MHI

TECHNICAL MANUAL
& PARTS LIST

DRAFT

INVERTER WALL MOUNTED TYPE ROOM AIR-CONDITIONER

(Split system, air to air heat pump type)

SRK63ZE-S, SRK71ZE-S

MITSUBISHI HEAVY INDUSTRIES, LTD.

INDOOR UNIT

Models SRK63ZE-S, SRK71ZE-S

OUTDOOR UNIT

Models SRC63ZE-S, SRC71ZE-S

REMOTE CONTROLLER

1 GENERAL INFORMATION

1.1 Specific features

The “Mitsubishi Daiya” room air-conditioner: SRK series are of split and wall mounted type and the unit consists of indoor unit and outdoor unit with refrigerant precharged in factory. The indoor unit is composed of room air cooling or heating equipment with operation control switch and the outdoor unit is composed of condensing unit with compressor.

(1) Inverter (Frequency converter) for multi-steps power control

- Heating/Cooling
  The rotational speed of a compressor is changed in step in relation to varying load, to interlock with the indoor and outdoor unit fans controlled to changes in frequency, thus controlling the power.
- Allowing quick heating/cooling operation during start-up period. Constant room temperature by fine-tuned control after the unit has stabilized.

(2) Fuzzy control

- Fuzzy control calculates the amount of variation in the difference between the return air temperature and the setting temperature in compliance with the fuzzy rules in order to control the air capacity and the inverter frequency.

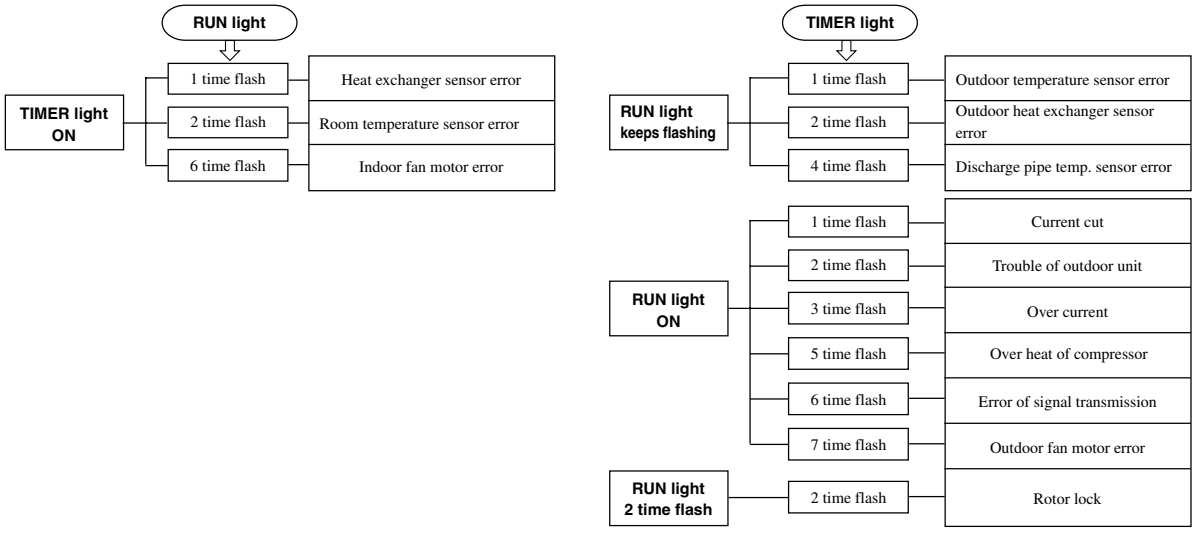
(3) Remote control flap & louver

The Flap & louver can be automatically controlled by operating wireless remote control.

- Flap swing : The flaps swing up and down successively.
- Louver swing : The louvers swing left and right successively.
- Multi-directional Air Flow : Activating both up/down air swing and left/right air swing at the same time results in a multi-directional air flow.
- Memory flap : Once the Flap & louver position is set, the unit memorizes the position and continues to operate at the same position from the next time.

(4) Self diagnosis function

- We are constantly trying to do better service to our customers by installing such judges that show abnormality of operation as follows.



