to avoid mixed communication	☐ ON : Normal OFF : Remote
SW2	Receiver master/slave setting	☐ ON : Master OFF : Slave
SW3	Buzzer valid/Invalid	☐ ON : Valid OFF : Invalid
SW4	Auto restart	ON : Valid ☐ OFF : Invalid

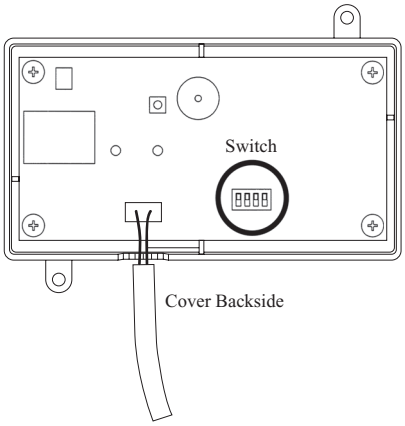
② Remove the cover by unscrewing two screws from the back of receiver.

③ Change the setting by the switch on PCB.

Default settings



Receiver Backside

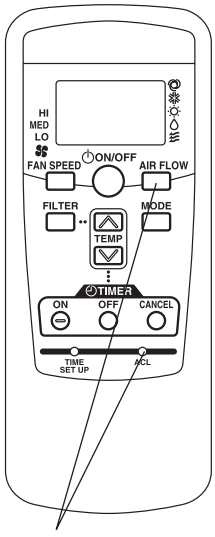


Cover Backside

④ When SW1 is turned to OFF position, change the corresponding remote controller setting as follows:

How to change the remote controller setting

Pressing ☐ ACL switch with ☐ AIR FLOW button kept pressing or inserting the batteries with pressing ☐ AIR FLOW button will customize the signal.



Radio interference prevention mode

Note

* When the batteries are removed, the setting will return to the default setting. Please make sure to reset it when the batteries are replaced.

Caution

Instruct the customer to set the mentioned above when replacing the batteries.(How to set is also mentioned in the user's manual attached on the air conditioner.)

Installation of the receiver

① Attach the receiver to the panel according to the panel installation manual.

② Remove two screws and detach the lid from the control box.

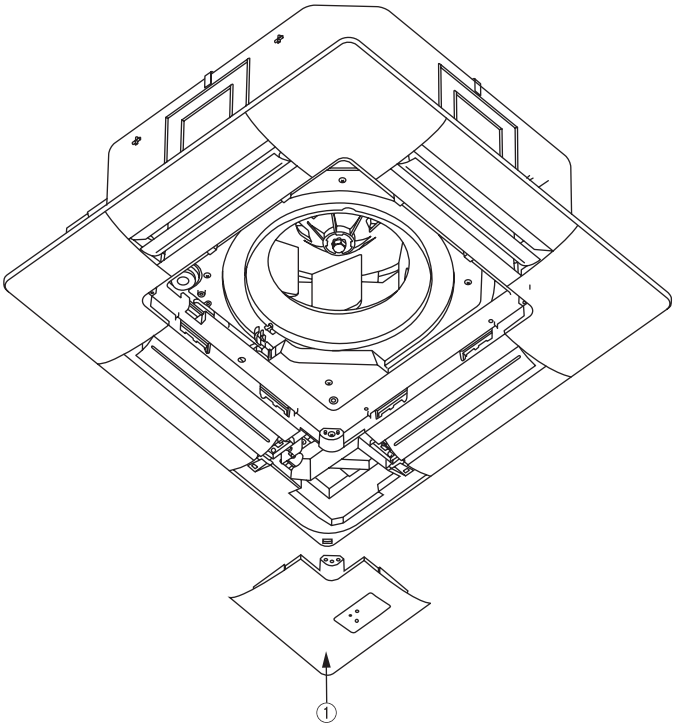
③ Put the wiring in the control box with other wiring as shown below.

