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MITSUBISHI HEAVY INDUSTRIES

TECHNICAL MANUAL

INVERTER PACKAGED AIR-CONDITIONERS

(Split system, air to air heat pump type)

HYPER INVERTER
WALL MOUNTED TYPE

Twin type
- SRK100VNXPZSX
- 100VSXPZSX
- 125VNXPZSX
- 125VSXPZSX

Triple Type
- SRK140VNXTZSX
- 140VSXTZSX

MICRO INVERTER
WALL MOUNTED TYPE

Twin type
- SRK100VNPZSX
- 100VSPZSX
- 125VNPZSX
- 125VSPZSX

Triple type
- SRK140VNTZSX
- 140VSTZSX

MITSUBISHI HEAVY INDUSTRIES THERMAL SYSTEMS, LTD.

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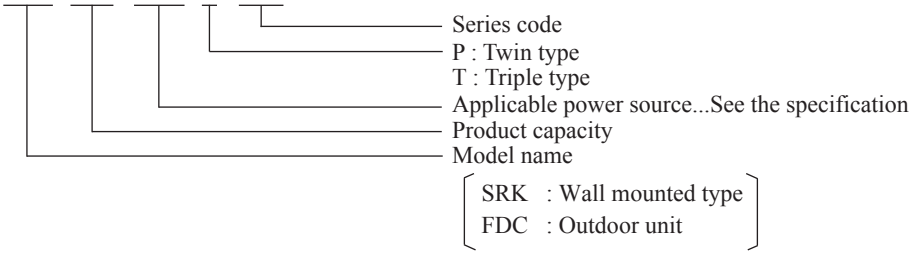
■ How to read the model name

Example: SRK 100 VNX P ZSX



1.1 SPECIFICATIONS

Wall mounted type (SRK)

Item			Model	SRK100VNXPZSX	
				Indoor unit **SRK50ZSX-S (2 units)**	Outdoor unit **FDC100VNX**
Power source				1 Phase 220-240V 50Hz / 220V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	10.0 [4.0(Min.)-11.2(Max.)]	
	Nominal heating capacity (range)		kW	11.2 [4.0(Min.)-12.5(Max.)]	
	Power consumption	Cooling	kW	2.66	
		Heating		2.60	
	Max power consumption			4.26	
	Running current	Cooling	A	11.8 / 12.3	
		Heating		11.5 / 12.1	
	Inrush current, max current			5 , 24	
	Power factor	Cooling	%	98	
		Heating		98	
	EER	Cooling		3.76	
	COP	Heating		4.31	
	Sound power level	Cooling	dB(A)	59	70
		Heating		62	
	Sound pressure level	Cooling		Hi : 44 Me : 39 Lo : 31 ULo : 22	48
		Heating		Hi : 46 Me : 41 Lo : 33 ULo : 23	50
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	1300 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell: (8.0Y 9.3 / 0.1), RAL: 9003	Stucco white (4.2Y7.5 / 1.1) near equivalent
Net weight			kg	13	105
Compressor type & Q'ty				—	RMT5134MDE2×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 4.5kg in outdoor unit (incl. the amount for the piping of : 30m)	
Heat exchanger				Louver fins & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 2
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 x 2 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 14.3 Me : 12.4 Lo : 7.8 ULo : 5.4	100
		Heating		Hi : 17.3 Me : 14.3 Lo : 9.8 ULo : 6.2	
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN: Green, TIMER : Yellow, ECO : Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U ϕ6.35 (1/4") ②ϕ9.52 (3/8")x0.8 ①ϕ9.52 (3/8")x0.8 O/U ϕ9.52 (3/8")	
				Gas line: I/U ϕ12.7 (1/2") ②ϕ12.7 (1/2")x0.8 ①ϕ15.88 (5/8")x1.0 O/U ϕ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.100m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size ϕ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			ϕ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IP24
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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Item				Model	SRK125VNXPZSX	
					Indoor unit **SRK60ZSX-S (2 units)**	Outdoor unit **FDC125VNX**
Power source					1 Phase 220-240V 50Hz / 220V 60Hz	
Operation data	Nominal cooling capacity (range)			kW	12.5 [5.0(Min.)-14.0(Max.)]	
	Nominal heating capacity (range)			kW	14.0 [4.0(Min.)-17.0(Max.)]	
	Power consumption		Cooling	kW	3.60	
			Heating		3.48	
	Max power consumption				5.76	
	Running current		Cooling	A	16.0 / 16.7	
			Heating		15.4 / 16.1	
	Inrush current, max current				5 , 26	
	Power factor		Cooling	%	98	
			Heating		98	
	EER		Cooling		3.47	
	COP		Heating		4.02	
	Sound power level		Cooling	dB(A)	62	70
			Heating		63	
	Sound pressure level		Cooling		Hi : 46 Me : 41 Lo : 33 ULo : 22	48
			Heating		Hi : 46 Me : 42 Lo : 34 ULo : 23	50
	Silent mode sound pressure level				—	—
Exterior dimensions (Height x Width x Depth)				mm	305 × 920 × 220	1300 × 970 × 370
Exterior appearance (Munsell color)					Fine snow Munsell : (8.0Y 9.3/0.1), RAL : 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight				kg	13	105
Compressor type & Q'ty					—	RMT5134MDE2×1
Compressor motor (Starting method)				kW	—	Direct line start
Refrigerant oil (Amount, type)				ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)				kg	R410A 4.5kg in outdoor unit (incl. the amount for the piping of : 30m)	
Heat exchanger					Louver fins & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control					Electronic expansion valve	
Fan type & Q'ty					Tangential fan x 1	Propeller fan × 2
Fan motor (Starting method)				W	42 x 1 < Direct line start >	86 x 2 < Direct line start >
Air flow			Cooling	m^3/min	Hi : 16.3 Me : 13.4 Lo : 8.9 ULo : 5.4	100
			Heating		Hi : 17.8 Me : 13.7 Lo : 10.9 ULo : 6.2	
Available external static pressure				Pa	0	0
Outside air intake					Not possible	—
Air filter, Quality / Quantity					Polypropylene net (washable) x 2	—
Shock & vibration absorber					Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater				W	—	20 (Crank case heater)
Operation control	Remote control				(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control				Thermostat by electronics	
	Operation display				RUN: Green, TIMER: Yellow, ECO: Blue	
Safety equipments					Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)			mm	Liquid line: I/U φ6.35 (1/4") ② φ9.52(3/8")x0.8 ① φ9.52(3/8")x0.8 O/U φ9.52 (3/8")	
					Gas line: I/U φ12.7 (1/2") ② φ12.7(1/2")x0.8 ① φ15.88(5/8")x1.0 O/U φ15.88 (5/8")	
	Connecting method				Flare piping	Flare piping
	Attached length of piping			m	—	—
	Insulation for piping				Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length			m	Max.100m	
	Vertical height diff. between O.U. and I.U.			m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose				Hose connectable with VP16	Holes size φ20 x 3pcs
Drain pump, max lift height				mm	—	—
Recommended breaker size				A	—	
L.R.A. (Locked rotor ampere)				A	5.0	
Interconnecting wires	Size x Core number				φ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number					IPX0	IP24
Standard accessories					Mounting kit, Clean filter	Edging
Option parts					—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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Item			Model	SRK140VNXTZSX	
				Indoor unit **SRK50ZSX-S (3 units)**	Outdoor unit **FDC140VNX**
Power source				1 Phase 220-240V 50Hz / 220V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	14.0 [5.0(Min.)-16.0(Max.)]	
	Nominal heating capacity (range)		kW	16.0 [4.0(Min.)-18.0(Max.)]	
	Power consumption	Cooling	kW	3.98	
		Heating		3.68	
	Max power consumption			5.57	
	Running current	Cooling	A	17.7 / 18.5	
		Heating		16.3 / 17.1	
	Inrush current, max current			5 , 26	
	Power factor	Cooling	%	98 / 98	
		Heating		98	
	EER	Cooling		3.52	
	COP	Heating		4.35	
	Sound power level	Cooling	dB(A)	59	72
		Heating		62	
	Sound pressure level	Cooling		Hi : 44 Me : 39 Lo : 31 ULo : 22	49
		Heating		Hi : 46 Me : 41 Lo : 33 ULo : 23	52
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	1300 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell: (8.0Y 9.3/0.1), RAL: 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight			kg	13	105
Compressor type & Q'ty				—	RMT5134MDE2×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 4.5kg in outdoor unit (incl. the amount for the piping of : 30m)	
Heat exchanger				Louver fins & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 2
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 x 2 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 14.3 Me : 12.4 Lo : 7.8 ULo : 5.4	100
		Heating		Hi : 17.3 Me : 14.3 Lo : 9.8 ULo : 6.2	
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN : Green, TIMER : Yellow, ECO : Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U ϕ6.35 (1/4") ②ϕ9.52 (3/8")x0.8 ①ϕ9.52 (3/8")x0.8 O/U ϕ9.52 (3/8")	
				Gas line: I/U ϕ12.7 (1/2") ②ϕ12.7 (1/2")x0.8 ①ϕ15.88 (5/8")x1.0 O/U ϕ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.100m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size ϕ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			ϕ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IP24
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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Item			Model	SRK100VSXPZSX	
				Indoor unit **SRK50ZSX-S (2 units)**	Outdoor unit **FDC100VSX**
Power source				3 Phase 380-415V 50Hz / 380V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	10.0 [4.0(Min.)-11.2(Max.)]	
	Nominal heating capacity (range)		kW	11.2 [4.0(Min.)-16.0(Max.)]	
	Power consumption	Cooling	kW	2.66	
		Heating		2.60	
	Max power consumption			5.32	
	Running current	Cooling	A	3.9 / 4.1	
		Heating		3.8 / 4.0	
	Inrush current, max current			5 , 15	
	Power factor	Cooling	%	98 / 99	
		Heating		99	
	EER	Cooling		3.76	
	COP	Heating		4.31	
	Sound power level	Cooling	dB(A)	59	70
		Heating		62	
	Sound pressure level	Cooling		Hi : 44 Me : 39 Lo : 31 ULo : 22	48
		Heating		Hi : 46 Me : 41 Lo : 33 ULo : 23	50
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	1300 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell : (8.0Y 9.3/0.1), RAL : 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight			kg	13	105
Compressor type & Q'ty				—	RMT5134MDE2×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 4.5kg in outdoor unit (incl. the amount for the piping of : 30m)	
Heat exchanger				Louver fins & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 2
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 x 2 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 14.3 Me : 12.4 Lo : 7.8 ULo : 5.4	100
		Heating		Hi : 17.3 Me : 14.3 Lo : 9.8 ULo : 6.2	
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U φ6.35 (1/4") ② φ9.52(3/8")x0.8 ① φ9.52(3/8")x0.8 O/U φ9.52 (3/8")	
				Gas line: I/U φ12.7 (1/2") ② φ12.7(1/2")x0.8 ① φ15.88(5/8")x1.0 O/U φ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.100m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size φ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			φ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IP24
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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Item			Model	SRK125VSXPZSX	
				Indoor unit **SRK60ZSX-S (2 units)**	Outdoor unit **FDC125VSX**
Power source				3 Phase 380-415V 50Hz / 380V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	12.5 [5.0(Min.)-14.0(Max.)]	
	Nominal heating capacity (range)		kW	14.0 [4.0(Min.)-18.0(Max.)]	
	Power consumption	Cooling	kW	3.60	
		Heating		3.48	
	Max power consumption			7.20	
	Running current	Cooling	A	5.3 / 5.6	
		Heating		5.1 / 5.4	
	Inrush current, max current			5 , 15	
	Power factor	Cooling	%	98	
		Heating		98	
	EER	Cooling		3.47	
	COP	Heating		4.02	
	Sound power level	Cooling	dB(A)	62	70
		Heating		63	
	Sound pressure level	Cooling		Hi : 46 Me : 41 Lo : 33 ULo : 22	48
		Heating		Hi : 46 Me : 42 Lo : 34 ULo : 23	50
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	1300 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell : (8.0Y 9.3/0.1), RAL : 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight			kg	13	105
Compressor type & Q'ty				—	RMT5134MDE3×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 4.5kg in outdoor unit (incl. the amount for the piping of : 30m)	
Heat exchanger				Louver fins & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 2
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 x 2 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 16.3 Me : 13.4 Lo : 8.9 ULo : 5.4	100
		Heating		Hi : 17.8 Me : 13.7 Lo : 10.9 ULo : 6.2	
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U φ6.35 (1/4") ② φ9.52(3/8")x0.8 ① φ9.52(3/8")x0.8 O/U φ9.52 (3/8")	
				Gas line: I/U φ12.7 (1/2") ② φ12.7(1/2")x0.8 ① φ15.88(5/8")x1.0 O/U φ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.100m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size φ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			φ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IP24
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