1.2 How to read the model name

Example : SR K 63 Z E - S

- S : R410A models
- E : Series No.
- Z : Inverter type
- 63 : Product capacity
- K : Wall mounted type
- SR : Split type room air-conditioner

2 SELECTION DATA

2.1 Specifications

Model SRK63ZE-S (Indoor unit)
SRC63ZE-S (Outdoor unit)

(220/230/240V)

Item				Model	SRK63ZE-S	SRC63ZE-S
Cooling capacity(1)				W	6300 (900~7100)	
Heating capacity(1)				W	7100 (900~9000)	
Power source					1 Phase, 220-240V, 50Hz	
Operation data(1)(2)	Cooling input			kW	1.84	
	Running current (Cooling)			A	8.4/8.1/7.7	
	Heating input			kW	1.86	
	Running current (Heating)			A	8.5/8.2/7.8	
	Inrush current			A		
	COP				Cooling: 3.42 Heating: 3.82	
	Noise level	Cooling	Sound level	dB	Hi 43, Me 39, Lo 33, ULo 26	47
			Power level		58	62
		Heating	Sound level		Hi 44, Me 38, Lo 32, ULo 27	48
			Power level		59	63
Exterior dimensions Height × Width × Depth				mm	318 × 1098 × 248	750 × 880 × 340
Color					Yellowish white	Stucco white
Net weight				kg	18	65
Refrigerant equipment Compressor type & Q'ty					–	TNB220FLBM1 (Twin rotary type) × 1
Motor				kW	–	1.3
Starting method					–	Line starting
Heat exchanger					Slit fins & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control					Capillary tubes + Electronic expansion valve	
Refrigerant(3)				kg	R410A 1.9 (Pre-Charged up to the piping length of 15m)	
Refrigerant oil				ℓ	0.67 (MEL56)	
Deice control					Microcomputer control	
Air handling equipment Fan type & Q'ty					Tangential fan × 1	Propeller fan × 1
Motor				W	46	86
Air flow (at High)			(Cooling)	CMM	18.5	46
			(Heating)		21	46
Air filter, Q'ty					Polypropylene net (washable) × 2	–
Shock & vibration absorber					–	Cushion rubber (for compressor)
Electric heater					–	–
Operation control Operation switch					Wireless-Remote controller	–
Room temperature control					Microcomputer thermostat	–
Pilot lamp					RUN (Green), TIMER (Yellow), HI POWER (Green), ECONO (Orange)	
Safety equipment					Compressor overheat protection, Heating overload protection (High pressure control), Overcurrent protection, Frost protection, Serial signal error protection, Indoor fan motor error protection, Cooling overload protection	
Refrigerant piping	O.D			mm (in)	Liquid line: ϕ6.35 (1/4″) Gas line: ϕ15.88 (5/8″)	
	Connecting method				Flare connecting	
	Attached length of piping				Liquid line: 0.70m Gas line : 0.63m	–
	Insulation				Necessary (Both sides)	
Drain hose					Connectable	
Power source supply					Terminal block (Screw fixing type)	
Connection wiring	Size × Core number				1.5 mm² × 4 cores (Including earth cable)	
	Connecting method				Terminal block (Screw fixing type)	
Accessories (included)					Mounting kit, Clean filter (Allergen clear filter × 1, Photocatalytic washable deodorizig filter × 1)	
Optional parts					–	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27ºC	19ºC	35ºC	24ºC	ISO-T1, JIS C9612
Heating	20ºC	–	7ºC	6ºC	ISO-T1, JIS C9612

The piping length is 7.5m.

(2) The operation data are applied to the 220/230/240V districts respectively.

(3) The refrigerant quantity to be charged includes the refrigerant in 15 m connecting piping.
(Purging is not required even for the short piping.)
If the piping length is longer, when it is 15 to 30 m, add 25g refrigerant per meter.

Model SRK71ZE-S (Indoor unit)
SRC71ZE-S (Outdoor unit)

(220/230/240V)