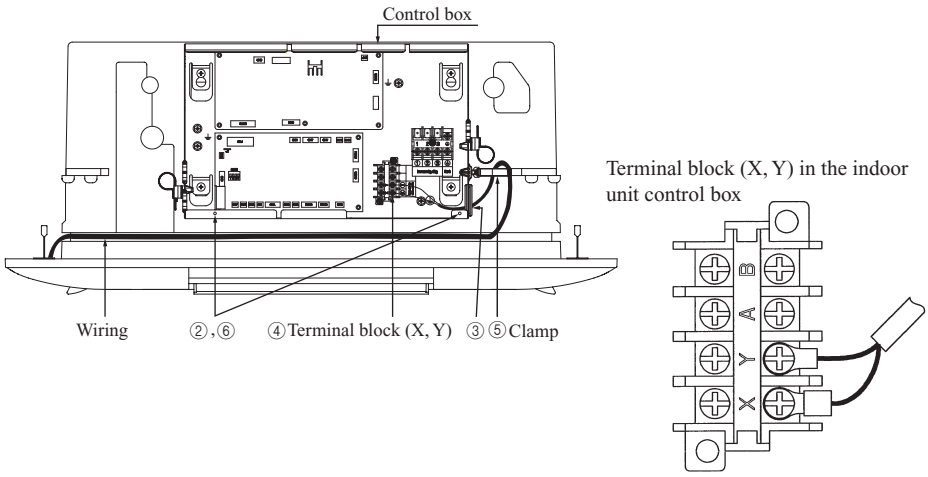
④ Connect the wiring to the terminal block (X, Y) provided in the control box. (Non- polarized)

⑤ Fix the wiring with the clamp as shown below.

⑥ Reattach the control box lid with 2 screws removed.

* Note: Make sure wires not to be pinched by any other parts like panel and control box.





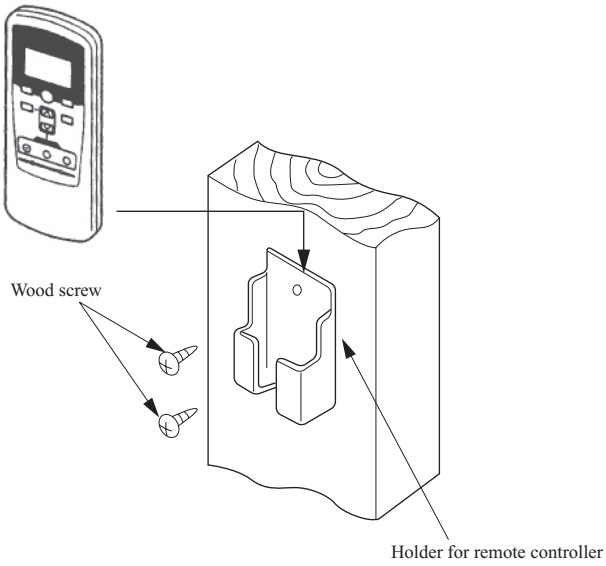
(4) Remote controller

Installation of the controller holder

Caution

Do not install it on the following places

1. Places exposed to direct sunlight
2. Places near heat devices
3. High humidity places
4. Hot surface or cold surface enough to generate condensation
5. Places exposed to oil mist or steam directly.
6. Uneven surface



Installation tips for the remote controller holder

· Adjust and keep the holder upright

· Tighten the screw to the end to avoid scratching the remote controller.

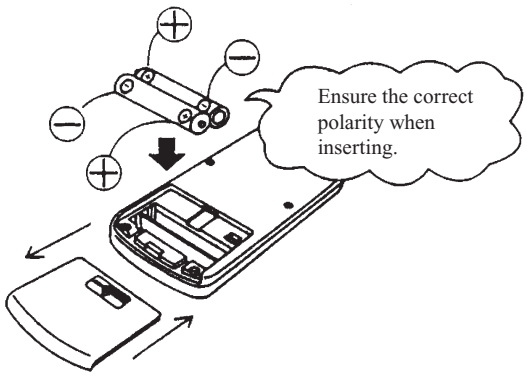
· Do not attach the holder on plaster wall.

How to insert batteries

① Detach the back lid

② Insert the batteries. (two AAA batteries)

③ Reattach the back lid.



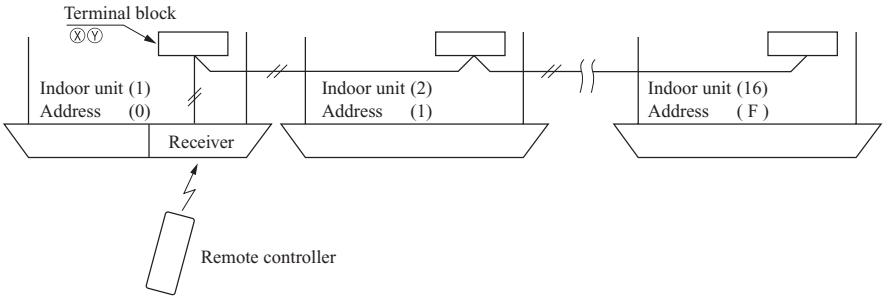
Control plural indoor units with one remote controller

Up to 16 indoor units can be connected.