PCA001Z717H

Item			Model	SRK140VSXTZSX	
				Indoor unit **SRK50ZSX-S (3 units)**	Outdoor unit **FDC140VSX**
Power source				3 Phase 380-415V 50Hz / 380V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	14.0 [5.0(Min.)-16.0(Max.)]	
	Nominal heating capacity (range)		kW	16.0 [4.0(Min.)-20.0(Max.)]	
	Power consumption	Cooling	kW	3.98	
		Heating		3.68	
	Max power consumption			6.97	
	Running current	Cooling	A	5.9 / 6.2	
		Heating		5.4 / 5.7	
	Inrush current, max current			5 , 15	
	Power factor	Cooling	%	97 / 98	
		Heating		98	
	EER	Cooling		3.52	
	COP	Heating		4.35	
	Sound power level	Cooling	dB(A)	59	72
		Heating		62	
	Sound pressure level	Cooling		Hi : 44 Me : 39 Lo : 31 ULo : 22	49
		Heating		Hi : 46 Me : 41 Lo : 33 ULo : 23	52
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	1300 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell : (8.0Y 9.3/0.1), RAL : 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight			kg	13	105
Compressor type & Q'ty				—	RMT5134MDE3×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 4.5kg in outdoor unit (incl. the amount for the piping of : 30m)	
Heat exchanger				Louver fins & inner grooved tubing	M shape fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 2
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 x 2 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 14.3 Me : 12.4 Lo : 7.8 ULo : 5.4	100
		Heating		Hi : 17.3 Me : 14.3 Lo : 9.8 ULo : 6.2	
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U φ6.35 (1/4") ② φ9.52(3/8")x0.8 ① φ9.52(3/8")x0.8 O/U φ9.52 (3/8")	
				Gas line: I/U φ12.7 (1/2") ② φ12.7(1/2")x0.8 ① φ15.88(5/8")x1.0 O/U φ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.100m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size φ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			φ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IP24
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

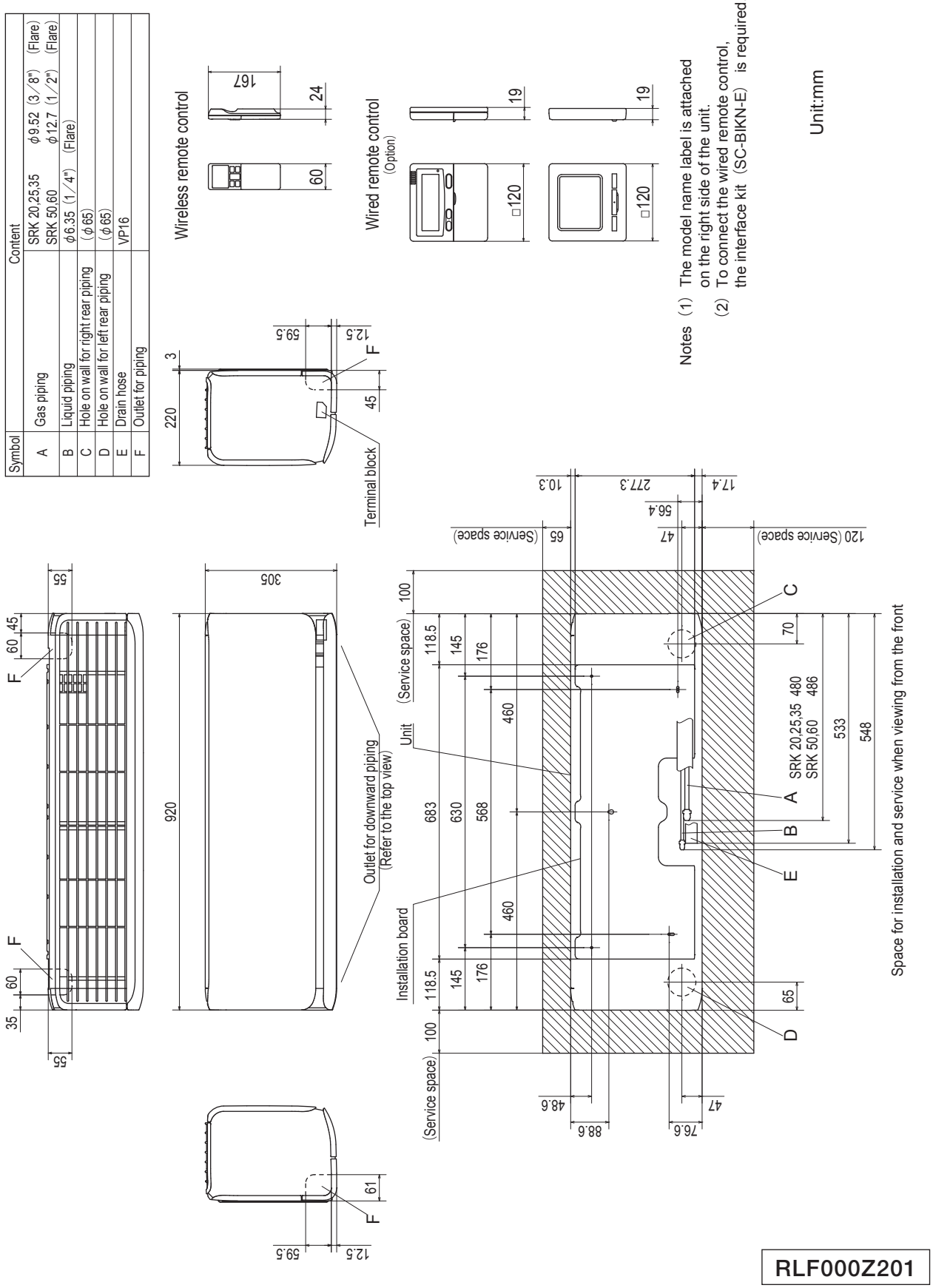
(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