Item				Model	SRK71ZE-S	SRC71ZE-S
Cooling capacity(1)				W	7100 (900~8000)	
Heating capacity(1)				W	8000 (900~10500)	
Power source					1 Phase, 220-240V, 50Hz	
Operation data(1)(2)	Cooling input			kW	2.21	
	Running current (Cooling)			A	10.1/9.7/9.3	
	Heating input			kW	2.21	
	Running current (Heating)			A	10.1/9.7/9.3	
	Inrush current			A	10.1/9.7/9.3	
	COP				Cooling: 3.21 Heating: 3.62	
	Noise level	Cooling	Sound level	dB	Hi 45, Me 40, Lo 34, ULo 26	52
			Power level		60	67
		Heating	Sound level		Hi 46, Me 40, Lo 34, ULo 27	49
			Power level		60	64
Exterior dimensions Height × Width × Depth				mm	318 × 1098 × 248	750 × 880 × 340
Color					Yellowish white	Stucco white
Net weight				kg	18	65
Refrigerant equipment Compressor type & Q'ty					–	TNB220FLBM1 [Twin rotary type] × 1
Motor				kW	–	1.3
Starting method					–	Line starting
Heat exchanger					Slit fins & inner grooved tubing	Straight fin & inner grooved turbing
Refrigerant control					Capillary tubes + Electronic expansion valve	
Refrigerant(3)				kg	R410A 1.9 (Pre-Charged up to the piping length of 15m)	
Refrigerant oil				ℓ	0.67 (MEL56)	
Deice control					Microcomputer control	
Air handling equipment Fan type & Q'ty					Tangential fan × 1	Propeller fan × 1
Motor				W	46	86
Air flow (at High)			(Cooling)	CMM	20	56
			(Heating)		22.5	49
Air filter, Q'ty					Polypropylene net (washable) × 2	–
Shock & vibration absorber					–	Cushion rubber (for compressor)
Electric heater					–	–
Operation control Operation switch					Wireless-Remote controller	–
Room temperature control					Microcomputer thermostat	–
Pilot lamp					RUN (Green), TIMER (Yellow), HI POWER (Green), ECONO (Orange)	
Safety equipment					Compressor overheat protection, Heating overload protection (High pressure control), Overcurrent protection, Frost protection, Serial signal error protection, Indoor fan motor error protection, Cooling overload protection	
Refrigerant piping	O.D			mm (in)	Liquid line: ϕ6.35 (1/4″) Gas line: ϕ15.88 (5/8″)	
	Connecting method				Flare connecting	
	Attached length of piping				Liquid line: 0.70m Gas line : 0.63m	–
	Insulation				Necessary (Both sides)	
Drain hose					Connectable	
Power source supply					Terminal block (Screw fixing type)	
Connection wiring	Size × Core number				1.5 mm² × 4 cores (Including earth cable)	
	Connecting method				Terminal block (Screw fixing type)	
Accessories (included)					Mounting kit, Clean filter (Allergen clear filter × 1, Photocatalytic washable deodorizig filter × 1)	
Optional parts					–	

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(2) The operation data are applied to the 220/230/240V districts respectively.

(3) The refrigerant quantity to be charged includes the refrigerant in 15 m connecting piping.
(Purging is not required even for the short piping.)
If the piping length is longer, when it is 15 to 30 m, add 25g refrigerant per meter.

2.2 Range of usage & limitations

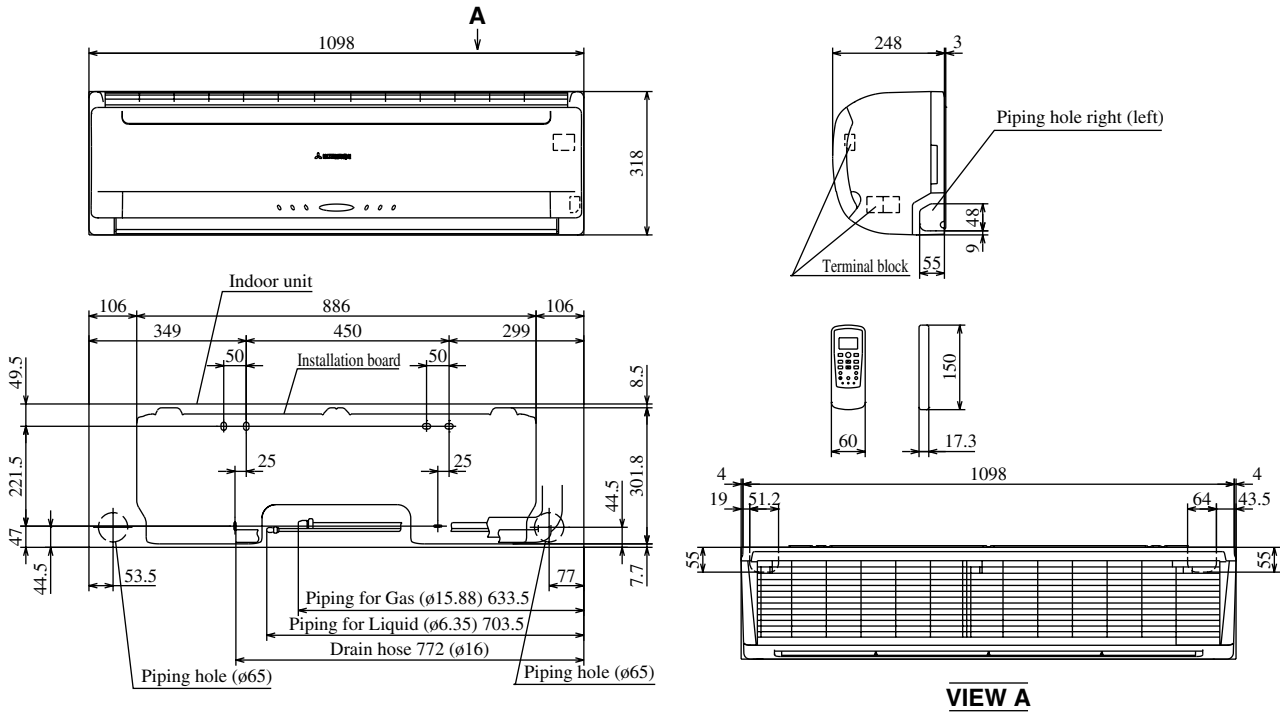
Item \ Models	SRK63ZE-S, 71ZE-S
Indoor return air temperature (Upper, lower limits)	Cooling operation: Approximately 18 to 32°C Heating operation: Approximately 15 to 30°C
Outdoor air temperature (Upper, lower limits)	Cooling operation: Approximately -15 to 46°C Heating operation: Approximately -15 to 21°C
Refrigerant line (one way) length	Max. 30m
Vertical height difference between outdoor unit and indoor unit	Max. 20m (Outdoor unit is higher) Max. 20m (Outdoor unit is lower)
Power source voltage	Rating ± 10%
Voltage at starting	Min. 85% of rating
Frequency of ON-OFF cycle	Max. 10 times/h
ON and OFF interval	Max. 3 minutes