① Connect the XY terminal with 2-core wire. As for the size, refer to the following note.

② For signal packaged air conditioner series, set the indoor unit address with SW2 on the indoor unit PCB from [0] to [F] so as not to duplicate.

Restrictions on the thickness and length of wire (Maximun total extension 600m.)	
Standard	Within 100m x 0.3 mm^2
	Within 200m x 0.5 mm^2
	Within 300m x 0.75mm^2
	Within 400m x 1.25mm^2
	Within 600m x 2.0 mm^2



Master/Slave setting when using plural remote controllers

Up to two receivers can be installed in one indoor unit group.

When two receivers are used, it is necessary for a receiver to turn OFF SW2 on the receiver PCB to set it as slave.

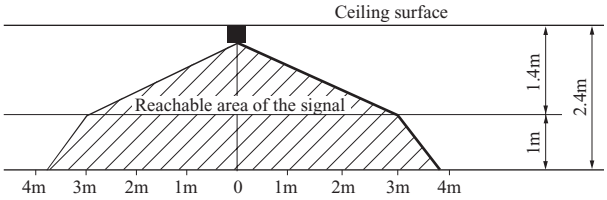
(For the method of switching, please see **Setting on site** in the section of **How to install the receiver** in this manual.)

Wireless remote controller's operable area

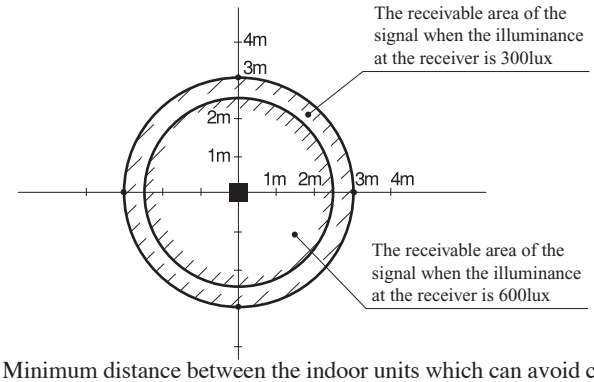
① Standard reachable area of the signal

[condition] Illuminance at the receiver: 300lux

(when no lighting is installed within 1m of the receiver in an ordinary office.)



② Correlation between illuminance at the receiver and reachable area of the signal in a plain view. The drawing in the right shows the correlation between the reachable area of the signal and illuminance at the receiver when the remote controller is operated at 1m high under the condition of ceiling height of 2.4m.



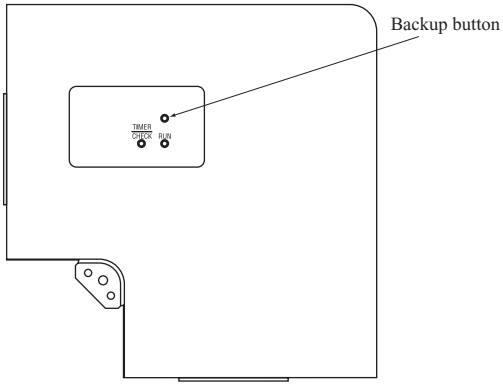
③ Installation tips when several receivers are installed close Minimum distance between the indoor units which can avoid cross communication is 5m under the condition of 300lux of illuminance at the receiver.
(When no lighting is installed within 1m of the receiver in an ordinary office)

(5) Backup button

A Backup button is provided on the receiver. Even when the operation from the wireless remote controller is not possible (due to flat batteries, controller Iost, or controller failure), still it possible to operate as temporary means. Press the button directly when operating it.

(a) The air conditioner starts the operation with the condition of Auto mode, 23°C of set point, High fan speed and horizontal louver position.

(b) The air conditioner stops the operation when the button is pressed when in operation.



(6) Cooling test run operation

- After safety confirmation, turn on the power.
- Transmit a cooling operation command with wireless remote controller, while the backup button on the receiver is pressed.
- If the backup button on the receiver is pressed during a test run, it will end the test run.
- If you cannot operate the unit properly during a test run, please check by consulting with inspection guides on the wiring diagram of outdoor units.