PCA001Z717H

1.2 EXTERIOR DIMENSIONS

(1) Indoor units

Models SRK50ZSX-S, 60ZSX-S

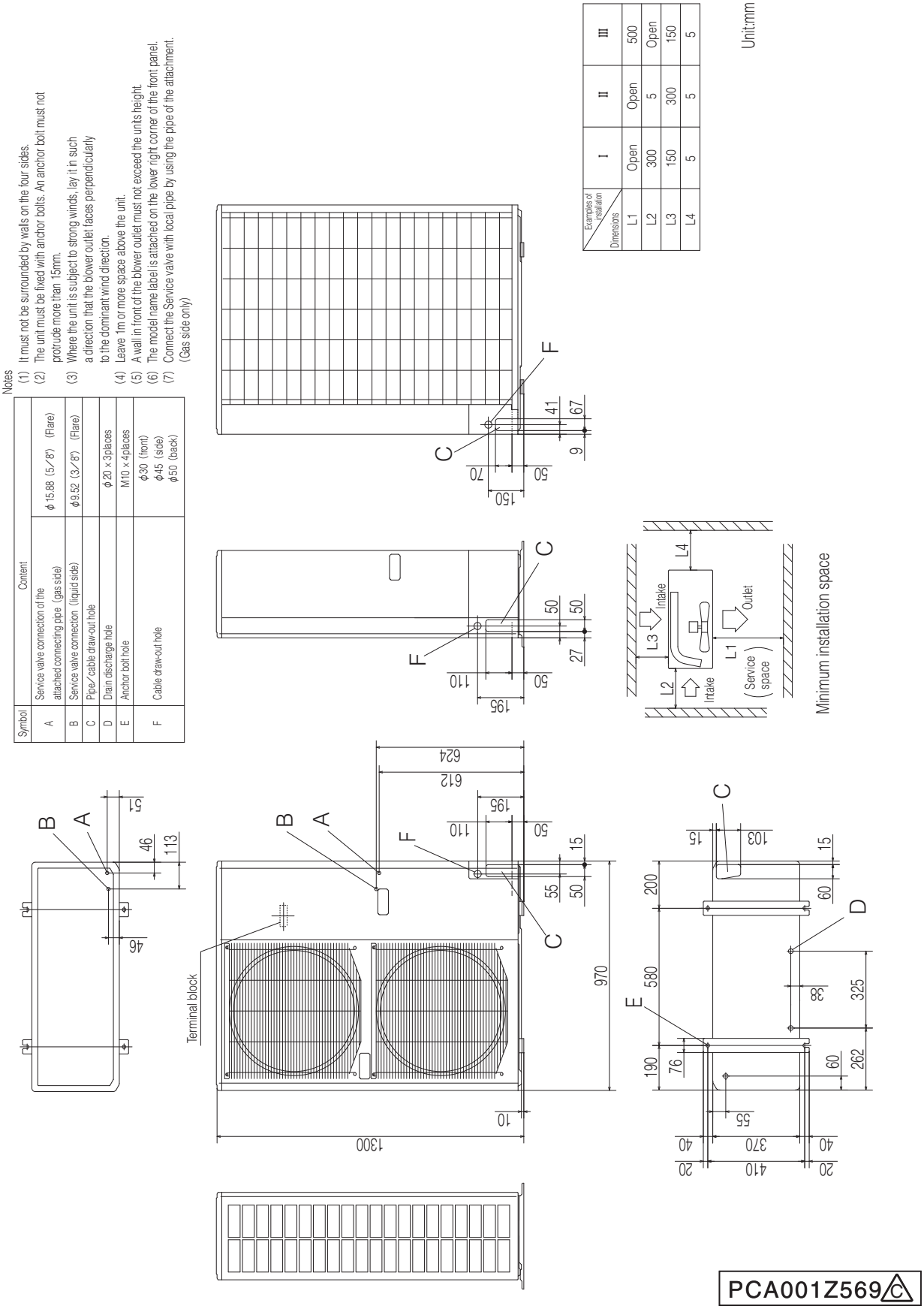


RLF000Z201

(2) Outdoor units

Models FDC100VNX, 125VNX, 140VNX

100VSX, 125VSX, 140VSX

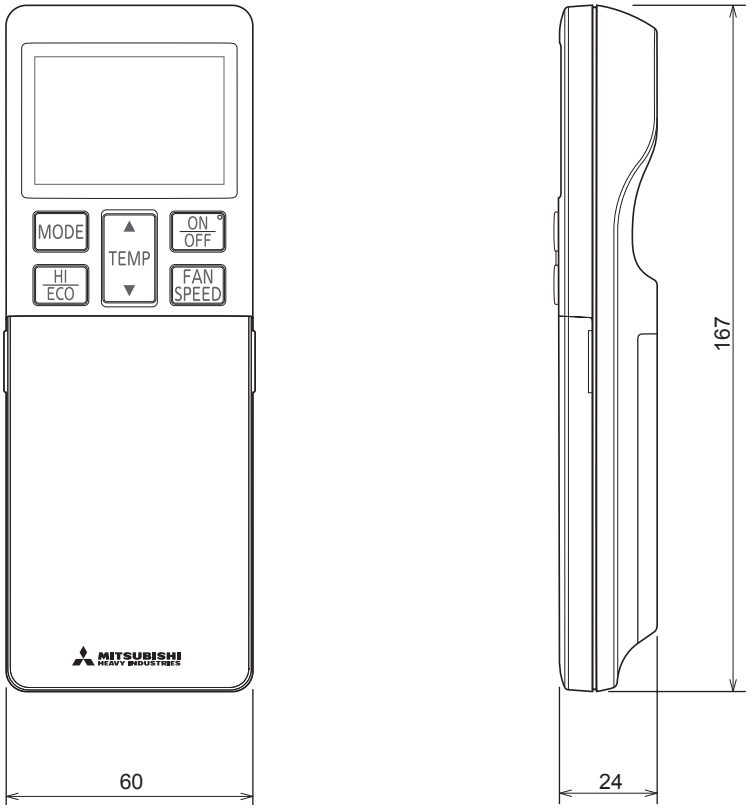


PCA001Z569C

(3) Remote control

(a) Wireless remote control

Unit : mm

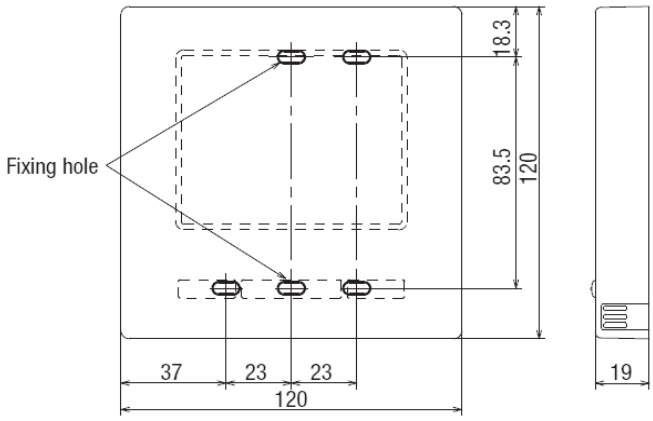


(b) Wired remote control (Option parts)

Interface kit (SC-BIKN-E) is required to use the wired remote control.

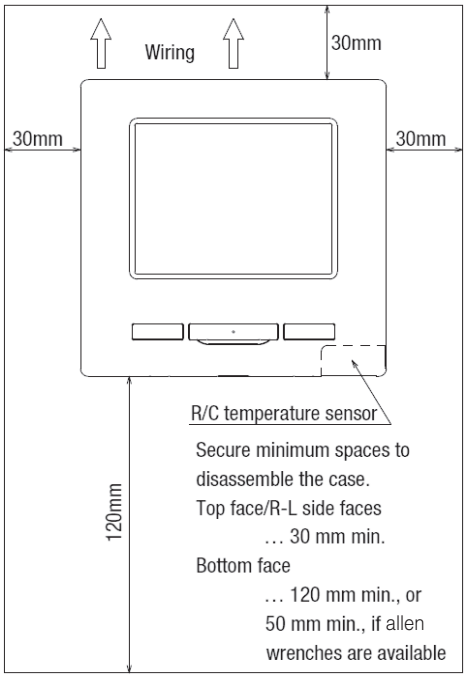
Model RC-EX3

Dimensions (Viewed from front)



Exterior appearance (Munsell color)	Pearl white (N8.5) near equivalent

Installation space



Cautions for selecting installation place

(1) Installation surface must be flat and sufficiently strong. R/C case must not be deformed.

(2) Where the R/C can detect room temperatures accurately
This is a must when detecting room temperatures with the temperature sensor of R/C.
- Install the R/C where it can detect the average temperature in the room.
- Install the R/C sufficiently separated from a heat source.
- Install the R/C where it will not be influenced by the turbulence of air when the door is opened or closed.

Select a place where the R/C is not exposed to direct sunlight or blown by winds from the air-conditioner or temperatures on the wall surface will not deviate largely from indoor air temperatures.

(3) When using the panel provided with the automatic filter elevating function, select a place where the movement of grill can be seen easily.

R/C cable: 0.3mm^2 × 2 cores

When the cable length is longer than 100 m, the max size for wires used in the R/C case is 0.5 mm^2. Connect them to wires of larger size near the outside of R/C. When wires are connected, take measures to prevent water, etc. from entering inside.

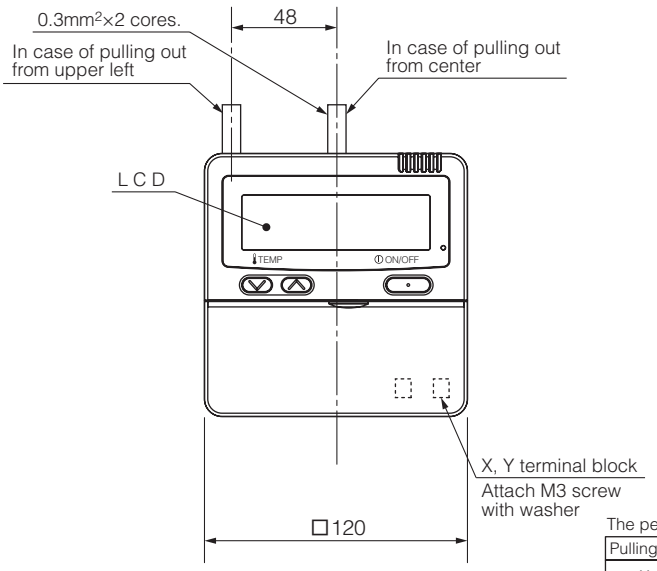
< 200 m	0.5 mm^2 x 2 cores
< 300 m	0.75 mm^2 x 2 cores
< 400 m	1.25 mm^2 x 2 cores
< 600 m	2.0 mm^2 x 2 cores

Adapted to RoHS directive

PJZ000Z321

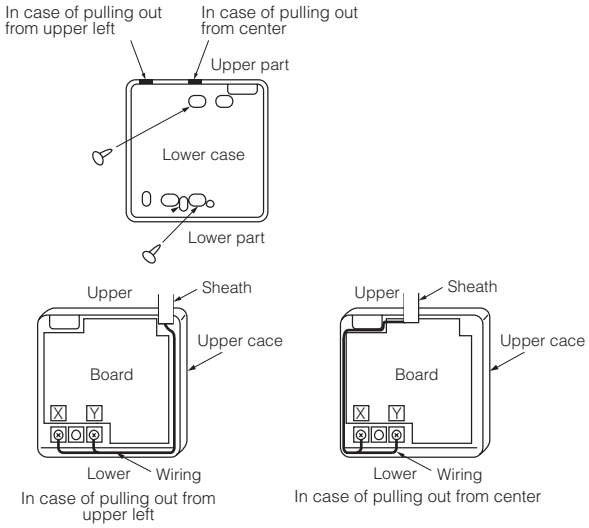
Model RC-E5

Exposed mounting



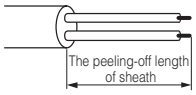
Exterior appearance (Munsell color)	Pearl white (N8.5) near equivalent

Wiring outlet
Cut off the upper thin part of remote control lower case with a nipper or knife, and grind burrs with a file etc.

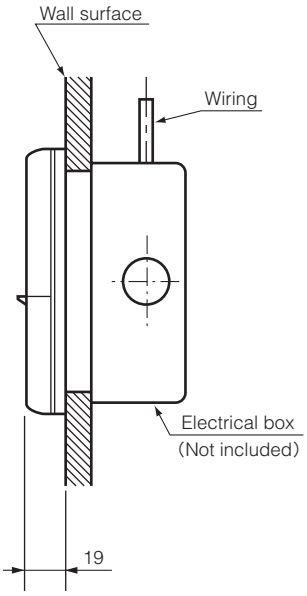


The peeling-off length of sheath

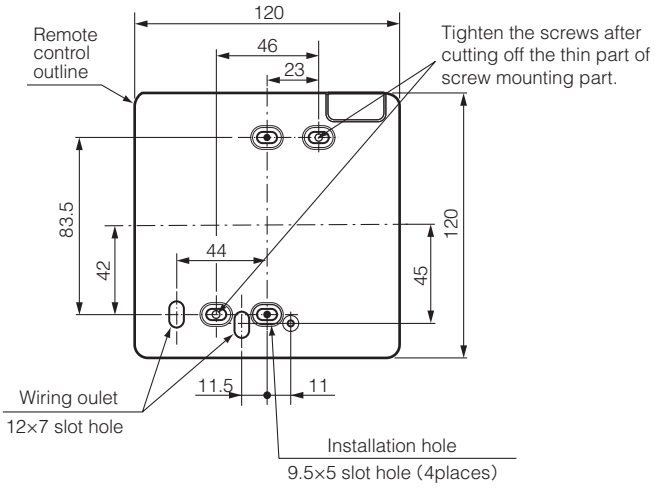
Pulling out from upper left	Pulling out from center
X wiring : 215mm Y wiring : 195mm	X wiring : 170mm Y wiring : 190mm



Embedded mounting



Remote control installation dimensions



(1) Installation screw for remote control
M4 screw (2 pieces)

Unit:mm

Wiring specifications

(1) If the prolongation is over 100m, change to the size below.
But, wiring in the remote control 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.