2.3 Exterior dimensions

(1) Indoor unit

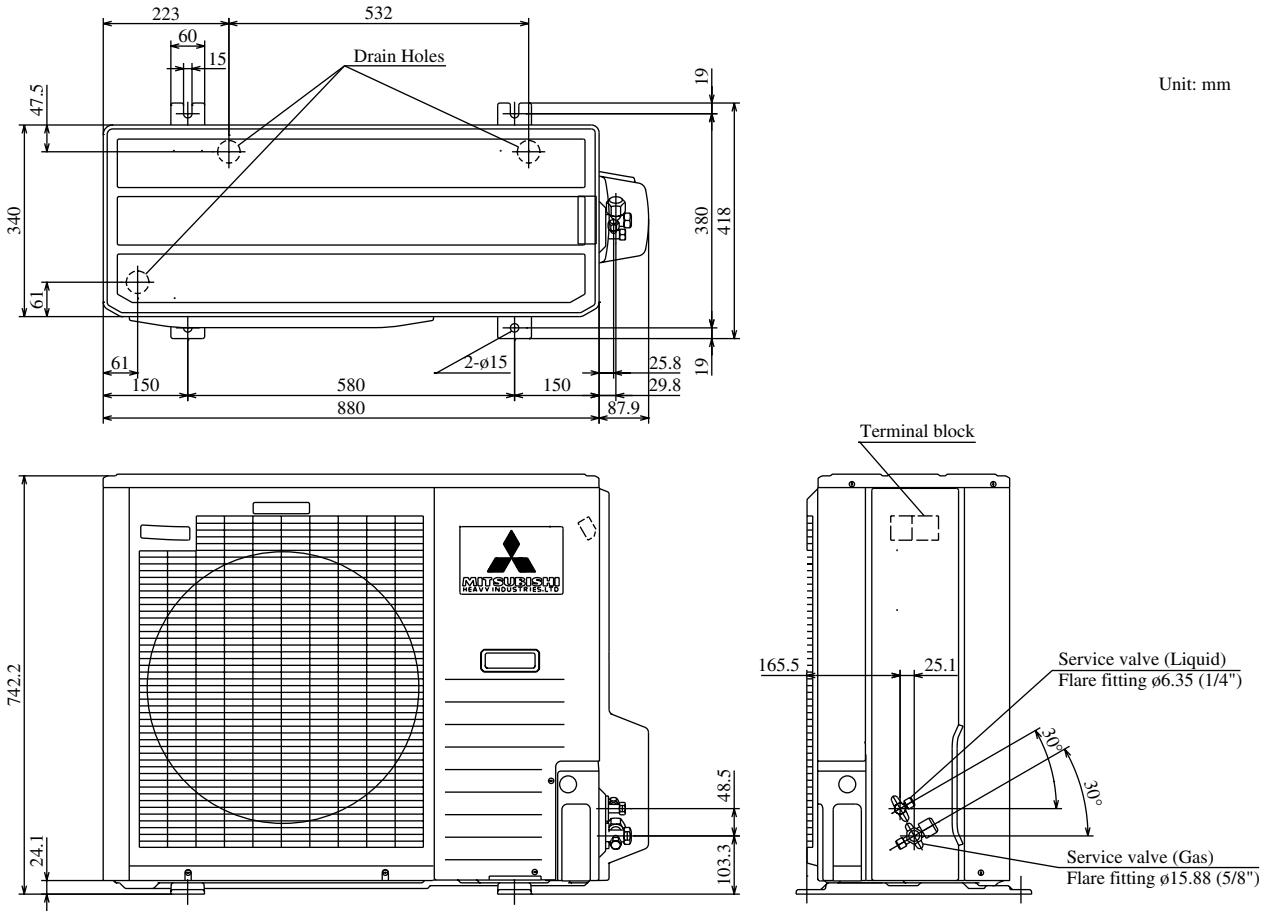
Models SRK63ZE-S, 71ZE-S

Unit: mm



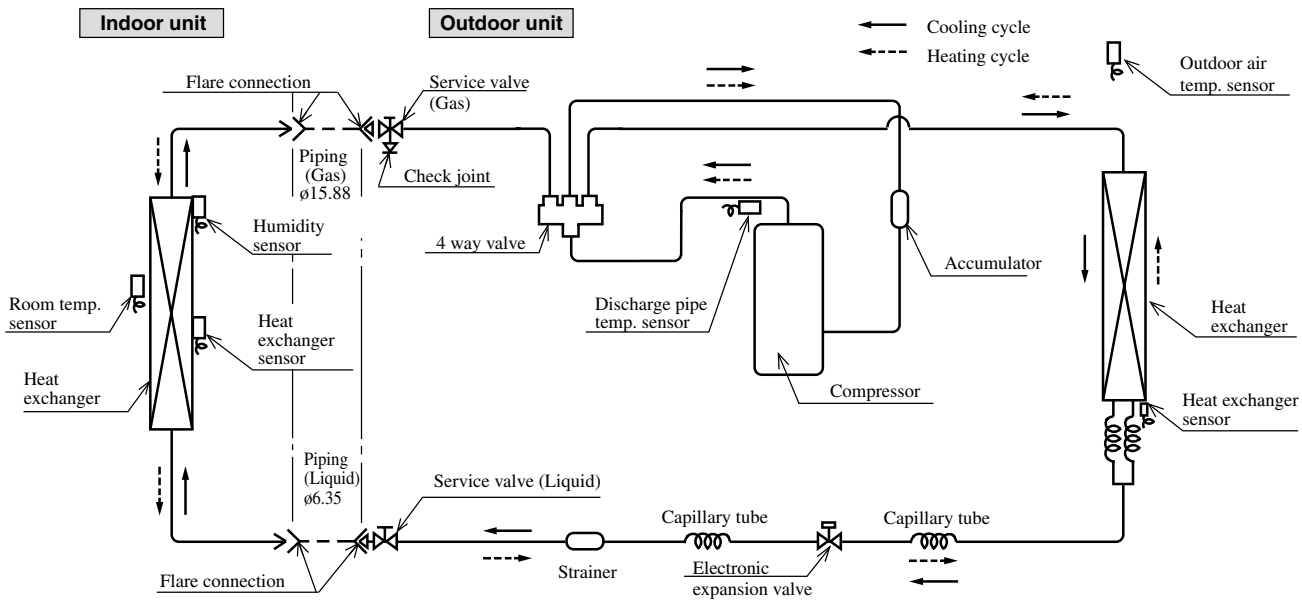
(2) Outdoor unit

Models SRC63ZE-S, 71ZE-S



2.4 Piping system

Models SRK63ZE-S, 71ZE-S



2.5 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) Coefficient of cooling and heating capacity in relation to temperatures

(2) 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 piping length between the indoor and outdoor units.

Piping length [m]	7	10	15	20	25	30
Cooling	1.0	0.99	0.975	0.965	0.95	
Heating	1.0	1.0	1.0	1.0	1.0	

(3) Correction relative to frosting on outdoor heat exchanger during heating

In additions to the foregoing corrections (1), (2) the heating capacity needs to be adjusted also with respect to the frosting on the outdoor heat exchanger.

Air inlet temperature of outdoor unit in ˚CWB	-10	-9	-7	-5	-3	-1	1	3	5
Adjustment coefficient	0.95	0.94	0.93	0.91	0.88	0.86	0.87	0.92	1.00