(7) How to read the two-digit display

On the receiver of a wireless kit, a two-digit (7-segment) display is provided.

(a) An indication will be displayed for one hour after power on.

(b) An indication will be displayed for 3.5 seconds after transmitting a “STOP” command from the wireless remote controller or the operation of the backup button to stop the unit.

(c) An indication appearing in (a) or (b) above will go off as soon as the unit starts operation.

(d) When there are no error records to indicate, addresses of all the connected units are displayed.

(e) When there are some error records remaining, the error records are displayed.

(f) Error records can be cleared by transmitting a “STOP” command from the wireless remote controller, while the backup button is pressed.

3.3 EXCEPT FOR FDT & FDTC SERIES

This product is dedicated for heat pump unit. Never install on the unit dedicated for cooling.

(1) Wireless kit model

Model
RCN-KIT3-E

(2) Accessories (Confirm the following accessories).

① Light detection adaptor		1
② Wiring (3m)		1
③ Parts set (A)		1
④ Parts set (B)		1
⑤ Parts set (C)		1
⑥ Wireless remote controller		1
⑦ User's manual		1

① Screw for receiver		2
② Fixing band		1
③ Clamp		5
④ Screw for clamp		5

① Remote controller holder		1
② Screw for holder		2
③ AAA dry cellbattery (R03)		2

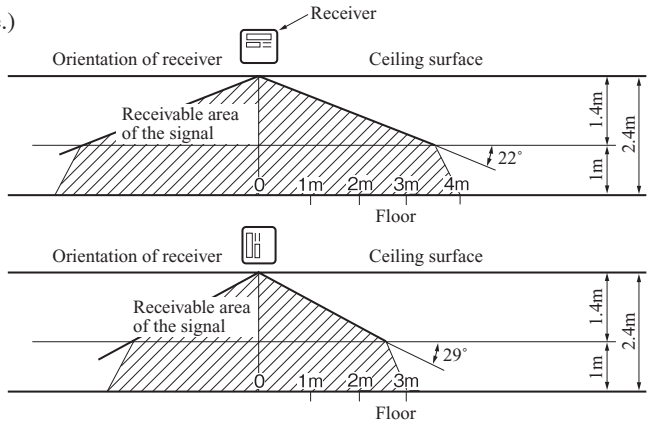
① Receiver installation bracket		1
② Screw for the bracket		2
③ Installation fitting		2

(3) Wireless remote controller's operable area

(a) When installed on ceiling

① Standard reachable area of the signal

[Condition] Illuminance at the receiver : 300lux (when no lighting is installed within 1m of the receiver in an ordinary office.)



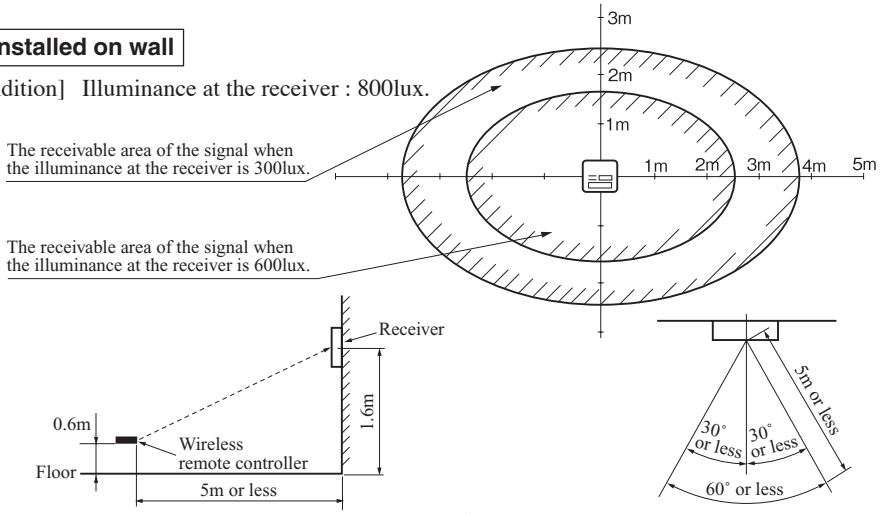
② Correlation between illuminance at the receiver and reachable area of the signal in a plain view.