Length	Wiring thickness
100 to 200m	0.5mm²×2 cores
Under 300m	0.75mm²×2 cores
Under 400m	1.25mm²×2 cores
Under 600m	2.0mm²×2 cores

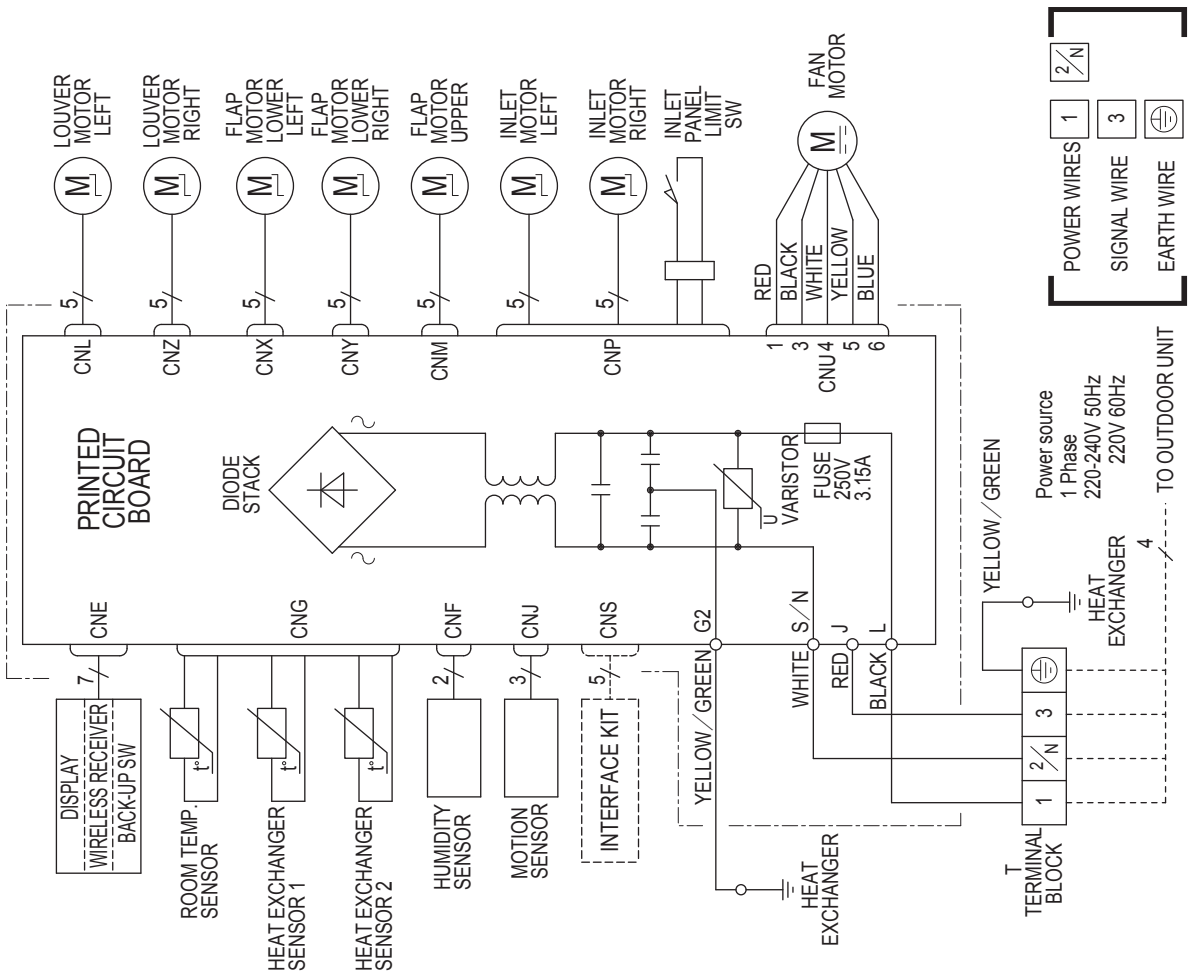
PJZ000Z295

1.3 ELECTRICAL WIRING

(1) Indoor units

Models SRK50ZSX-S, 60ZSX-S

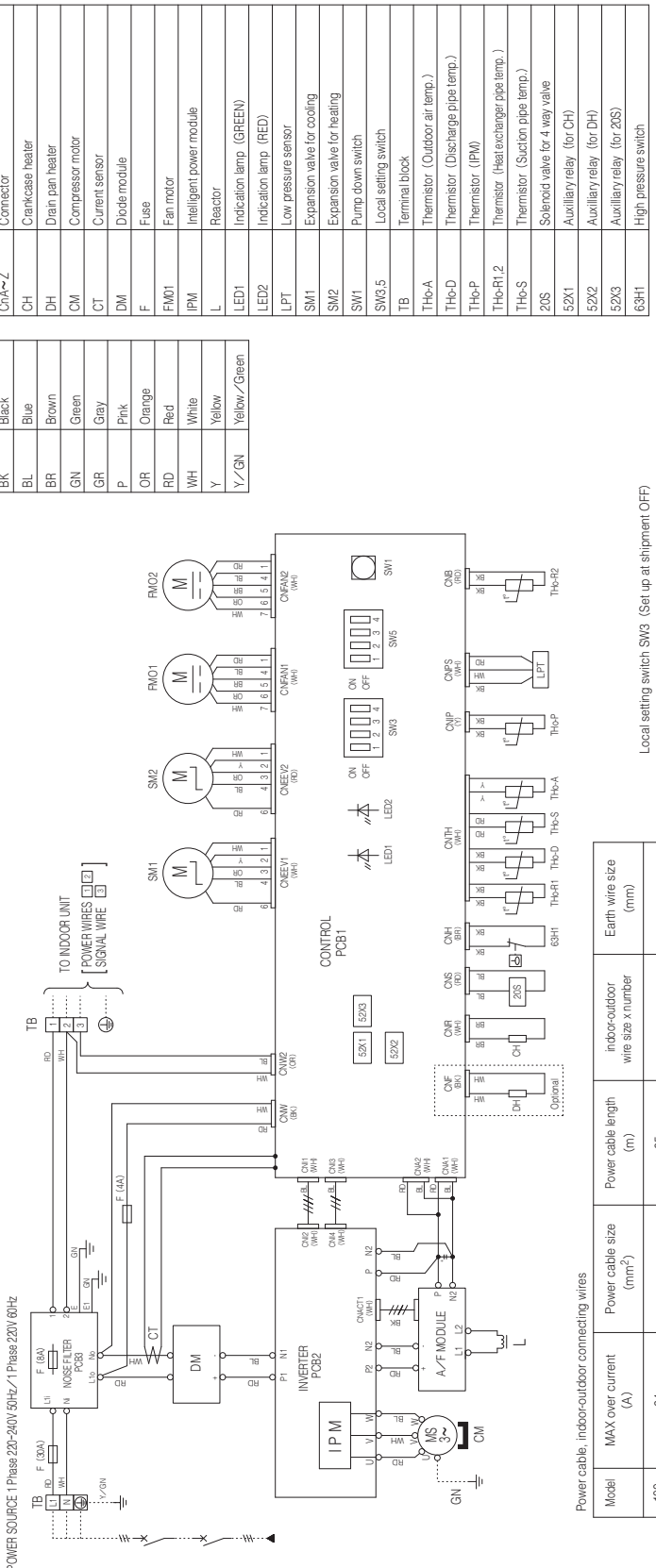
Item	Description
	Connector
CNE	
CNF	
CNG	
CNJ	
CNL	
CNM	
CNP	
CNS	
CNU	
CNX	
CNY	
CNZ	



RWA000Z412

(2) Outdoor units

Models FDC100VNX, 125VNX, 140VNX



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

Meaning of marks

Item	Description
CnA~Z	Connector
CH	Crankcase heater
DH	Drain pan heater
CM	Compressor motor
CT	Current sensor
DM	Diode module
F	Fuse
FMO1	Fan motor
IPM	Intelligent power module
L	Reactor
LED1	Indication lamp (GREEN)
LED2	Indication lamp (RED)
LPT	Low pressure sensor
SM1	Expansion valve for cooling
SM2	Expansion valve for heating
SW1	Pump down switch
SW3,5	Local setting switch
TB	Terminal block
THo-A	Thermistor (Outdoor air temp.)
THo-D	Thermistor (Discharge pipe temp.)
THo-P	Thermistor (IPM)
THo-R1,2	Thermistor (Heat exchanger pipe temp.)
THo-S	Thermistor (Suction pipe temp.)
20S	Solenoid valve for 4 way valve
52X1	Auxiliary relay (for CH)
52X2	Auxiliary relay (for DH)
52X3	Auxiliary relay (for 20S)
63H1	High pressure switch

Local setting switch SW3 (Set up at shipment OFF)

SW3-1	Defrost control change	The defrosting operation interval becomes shorter by turning ON this switch. This switch should be turned ON in the area where outside temperature becomes below the freezing point.
SW3-2	Snow guard fan control	When this switch is turned ON, the outdoor unit fan will run for 30 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.
SW3-3,4	Trial operation	Method of trial operation ①Trial operation can be performed by using SW3-3, 4. ②Compressor will be in the operation when SW3-3 is ON. ③Cooling trial operation will be performed when SW3-4 is OFF, and heating trial operation when SW3-4 is ON. ④Be sure to turn OFF SW3-3 after the trial operation is finished.

Power cable, indoor-outdoor connecting wires

Model	MAX over current (A)	Power cable size (mm^2)	Power cable length (m)	indoor-outdoor wire size x number	Earth wire size (mm)
100	24	5.5	25	φ1.6mm x 3	φ1.6
125	26		23		
140					

※At the connection with the duct type indoor unit.

Model	MAX over current (A)	Power cable size (mm^2)	Power cable length (m)	indoor-outdoor wire size x number	Earth wire size (mm)
100	25	5.5	24	φ1.6mm x 3	φ1.6
125	29	8	31		
140	30		30		

- 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.
- Switchgear of Circuit breaker capacity which is calculated from MAX. over current should be chosen along the regulations in each country.
- 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.

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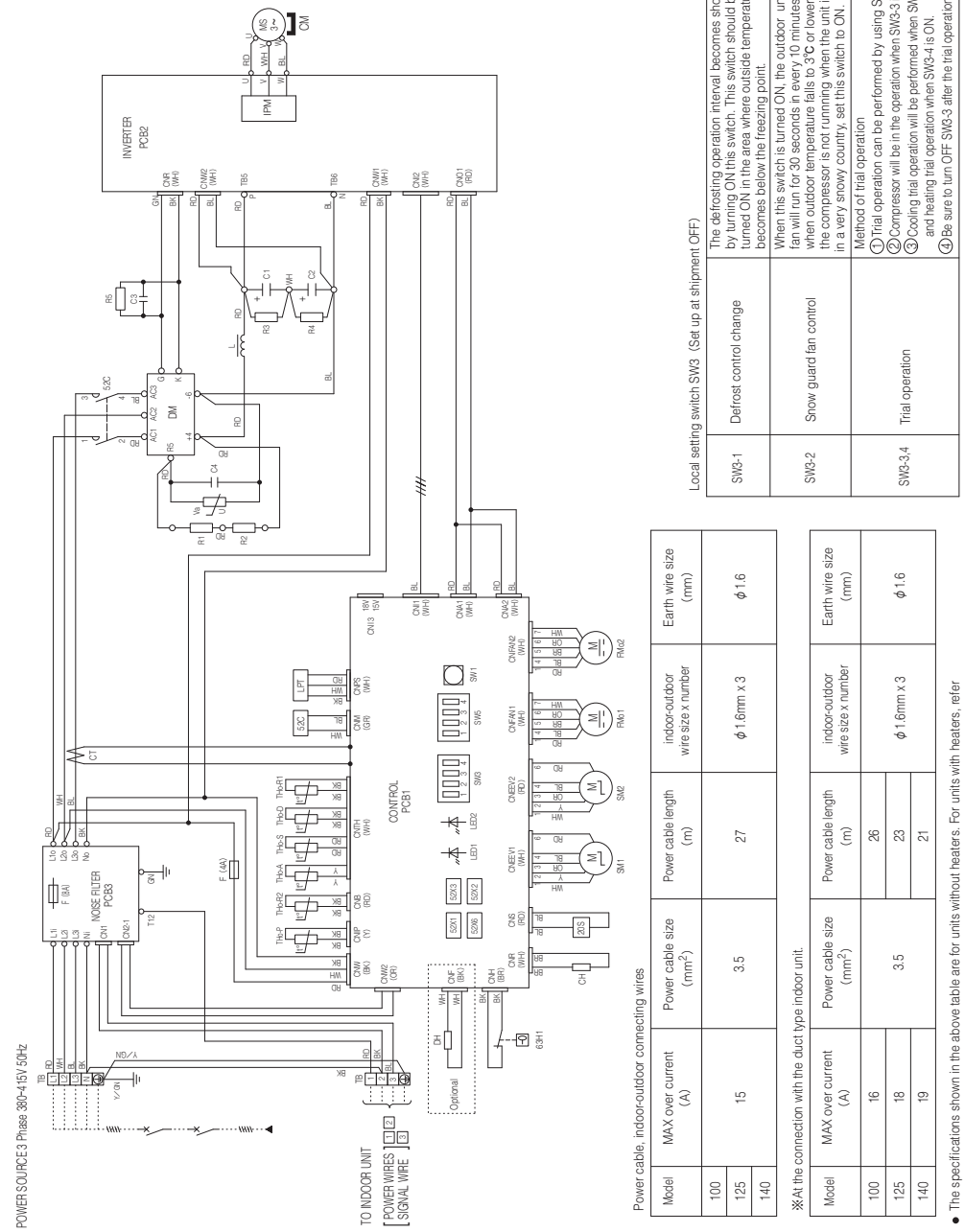
Models FDC100VSX, 125VSX, 140VSX