How to obtain the cooling and heating capacity

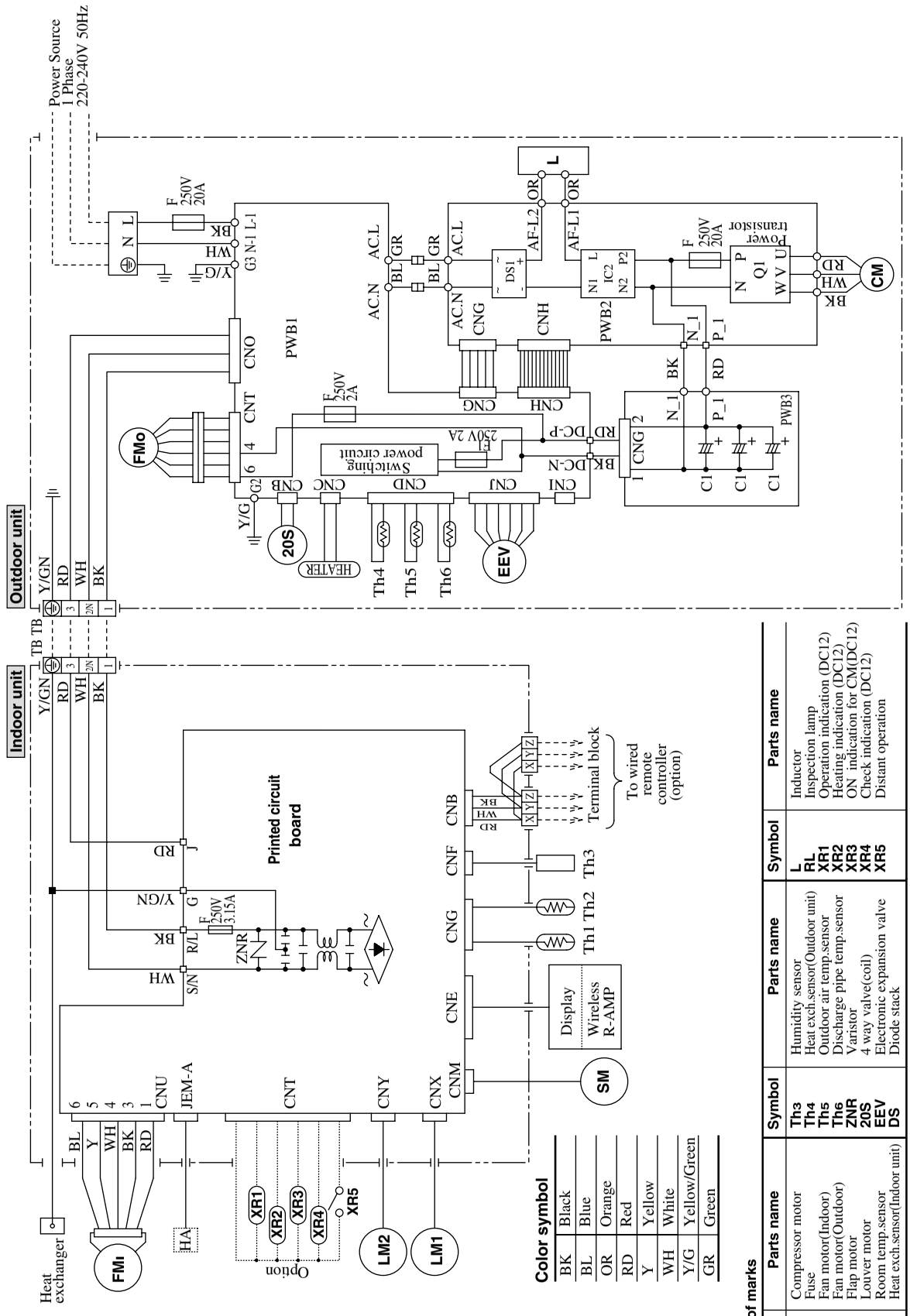
Example : The net cooling capacity of the model SRK63ZE-S with the piping length of 15m, indoor wet-bulb temperature at 19.0˚C and outdoor dry-bulb temperature 35˚C is Net cooling capacity = $\underline{6300}$ × $\underline{0.975}$ × $\underline{1.0}$ = 6143 W

SRK63ZE-S　Length 15m　Factor by air temperatures

3 ELECTRICAL DATA

3.1 Electrical wiring

Models SRK63ZE-S, 71ZE-S



Meaning of marks

Symbol	Parts name	Symbol	Parts name	Symbol	Parts name
CM	Compressor motor	Th3	Humidity sensor	L	Inductor
F	Fuse	Th4	Heat exch.sensor(Outdoor unit)	RL	Inspection lamp
FMI	Fan motor(Indoor)	Th5	Outdoor air temp.sensor	XR1	Operation indication (DC12)
FMO	Fan motor(Outdoor)	Th6	Discharge pipe temp.sensor	XR2	Heating indication (DC12)
SM	Flap motor	ZNR	Varistor	XR3	ON indication for CM(DC12)
LM1,2	Louver motor	20S	4 way valve(coil)	XR4	Check indication (DC12)
Th1	Room temp.sensor	EEV	Electronic expansion valve	XR5	Distant operation
Th2	Heat exch.sensor(Indoor unit)	DS	Diode stack		

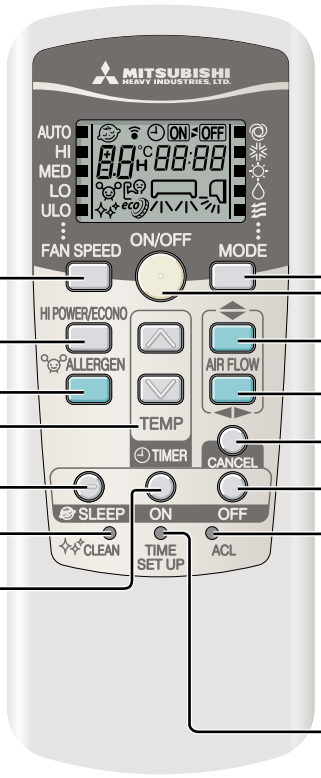
4 OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

4.1 Operation control function by remote control switch

Remote controller

Models All models

◆ Operation section



FAN SPEED button

Each time the button is pushed, the ■ indicator is switched over in turn.