[Condition] Correlation between the reachable area of the signal and illuminance at the receiver when the remote controller is operated at 1.1m high under the condition of ceiling height of 2.5m.

When the illuminance becomes double, the area is narrowed down to two third.

(b) When installed on wall

[Condition] Illuminance at the receiver : 800lux.



(4) How to install the receiver

The following two methods can be used to install the receiver onto a ceiling or a wall.

Select a method according to the installation position.

<Installation position>

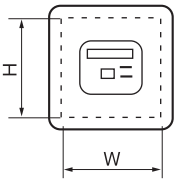
① Direct installation onto the ceiling with wood screws.

② Installation with accessory's bracket

(a) Drilling of the ceiling (ceiling opening)

Drill the receiver installation holes with the following dimensions at the ceiling position where wires can be connected.

(A) Direct installation onto the ceiling with wood screws.	88mm (H) × 101mm (W)
(B) Installation with enclosed bracket.	108mm (H) × 108mm (W)

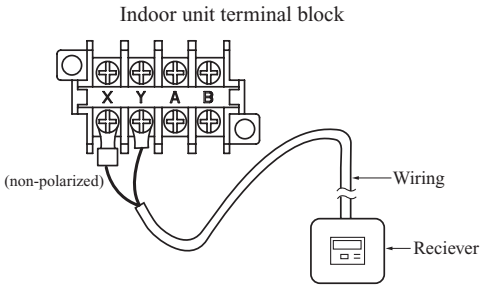


(b) Wiring connection of receiver

Caution

Do not connect the wiring to the power source of the terminal block.

If it is connected, printed board will be damaged.

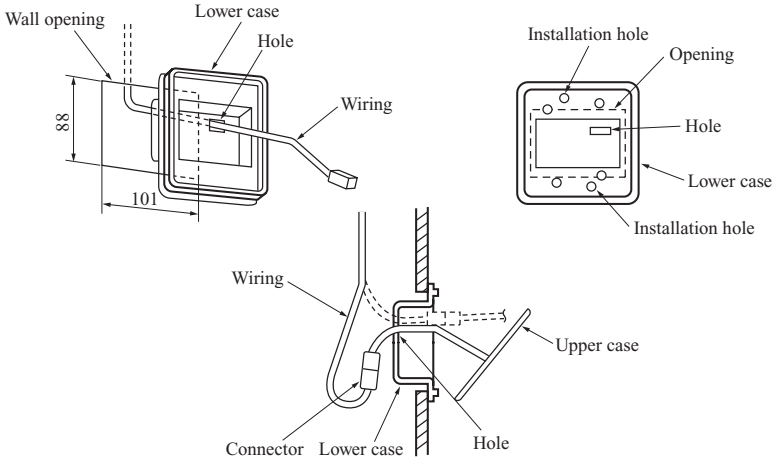


(c) Installation of the receiver

Remove the screw on the side of the receiver and sprit it into the upper case and lower case. Install the receiver with one of the two installation methods (A) or (B) shown below.

(A) Direct installation onto the ceiling with screws

▷ Use this installation method when the ceiling is wooden, and there is no problem for strength in installing directly with wood screws.



① Put through the wiring from the back side to the hole of the lower case.

② Fit the lower case into the ceiling opening. Make sure that the clearance between the convex part of the back of the lower case and the ceiling opening must be as equal as possible on both sides.

③ Using the two installation holes shown above, fix the lower case onto the ceiling with the enclosed wood screws. (The other four holes are not used.)

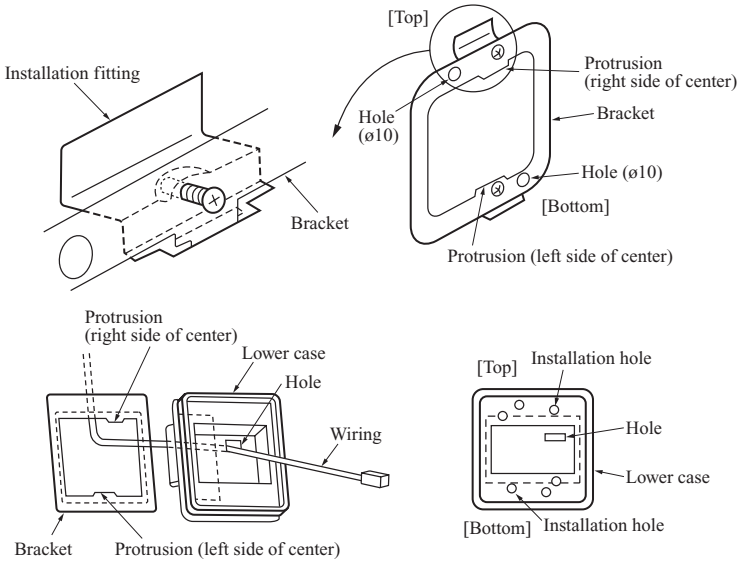
④ Connect the wiring with the wiring from the upper case by the connector.