Meaning of marks

Item	Description
CH	Crankcase heater
CM	Compressor motor
CnA~Z	Connector
CT	Current sensor
DH	Drain pan heater
DM	Diode module
F	Fuse
FMo1,2	Fan motor
IPM	Intelligent power module
L	Reactor
LED1	Indication lamp (GREEN)
LED2	Indication lamp (RED)
LPT	Low pressure sensor
SM1	Expansion valve for cooling
SM2	Expansion valve for heating
SW1	Pump down switch
SW3,5	Local setting switch
TB	Terminal block
THo-A	Thermistor (Outdoor air temp.)
THo-D	Thermistor (Discharger pipe temp.)
THo-R1,2	Thermistor (Heat exchanger pipe temp.)
THo-S	Thermistor (Suction pipe temp.)
THo-P	Thermistor (IPM)
20S	Solenoid valve for 4 way valve
52C	Relay
52X1	Auxiliary relay (for CH)
52X2	Auxiliary relay (for DH)
52X3	Auxiliary relay (for 20S)
52X6	Auxiliary relay (for 52C)
63H1	High pressure switch

Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
OR	Orange
RD	Red
WH	White
Y	Yellow
Y/ GN	Yellow/ Green
GR	Gray
P	Pink

Local setting switch SW3 (Set up at shipment OFF)

SW3-1	Defrost control change	The defrosting operation interval becomes shorter by turning ON this switch. This switch should be turned ON in the area where outside temperature becomes below the freezing point.
SW3-2	Snow guard fan control	When this switch is turned ON, the outdoor unit fan will run for 30 seconds in every 10 minutes, when outdoor temperature falls to 3℃ or lower and the compressor is not running. when the unit is used in a very snowy country, set this switch to ON.
SW3-3,4	Trial operation	Method of trial operation ① Trial operation can be performed by using SW3-3,4. ② Compressor will be in the operation when SW3-3 is ON. ③ Cooling trial operation will be performed when SW3-4 is OFF, and heating trial operation when SW3-4 is ON. ④ Be sure to turn OFF SW3-3 after the trial operation is finished.

Power cable, indoor-outdoor connecting wires

Model	MAX over current (A)	Power cable size (mm^2)	Power cable length (m)	indoor-outdoor wire size x number	Earth wire size (mm)
100	15	3.5	27	ϕ 1.6mm x 3	ϕ 1.6
125					
140					

※At the connection with the duct type indoor unit.

Model	MAX over current (A)	Power cable size (mm^2)	Power cable length (m)	indoor-outdoor wire size x number	Earth wire size (mm)
100	16	3.5	26	ϕ 1.6mm x 3	ϕ 1.6
125	18		23		
140	19		21		

- 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.
- Switchgear of Circuit breaker capacity which is calculated from MAX. over current should be chosen along the regulations in each country.
- 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.

PCA001Z571 A

1.4 NOISE LEVEL

(1) Indoor units

Model SRK50ZSX-S

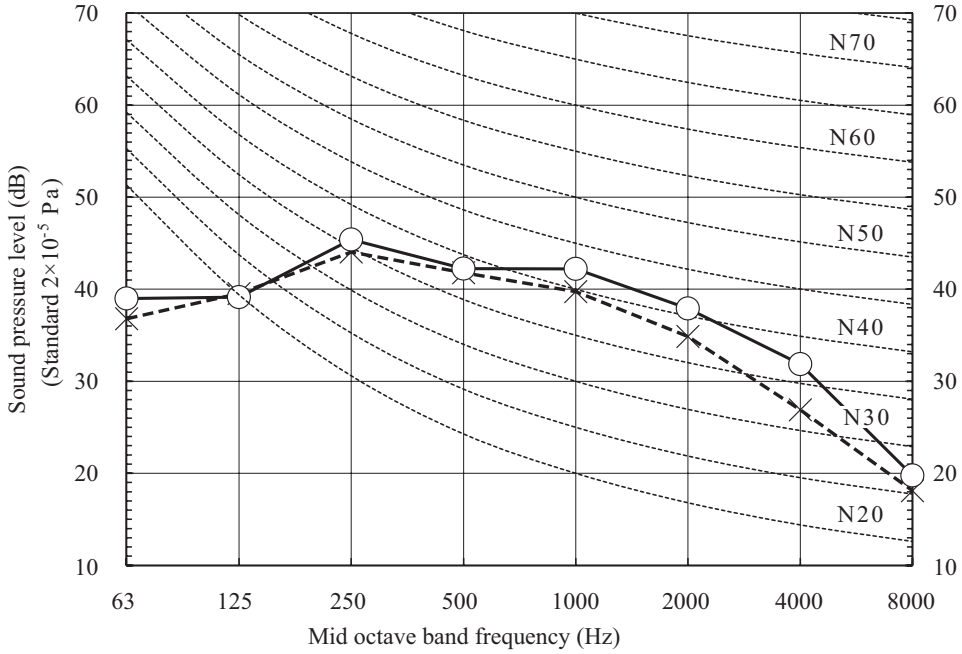
(Indoor Unit)

Model	SRK50ZSX-S	
Noise Level	Cooling	44 dB(A)
	Heating	46 dB(A)

Condition	ISO-T1, JIS B 8616

●Mike position

× ····· Cooling, ○ —— Heating



Model SRK60ZSX-S

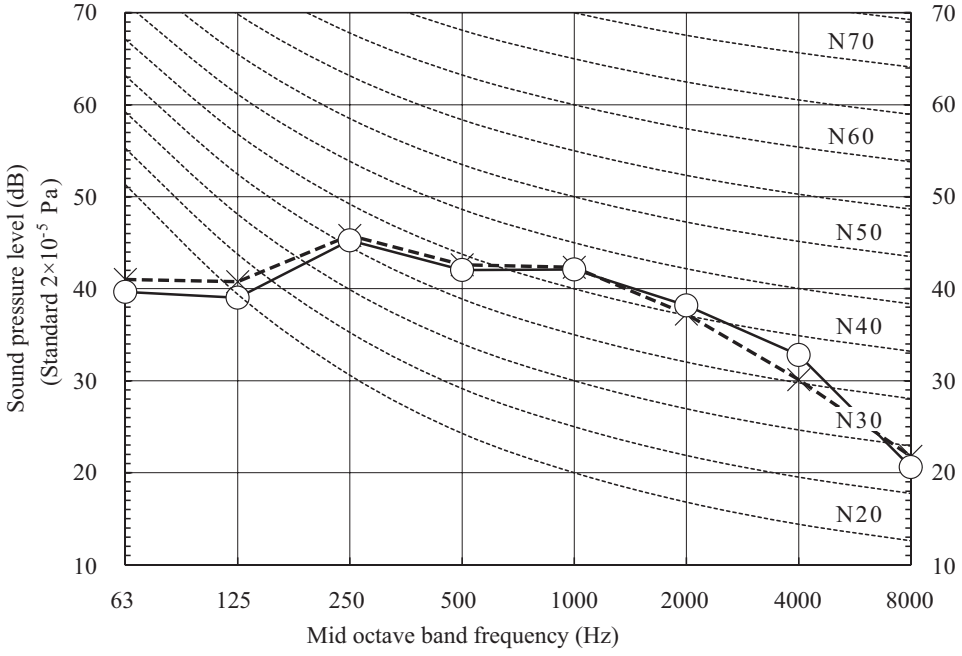
(Indoor Unit)

Model	SRK60ZSX-S	
Noise Level	Cooling	46 dB(A)
	Heating	46 dB(A)

Condition	ISO-T1, JIS B 8616

●Mike position

× ····· Cooling, ○ —— Heating

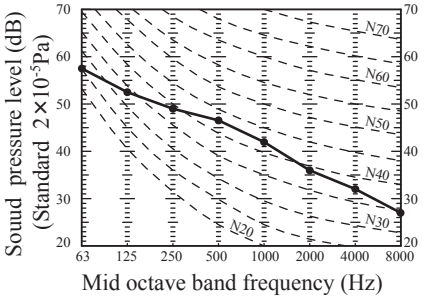


(2) Outdoor units

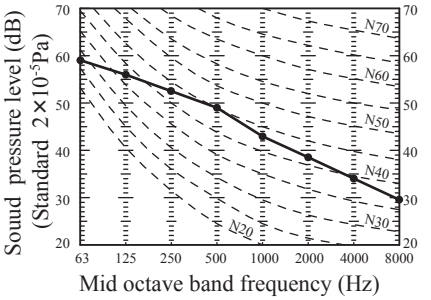
Measured based or JIS B 8616 or JIS C 9612
Mike position: at highest noise level in position as mentined below.
Distance from front side 1m

Model FDC100VNX,100VSX

Cooling noise level 48 dB (A)

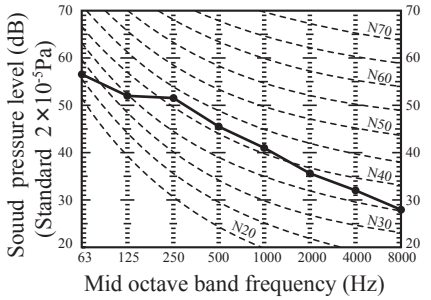


Heating noise level 50 dB (A)

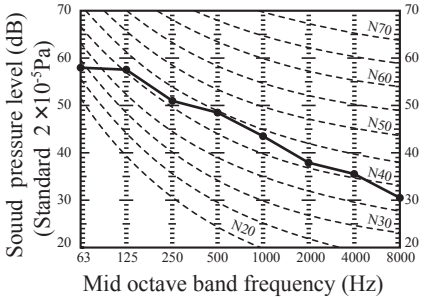


Models FDC125VNX,125VSX

Cooling noise level 48 dB (A)