HI POWER/ECONO button

This button changes the HI POWER/ ECONOMY mode.

ALLERGEN button

This button selects ALLERGEN CLEAR operation.

TEMPERATURE button

This button sets the room temperature.
(This button changes the present time and TIMER time.)

SLEEP button

This button changes to SLEEP operation.

CLEAN switch

This switch changes the CLEAN mode.

ON TIMER button

This button selects ON TIMER operation.

- The above illustration shows all controls, but in practice only the relevant parts are shown.

OPERATION MODE select button

Each time the button is pushed, the ■ indicator is switched over in turn.

ON/OFF button

Press for starting operation, press again for stopping.

AIR FLOW (UP/DOWN) button

This button changes the flow (up/down) mode.

AIR FLOW (LEFT/RIGHT) button

This button changes the air flow (left/right) mode.

CANCEL button

This button cancels the ON timer,OFF timer, and SLEEP operation.

OFF TIMER button

This button selects OFF TIMER operation.

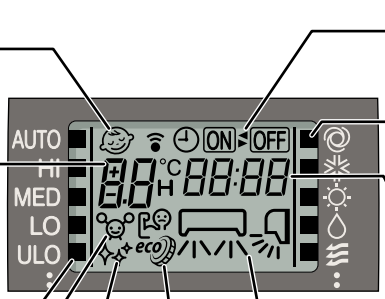
RESET switch

Switch for resetting microcomputer.

TIME SET UP switch

Switch for setting the time.

◆ Indication section



SLEEP indicator

Indicates during SLEEP operation.

TEMPERATURE Indicator

Indicates set temperature.
(Does not indicate temperature when operation mode is on AUTO)

FAN SPEED Indicator

Indicates set air flow rate with ■ lamp.

ALLERGEN CLEAR Indicator

Indicates during ALLERGEN CLEAR operation.

CLEAN Indicator

Indicates during CLEAN operation.

ON/OFF TIMER indicator

Indicates during ON/OFF TIMER operation.

OPERATION MODE Indicator

Indicates selected operation with ■ lamp.
[(Auto) • (Cool) • / (Heat) • (Dry)]

TIME Indicator

Indicates present time or timer setting time.

AIR FLOW Indicator

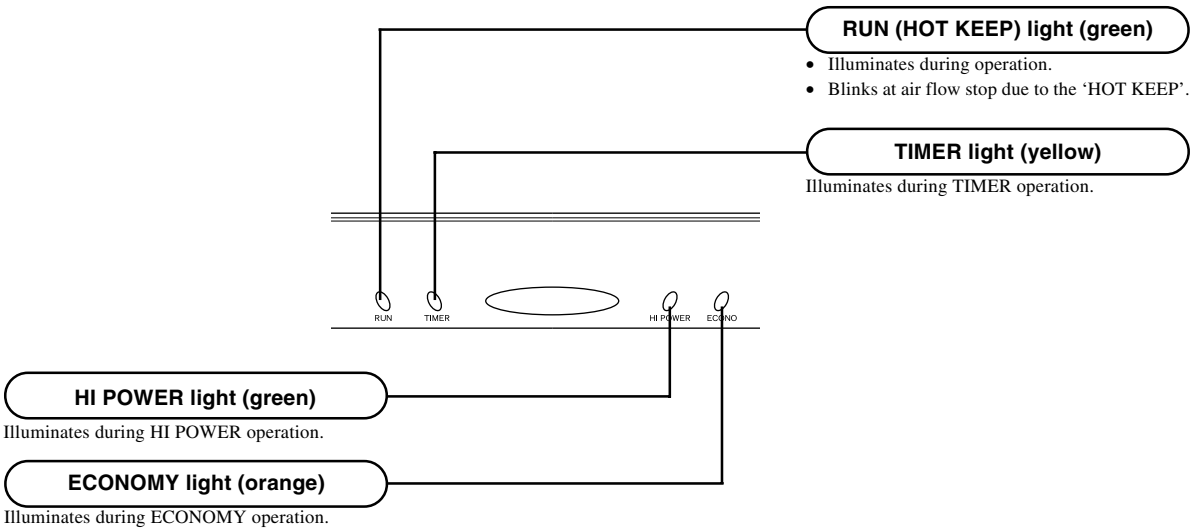
Shows selected flap and louver mode.

HI POWER/ECONO MODE Indicator

Indicates during High power/economy mode operation.