⑤ Take out the connector to the backside from the hole of the lower case putting through the wiring at ①.

⑥ Fit the upper case and the lower case, and tighten the screws.

(B) Installation with enclosed bracket

▷ Use this method when installaing onto a gypsum board (7 to 18mm), etc.



① Catch the two protrusion of the enclosed bracket onto the fitting as shown above, and temporarily fix with the screws. (The bracket has an up/down and front/back orientation. Confirm the top/bottom protrusion positions and the positional relation of the ø 10 holes on the bracket and the installation hole on the lower case with the above drawing.)

② Insert the end of the installation fitting into the back of the ceiling from the opening, and tighten the screws to fix the bracket onto the ceiling.

③ Pass the wiring from the rear side through the hole on the lower case.

④ Fit the lower case onto the bracket, and fix the lower case to the bracket using the two installation holes shown above. (The other four holes are not used.)

⑤ Follow step ① to ⑥ for (A) to complete the installation.

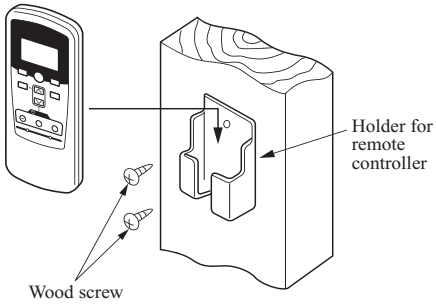
(5) Remote controller

Installation of the controller holder

Caution

Do not install it on the following places

1. Places exposed to direct sunlight
2. Places near heat devices
3. High humidity places
4. Hot surface or cold surface enough to generate condensation
5. Places exposed to oil mist or steam directly
6. Uneven surface



Installation tips for the remote controller holder

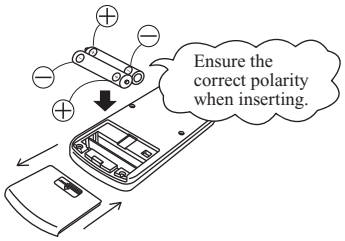
- Adjust and keep the holder upright.
- Tighten the screw to the end to avoid scratching the remote controller.
- Do not attach the holder to plaster wall.

How to insert batteries

① Detach the back lid.

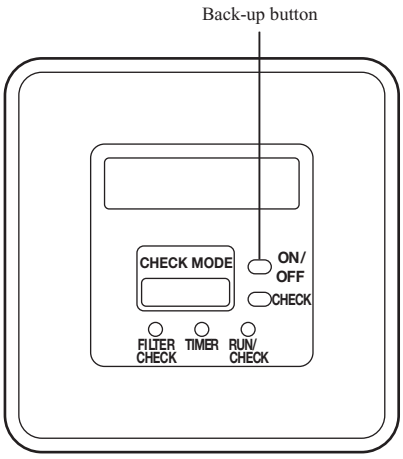
② Insert the batteries. (two AAA batteries)

③ Reattach the back lid.



(6) Cooling test run operation

- After safety confirmation, turn on the power.
- Transmit a cooling operation command with wireless remote controller, while the backup button on the receiver is pressed.
- If the backup button on the receiver is pressed during a test run, it will end the test run.
- If you cannot operate the unit properly during a test run, please check by consulting with inspection guides on the wiring diagram of outdoor units.



(7) Setting of wireless remote controller and receiver

(A) Methods of avoiding the malfunction due to the mixed communication

Do both procedures ① and ②.

This setting is to avoid the mixed communication with other household electric appliances or the mixed communication when two receivers are located closely.