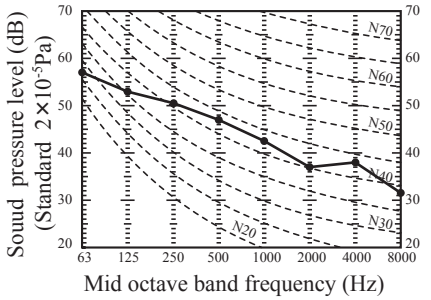


Heating noise level 50 dB (A)

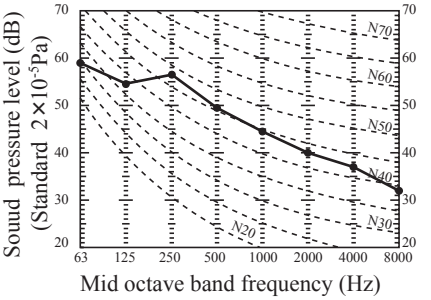


Models FDC140VNX,140VSX

Cooling noise level 49 dB (A)



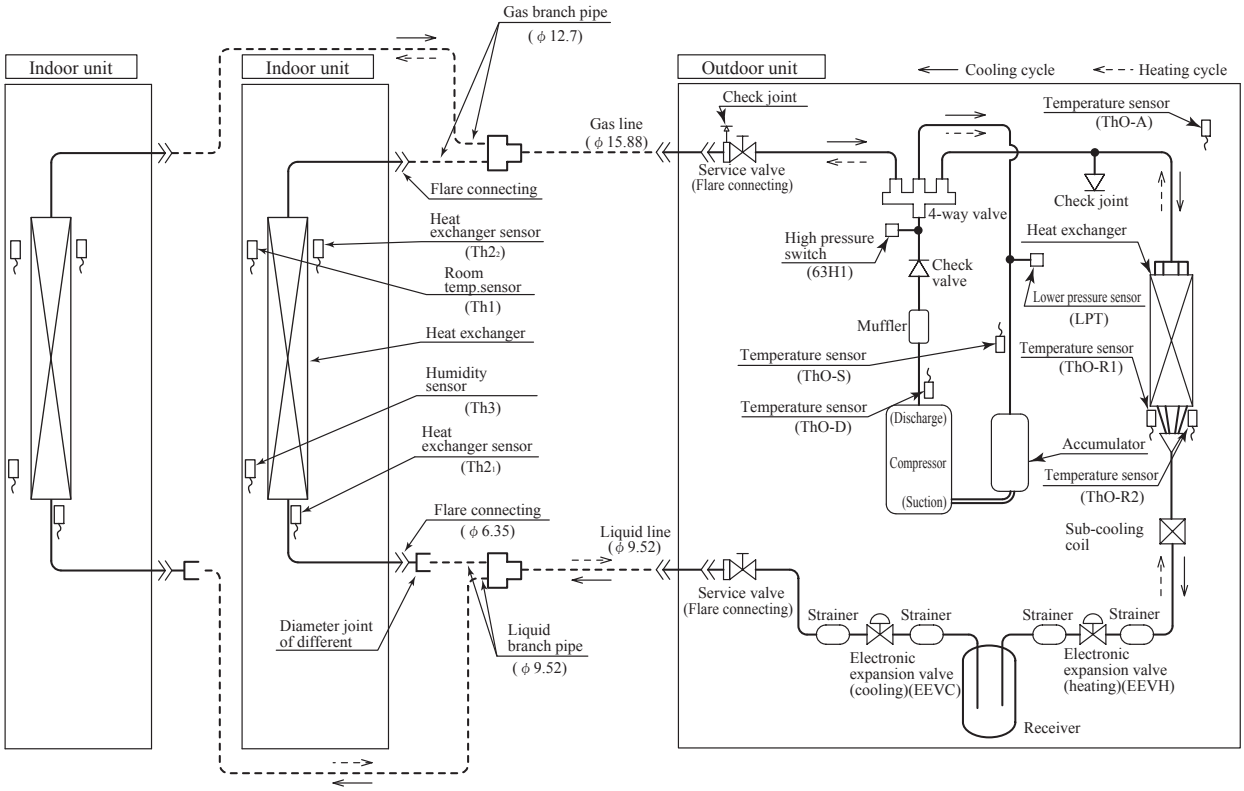
Heating noise level 52 dB (A)



1.5 PIPING SYSTEM

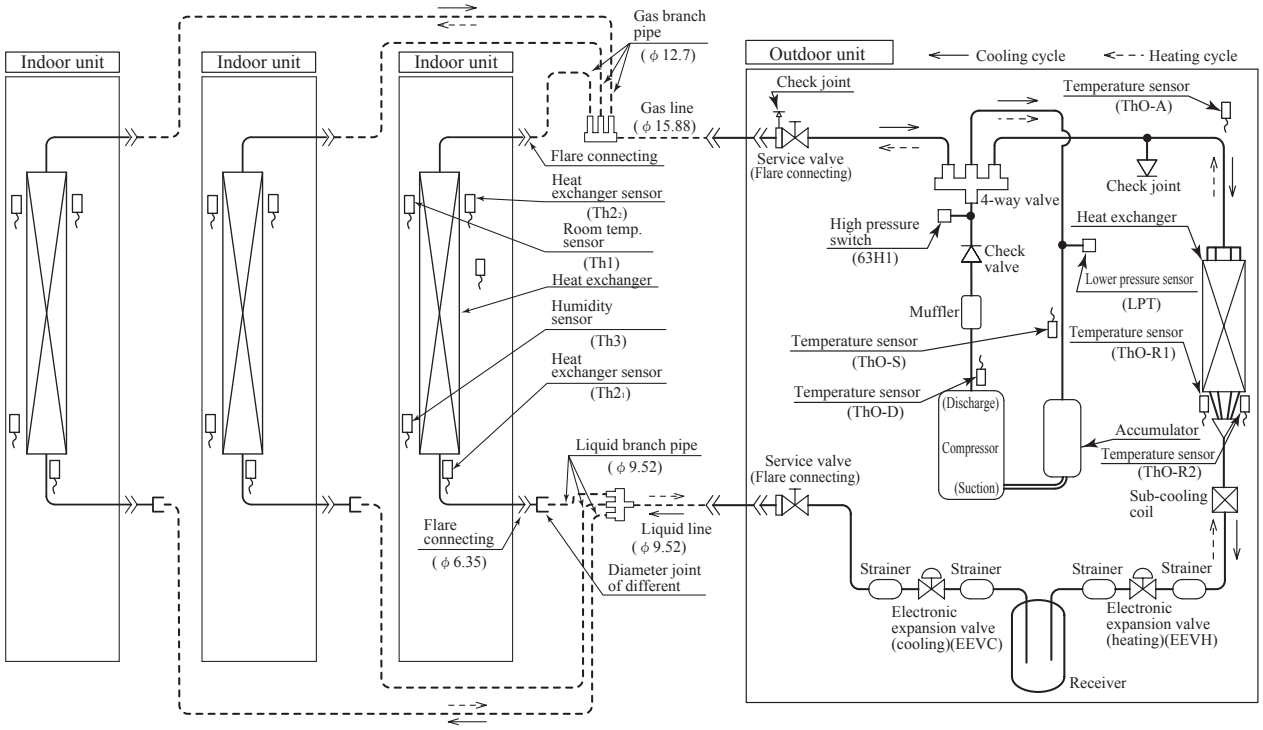
(1) Twin type

Models 100, 125



(2) Triple type

Model 140



Preset point of the protective devices

Parts name	Mark	Equipped unit	100, 125, 140 model
Temperature sensor (for protection overloading in heating)	Th1	Indoor unit	OFF 16℃ ON 17℃
Temperature sensor (for frost prevention)	Th2$_1$		OFF 8℃ ON 2.5℃
Temperature sensor (for protection high pressure in cooling.)	Tho-R	Outdoor unit	OFF 51℃ ON 65℃
Temperature sensor (for detecting discharge pipe temp.)	Tho-D	Outdoor unit	OFF 115℃ ON 85℃
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

1.6 RANGE OF USAGE & LIMITATIONS

Operating temperature range		See the next page.
		When used below -5˚C, install a snow hood.
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 24 and 25
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

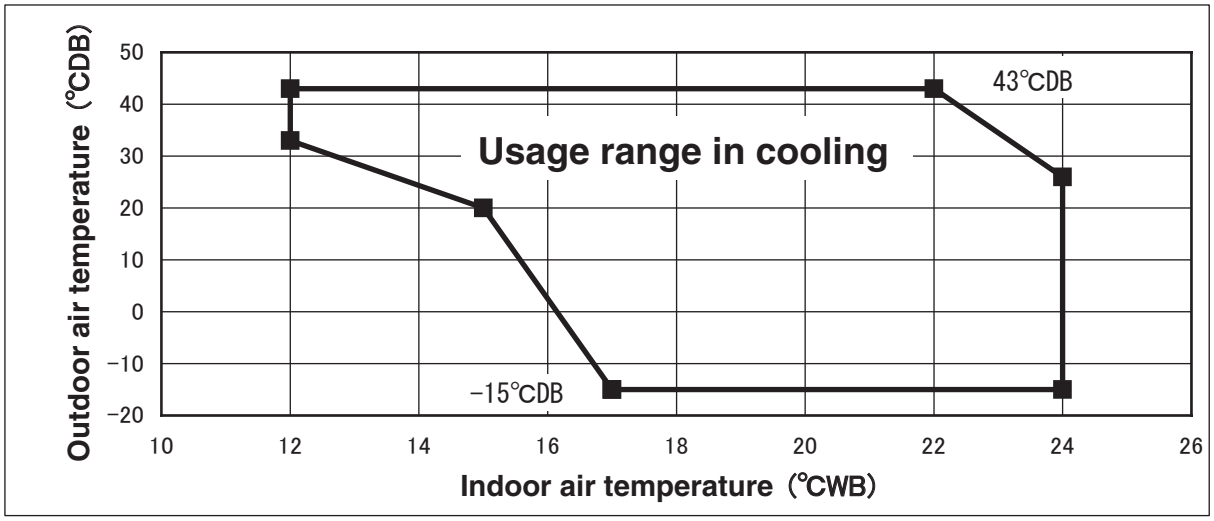
Note 1. Do not install the unit in places which :
1) Flammable gas may leak.
2) Carbon fiber, metal particles, powder, etc. are floating.
3) Cosmetic or special sprays are used frequently.
4) Exposed to oil splashes or steam (e.g. kitchen and machine plant).
5) Exposed to sea breeze (e.g. coastal area) or calcium chloride (e.g. snow melting agent).
6) Exposed to ammonia substance (e.g. organic fertilizer).
7) Matters affecting devices, such as sulfuric gas, chlorine gas, acid, alkali, etc. may generate or accumulate.
8) Chimney smoke is hanging.
9) Sucking the exhaust gas from heat exchanger.
10) Adjacent to equipment generating electromagnetic waves or high frequency waves.
11) There is light beams that affect the receiving device of indoor unit in case of the wireless specification.
12) Snow falls heavily.
13) At an elevation of 1000 meters or higher.
14) On mobile machine (e.g. vehicle, ship, etc.)
15) Splashed with water to indoor unit (e.g. laundry room).
16) Indoor units of twin and triple specifications separately in a room with partition.