Unit indication section

Models All models



5 INSTALLATION

R410A refrigerant is used for this air-conditioner. Execute the installation work while taking care of the following points in addition to the general caution items.

5.1 Installation tools

Prepare the following special tools for R410A in addition to the general-purpose tools.

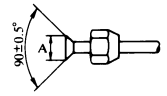
- Flare tool
- Gauge manifold
- Charge hose
- Vacuum pump adaptor
- Leak detector

5.2 Refrigerant piping

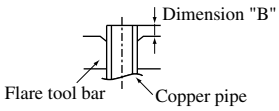
- Use the copper pipe that has less than 40 mg/10 m of oil adhesion and 0.8 mm of wall thickness. Never use the thin walled pipe the thickness of which is less than 0.8 mm.
- Use the flare nut attached to the air-conditioner.

5.3 Pipe connection

(1) Pipe working



Copper pipe dia.		Dimension "A" (mm)
Liquid side	ø6.35	9.1
Gas side	ø9.52	13.2
	ø12.7	16.6
	ø15.88	19.7



Copper pipe dia.	Dimension "B" (mm)
	Clutch type flare tool for R410A
ø6.35	0.0 ~ 0.5
ø9.52	0.0 ~ 0.5
ø12.7	0.0 ~ 0.5
ø15.88	0.0 ~ 0.5

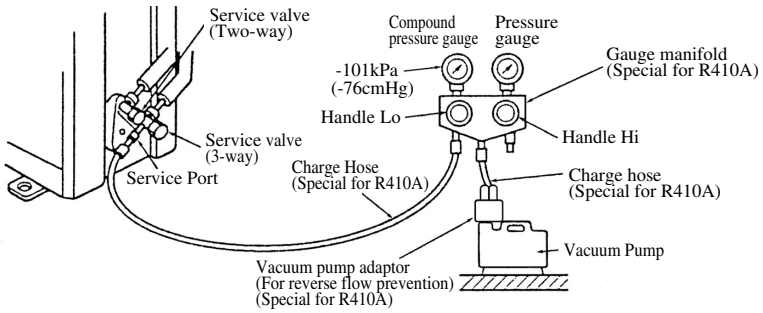
(2) Tightening torque

- The tightening torque is shown below.

Copper pipe dia.		Across flats of flare nut (mm)	Tightening torque N·m (kgf·m)
Liquid side	ø6.35	17	14 ~ 18 (1.4 ~ 1.8)
Gas side	ø9.52	22	33 ~ 42 (3.3 ~ 4.2)
	ø12.7	24	50 ~ 62 (5.0 ~ 6.2)
	ø15.88	27	63 ~ 77 (6.3 ~ 7.7)

(3) Vacuuming

- The charge hose for R22 cannot be connected because the service port diameter is different from the conventional one. Use the special charge hose for R410A.
- Use the vacuum pump adapter for reverse flow prevention to check the reverse flow of vacuum pump oil. If oil flows back to the air-conditioner, it causes failure of refrigerant cycle.



PARTS LIST (Main parts)

(1) Indoor unit

No.	Parts Name	Parts No.	
		SRK63ZE-S	**SRK71ZE-S**
1	PANEL ASSY, FRONT	RKW102A200	
2	PANEL, FRONT	RKW122A200	
3	PANEL, AIR INLET	RKW435A201	
4	GRILLE ASSY, AIR OUTLET	RKW435A202	
5	MOTOR, DC	SSA512T072	
6	IMPELLER	SSA431G043A	
7	HEAT EXCH ASSY(AIR)	RKW301A200A	
8	PWB ASSY	RKW505A200	RKW505A200A
9	CONTROL ASSY, REMOTE	RKW502A200	

(2) Outdoor unit

No.	Parts Name	Parts No.	
		SRC63ZE-S	**SRC71ZE-S**
1	PANEL ASSY, FRONT	RCR122A001	
2	PANEL, TOP	RCR124A001	
3	GRILLE, AIR OUTLET	RCR435A001	
4	BRACKET, MOTOR	RCR116A001	
5	MOTOR, DC	SSA512T076	
6	FAN, PROPELLER	SSA431B247	
7	BASE ASSY	RCR111A001	
8	HEAT EXCH(AIR)	RCR311A001	
9	VALVE, S(4WAY)	SSA382C078	
10	COIL, SOLENOID	SSA382F027B	
11	COMPRESSOR ASSY	PCA201A048A	
12	PWB ASSY(MAIN)	RCR505A001	
13	PWB ASSY(POWER)	RCR505A002	
14	PWB ASSY(CAPACITOR)	RPC505A852B	
15	VALVE, BODY(EXP)	SSA387F035	
16	COIL, SOLENOID	SSA382F210L	

INVERTER WALL MOUNTED TYPE
ROOM AIR-CONDITIONER

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