① **Setting change of the wireless remote controller**

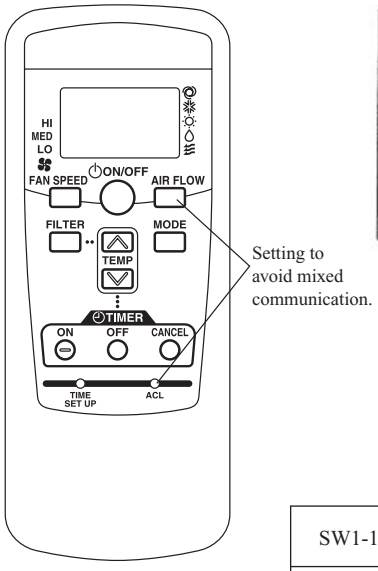
Pressing ACL and AIRFLOW button at the same time or inserting the batteries with pressing AIRFLOW button will customize the signal.

Note *When the batteries are removed, the setting will return to the default setting. Make sure to reset it when the batteries are replaced.

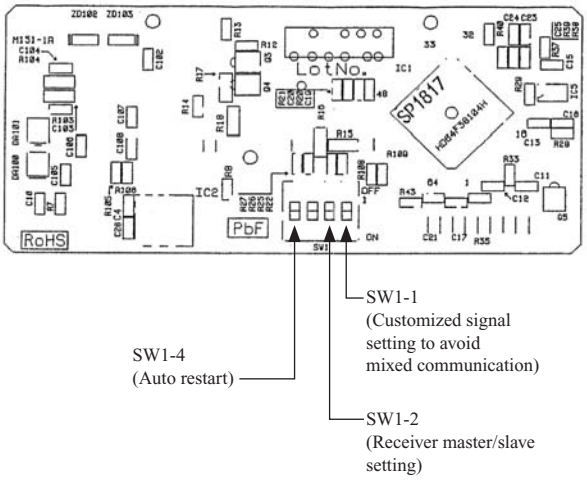
② **Setting the PCB of the receiver**

Turn SW1-1 off.

● **Wireless remote controller**



● **PCB of the receiver**



SW1-1	Customized signal setting to avoid mixed communication	ON : Normal OFF: Remote
SW1-2	Receiver master/slave setting	ON : Master OFF: Slave
SW1-4	Auto restart	ON : Valid OFF: Invalid

[ ] : Default setting

(B) Control plural indoor units with one remote controller

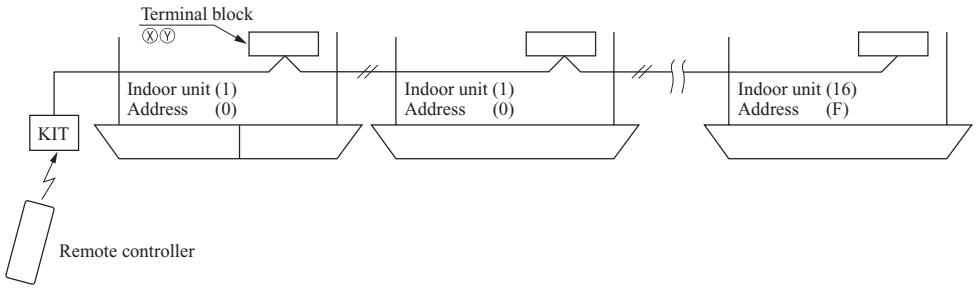
Up to 16 indoor units can be connected.

① Connect the XY terminal with 2-core wire. As for the size, refer to the following note.

② For Packaged air conditioner series, set the indoor unit address with SW2 on the indoor unit PCB from [0] to [F] so as not to duplicate.

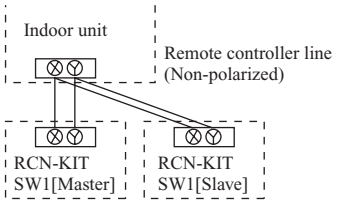
Restrictions on the thickness and length of wire
(Maximun total extension 600m.)

Standard	Within 100m x 0.3 mm^2
	Within 200m x 0.5 mm^2
	Within 300m x 0.75mm^2
	Within 400m x 1.25mm^2
	Within 600m x 2.0 mm^2



(C) Master/Slave setting when using plural remote controller

Up to two receivers can be installed in one indoor unit group.



Switch	Setting	Function
SW1-2	ON	Master
	OFF	Slave

PACKAGED AIR-CONDITIONER

MULTI-TYPE (V-MULTI) PACKAGED AIR-CONDITIONER

MITSUBISHI HEAVY INDUSTRIES, LTD.

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