Note 2. If ambient temperature and humidity exceed the above conditions, 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%.

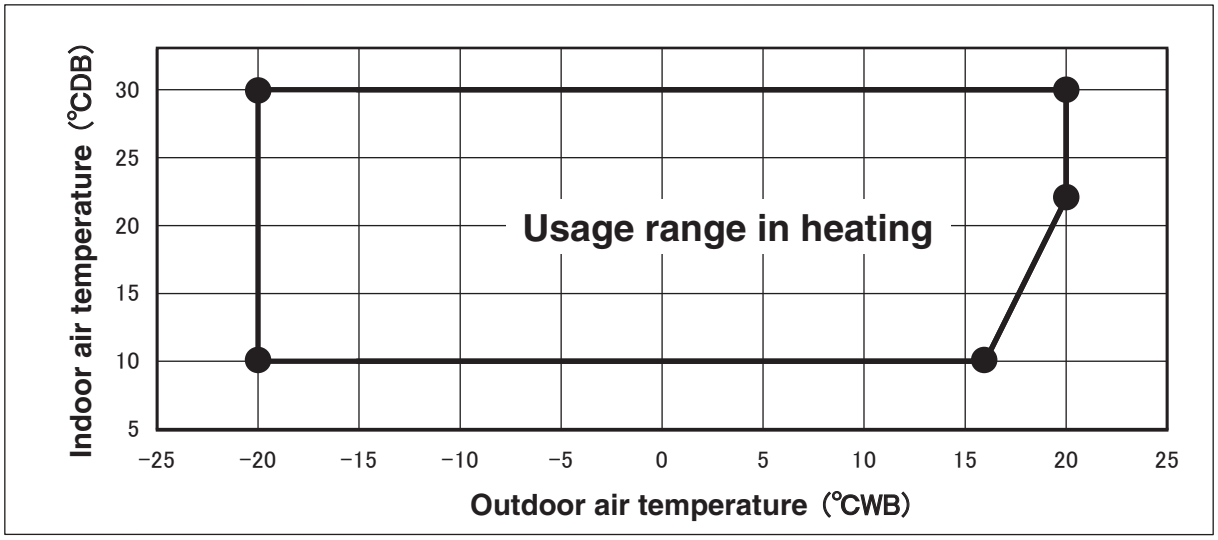
Note 3. When used below -5˚C, install a snow hood on site.
Regarding outline of a snow hood, refer to our technical maunal.

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 air flow rate.

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"CAUTION" Cooling operation under low outdoor air temperature conditions

PAC models can be operated in cooling mode at low outdoor 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.

[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 option part) or like such devices onto the outdoor unit in order to divert the strong wind.

[Reason]

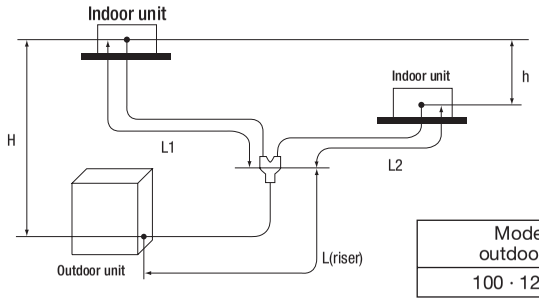
Under the low outdoor air temperature conditions of -5℃ or lower, the outdoor fan is controlled at lower or lowest speed by outdoor fan control, but if strong wind directly blow into the outdoor unit, the outdoor heat exchanger temperature will drop more.

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.

Limitation on unit and piping installation - twin.

Descriptions	Models for outdoor unit		Dimensional limitations	Marks appearing in the drawing
				Twin type
One-way pipe length	100 · 125 · 140		≦ 100m	L + L1 + L2
Main pipe length	100 · 125 · 140		≦ 100m	L
One-way pipe length after first branching point	100 · 125 · 140		≦ 30m	L1, L2
Difference of pipe length after first branching point			≦ 10m	L1 - L2 L2 - L1
Total pipe length after the second branching point			≦ 15m	
Elevation difference between indoor and outdoor unit	When outdoor unit is positioned higher	100 · 125 · 140	≦ 30m	H
	When outdoor unit is positioned lower	100 · 125 · 140	≦ 15m	H
Elevation difference among indoor units			≦ 0.5m	h

Twin type



Twin type

Model for outdoor units	Branch piping set (option)
100 · 125 · 140	DIS-WA1

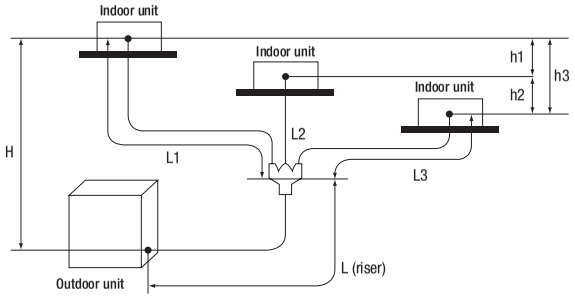
(1) A riser pipe must be part of the main.
A branching pipe set should be installed horizontally at point as close to an indoor unit as possible.
(2) Reduce refrigerant amount by according to table below from the factory charge when refrigerant piping is shorter than 3m.

Model for outdoor units	Refrigerant to be reduced
100 · 125 · 140	1.0 kg

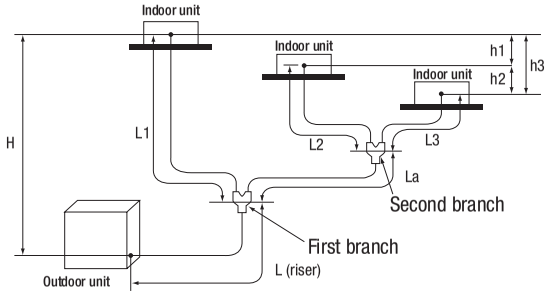
Limitation on unit and piping installation - triple.

Descriptions	Model for outdoor unit	Dimensional limitations	Marks appearing in the drawing	
			Triple type A	Triple type B
One-way pipe length	140	≦ 100m	L + L1 + L2 + L3	L + La + L1 + L2 + L3 ※1
Main pipe length	140	≦ 100m	L	L
One-way pipe length first branching point to indoor units between	140	≦ 30m	L1, L2, L3	L1 ※1
One-way pipe length between first branching point from and second branching point	140	≦ 5m		La
One-way pipe length first branching point and indoor units	140	≦ 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 the outdoor unit is positioned higher	≦ 30m	H	H
	When the outdoor unit is positioned lower	≦ 15m		
Elevation difference among indoor units		≦ 0.5m	h1, h2, h3	h1, h2, h3

Triple type A



Triple type B



※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.

Branch piping set (option)

Model for outdoor units	Triple type A	Triple type B	
	Branch piping	First branch	Second branch
140	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.

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1.7 SELECTION CHART

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

Net capacity = Capacity shown in the capacity tables (1.7.1) × Correction factors shown in the table (1.7.2) (1.7.3) (1.7.4).

Caution: In case that the cooling operation during low outdoor air 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.

1.7.1 Capacity tables

Wall mounted type (SRK)

(1) Twin type

Model SRK100VNXPZSX Indoor unit SRK50ZSX-S (2 units) Outdoor unit FDC100VNX

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18˚CDB 12˚CWB		21˚CDB 14˚CWB		23˚CDB 16˚CWB		26˚CDB 18˚CWB		27˚CDB 19˚CWB		28˚CDB 20˚CWB		31˚CDB 22˚CWB		33˚CDB 24˚CWB	
˚CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					8.33	6.87	8.84	7.42	9.10	7.37	9.38	7.32	9.94	7.73	10.50	7.60
13					8.63	7.00	9.17	7.55	9.43	7.49	9.73	7.45	10.32	7.86	10.92	7.73
15					8.93	7.13	9.49	7.68	9.77	7.62	10.09	7.58	10.71	7.99	11.34	7.86
17					9.23	7.26	9.82	7.81	10.11	7.76	10.44	7.71	11.10	8.13	11.75	7.99
19					9.44	7.35	10.04	7.90	10.34	7.85	10.68	7.80	11.35	8.21	12.01	8.07
21					9.64	7.44	10.26	7.99	10.57	7.94	10.91	7.89	11.59	8.30	12.28	8.16
23					9.64	7.44	10.28	8.00	10.59	7.94	10.94	7.90	11.63	8.31	12.32	8.17
25			8.95	7.56	9.64	7.44	10.30	8.01	10.62	7.96	10.97	7.91	11.66	8.32	12.36	8.18
27			8.91	7.54	9.64	7.44	10.33	8.02	10.64	7.96	10.96	7.91	11.59	8.30		
29			8.84	7.51	9.51	7.38	10.16	7.95	10.48	7.90	10.80	7.85	11.45	8.25		
31			8.76	7.47	9.37	7.32	10.00	7.88	10.32	7.84	10.65	7.79	11.30	8.19		
33	8.21	6.97	8.58	7.39	9.23	7.26	9.83	7.81	10.16	7.78	10.49	7.73	11.15	8.14		
35	7.77	6.76	8.31	7.26	9.09	7.20	9.66	7.75	10.00	7.71	10.34	7.67	11.01	8.09		
37	7.68	6.71	8.18	7.20	8.92	7.12	9.49	7.68	9.81	7.64	10.13	7.60	10.77	8.01		
39	7.58	6.66	8.04	7.14	8.76	7.06	9.31	7.61	9.62	7.57	9.93	7.52	10.54	7.93		
41	7.49	6.62	7.91	7.08	8.59	6.98	9.14	7.54	9.43	7.49	9.73	7.45	10.31	7.86		
43	7.40	6.57	7.78	7.02	8.42	6.91	8.96	7.47	9.24	7.42	9.52	7.37	10.08	7.78		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature ˚CDB				
˚CDB	˚CWB	16	18	20	22	24
-19.8	-20	7.30	7.24	7.18	7.12	7.06
-17.7	-18	7.74	7.68	7.62	7.55	7.49
-15.7	-16	8.18	8.12	8.05	7.99	7.92
-13.5	-14	8.54	8.47	8.40	8.33	8.27
-11.5	-12	8.89	8.82	8.75	8.68	8.61
-9.5	-10	9.25	9.17	9.10	9.03	8.95
-7.5	-8	9.60	9.53	9.45	9.38	9.30
-5.5	-6	10.00	9.92	9.84	9.76	9.68
-3.0	-4	10.39	10.31	10.23	10.14	10.06
-1.0	-2	10.79	10.70	10.62	10.53	10.44
1.0	0	11.18	11.09	11.01	10.91	10.82
2.0	1	11.38	11.29	11.20	11.10	11.01
3.0	2	11.38	11.29	11.20	11.10	11.01
5.0	4	11.38	11.29	11.20	11.11	11.01
7.0	6	11.37	11.29	11.20	11.11	11.01
9.0	8	11.85	11.76	11.67	11.58	11.48
11.5	10	12.32	12.23	12.15	12.05	11.95
13.5	12	12.97	12.88	12.78	12.68	12.72
15.5	14	13.62	13.52	13.41	13.32	13.49
16.5	16	13.95	13.84	13.72	13.63	13.87

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Model SRK100VSXPZSX Indoor unit SRK50ZSX-S (2 units) Outdoor unit FDC100VSX

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18˚CDB 12˚CWB		21˚CDB 14˚CWB		23˚CDB 16˚CWB		26˚CDB 18˚CWB		27˚CDB 19˚CWB		28˚CDB 20˚CWB		31˚CDB 22˚CWB		33˚CDB 24˚CWB	
˚CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					8.33	6.87	8.84	7.42	9.10	7.37	9.38	7.32	9.94	7.73	10.50	7.60
13					8.63	7.00	9.17	7.55	9.43	7.49	9.73	7.45	10.32	7.86	10.92	7.73
15					8.93	7.13	9.49	7.68	9.77	7.62	10.09	7.58	10.71	7.99	11.34	7.86
17					9.23	7.26	9.82	7.81	10.11	7.76	10.44	7.71	11.10	8.13	11.75	7.99
19					9.44	7.35	10.04	7.90	10.34	7.85	10.68	7.80	11.35	8.21	12.01	8.07
21					9.64	7.44	10.26	7.99	10.57	7.94	10.91	7.89	11.59	8.30	12.28	8.16
23					9.64	7.44	10.28	8.00	10.59	7.94	10.94	7.90	11.63	8.31	12.32	8.17
25			8.95	7.56	9.64	7.44	10.30	8.01	10.62	7.96	10.97	7.91	11.66	8.32	12.36	8.18
27			8.91	7.54	9.64	7.44	10.33	8.02	10.64	7.96	10.96	7.91	11.59	8.30		
29			8.84	7.51	9.51	7.38	10.16	7.95	10.48	7.90	10.80	7.85	11.45	8.25		
31			8.76	7.47	9.37	7.32	10.00	7.88	10.32	7.84	10.65	7.79	11.30	8.19		
33	8.21	6.97	8.58	7.39	9.23	7.26	9.83	7.81	10.16	7.78	10.49	7.73	11.15	8.14		
35	7.77	6.76	8.31	7.26	9.09	7.20	9.66	7.75	10.00	7.71	10.34	7.67	11.01	8.09		
37	7.68	6.71	8.18	7.20	8.92	7.12	9.49	7.68	9.81	7.64	10.13	7.60	10.77	8.01		
39	7.58	6.66	8.04	7.14	8.76	7.06	9.31	7.61	9.62	7.57	9.93	7.52	10.54	7.93		
41	7.49	6.62	7.91	7.08	8.59	6.98	9.14	7.54	9.43	7.49	9.73	7.45	10.31	7.86		
43	7.40	6.57	7.78	7.02	8.42	6.91	8.96	7.47	9.24	7.42	9.52	7.37	10.08	7.78		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature ˚CDB				
˚CDB	˚CWB	16	18	20	22	24
-19.8	-20	11.29	11.20	11.11	11.02	10.93
-17.7	-18	11.34	11.25	11.16	11.06	10.97
-15.7	-16	11.38	11.29	11.20	11.11	11.02
-13.5	-14	11.38	11.29	11.20	11.11	11.02
-11.5	-12	11.38	11.29	11.20	11.11	11.02
-9.5	-10	11.38	11.29	11.20	11.11	11.02
-7.5	-8	11.37	11.29	11.20	11.11	11.02
-5.5	-6	11.38	11.29	11.20	11.11	11.02
-3.0	-4	11.38	11.29	11.20	11.11	11.01
-1.0	-2	11.38	11.29	11.20	11.11	11.01
1.0	0	11.38	11.29	11.20	11.10	11.01
2.0	1	11.38	11.29	11.20	11.10	11.01
3.0	2	11.38	11.29	11.20	11.10	11.01
5.0	4	11.38	11.29	11.20	11.11	11.01
7.0	6	11.37	11.29	11.20	11.11	11.01
9.0	8	11.85	11.76	11.67	11.58	11.48
11.5	10	12.32	12.23	12.15	12.05	11.95
13.5	12	12.97	12.88	12.78	12.68	12.72
15.5	14	13.62	13.52	13.41	13.32	13.49
16.5	16	13.95	13.84	13.72	13.63	13.87

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Notes (1) These data show average statuses.
Depending on the system control, there may be ranges where the operation is not conducted continuously.
These data show the case where the operation frequency of a compressor is fixed.
(2) Capacities are based on the following conditions.
Corresponding refrigerant piping length :7.5m
Level difference of Zero.
(3) Symbols are as follows.
TC : Total cooling capacity (kW)
SHC : Sensible heat capacity (kW)
HC : Heating capacity (kW)

Model SRK125VNXPZSX Indoor unit SRK60ZSX-S (2 units) Outdoor unit FDC125VNX

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18˚CDB		21˚CDB		23˚CDB		26˚CDB		27˚CDB		28˚CDB		31˚CDB		33˚CDB	
	12˚CWB		14˚CWB		16˚CWB		18˚CWB		19˚CWB		20˚CWB		22˚CWB		24˚CWB	
˚CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					10.41	7.80	11.05	8.36	11.37	8.28	11.72	8.21	12.42	8.61	13.12	8.42
13					10.79	7.97	11.46	8.52	11.79	8.44	12.16	8.37	12.91	8.77	13.65	8.58
15					11.16	8.13	11.87	8.69	12.22	8.61	12.61	8.54	13.39	8.93	14.17	8.74
17					11.54	8.30	12.27	8.85	12.64	8.77	13.05	8.70	13.87	9.10	14.69	8.90
19					11.80	8.41	12.55	8.96	12.93	8.89	13.34	8.81	14.18	9.21	15.02	9.00
21					12.05	8.52	12.83	9.08	13.21	9.00	13.64	8.93	14.49	9.31	15.34	9.11
23					12.05	8.52	12.85	9.09	13.24	9.01	13.67	8.94	14.54	9.33	15.40	9.13
25			11.19	8.68	12.05	8.52	12.88	9.10	13.27	9.02	13.71	8.95	14.58	9.35	15.45	9.14
27			11.14	8.65	12.05	8.52	12.91	9.11	13.30	9.03	13.70	8.95	14.49	9.31		
29			11.05	8.61	11.88	8.45	12.70	9.03	13.10	8.95	13.51	8.88	14.31	9.25		
31			10.95	8.56	11.71	8.37	12.49	8.94	12.90	8.87	13.31	8.80	14.13	9.19		
33	10.26	8.05	10.73	8.46	11.53	8.29	12.29	8.86	12.70	8.80	13.11	8.73	13.94	9.12		
35	9.71	7.77	10.39	8.30	11.36	8.22	12.08	8.77	12.50	8.72	12.92	8.65	13.76	9.06		
37	9.60	7.72	10.22	8.22	11.15	8.12	11.86	8.68	12.26	8.62	12.67	8.56	13.47	8.96		
39	9.48	7.66	10.05	8.14	10.94	8.03	11.64	8.59	12.03	8.53	12.41	8.46	13.18	8.86		
41	9.36	7.60	9.89	8.07	10.74	7.95	11.42	8.51	11.79	8.44	12.16	8.37	12.89	8.77		
43	9.25	7.54	9.72	7.99	10.53	7.86	11.21	8.42	11.55	8.35	11.90	8.28	12.60	8.67		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature ˚CDB				
˚CDB	˚CWB	16	18	20	22	24
-19.8	-20	9.12	9.05	8.97	8.90	8.83
-17.7	-18	9.67	9.60	9.52	9.44	9.37
-15.7	-16	10.23	10.15	10.07	9.98	9.90
-13.5	-14	10.67	10.59	10.50	10.42	10.33
-11.5	-12	11.11	11.03	10.94	10.85	10.76
-9.5	-10	11.56	11.47	11.38	11.29	11.19
-7.5	-8	12.00	11.91	11.82	11.72	11.62
-5.5	-6	12.49	12.40	12.30	12.20	12.10
-3.0	-4	12.99	12.89	12.79	12.68	12.57
-1.0	-2	13.48	13.38	13.27	13.16	13.05
1.0	0	13.98	13.87	13.76	13.64	13.52
2.0	1	14.22	14.11	14.00	13.88	13.76
3.0	2	14.22	14.11	14.00	13.88	13.76
5.0	4	14.22	14.11	14.00	13.88	13.76
7.0	6	14.22	14.11	14.00	13.88	13.77
9.0	8	14.81	14.70	14.59	14.47	14.35
11.5	10	15.41	15.29	15.18	15.06	14.94
13.5	12	16.22	16.09	15.97	15.85	15.90
15.5	14	17.03	16.90	16.76	16.65	16.86
16.5	16	17.44	17.30	17.16	17.04	17.34

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Model SRK125VSXPZSX Indoor unit SRK60ZSX-S (2 units) Outdoor unit FDC125VSX

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18˚CDB		21˚CDB		23˚CDB		26˚CDB		27˚CDB		28˚CDB		31˚CDB		33˚CDB	
	12˚CWB		14˚CWB		16˚CWB		18˚CWB		19˚CWB		20˚CWB		22˚CWB		24˚CWB	
˚CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					10.41	7.80	11.05	8.36	11.37	8.28	11.72	8.21	12.42	8.61	13.12	8.42
13					10.79	7.97	11.46	8.52	11.79	8.44	12.16	8.37	12.91	8.77	13.65	8.58
15					11.16	8.13	11.87	8.69	12.22	8.61	12.61	8.54	13.39	8.93	14.17	8.74
17					11.54	8.30	12.27	8.85	12.64	8.77	13.05	8.70	13.87	9.10	14.69	8.90
19					11.80	8.41	12.55	8.96	12.93	8.89	13.34	8.81	14.18	9.21	15.02	9.00
21					12.05	8.52	12.83	9.08	13.21	9.00	13.64	8.93	14.49	9.31	15.34	9.11
23					12.05	8.52	12.85	9.09	13.24	9.01	13.67	8.94	14.54	9.33	15.40	9.13
25			11.19	8.68	12.05	8.52	12.88	9.10	13.27	9.02	13.71	8.95	14.58	9.35	15.45	9.14
27			11.14	8.65	12.05	8.52	12.91	9.11	13.30	9.03	13.70	8.95	14.49	9.31		
29			11.05	8.61	11.88	8.45	12.70	9.03	13.10	8.95	13.51	8.88	14.31	9.25		
31			10.95	8.56	11.71	8.37	12.49	8.94	12.90	8.87	13.31	8.80	14.13	9.19		
33	10.26	8.05	10.73	8.46	11.53	8.29	12.29	8.86	12.70	8.80	13.11	8.73	13.94	9.12		
35	9.71	7.77	10.39	8.30	11.36	8.22	12.08	8.77	12.50	8.72	12.92	8.65	13.76	9.06		
37	9.60	7.72	10.22	8.22	11.15	8.12	11.86	8.68	12.26	8.62	12.67	8.56	13.47	8.96		
39	9.48	7.66	10.05	8.14	10.94	8.03	11.64	8.59	12.03	8.53	12.41	8.46	13.18	8.86		
41	9.36	7.60	9.89	8.07	10.74	7.95	11.42	8.51	11.79	8.44	12.16	8.37	12.89	8.77		
43	9.25	7.54	9.72	7.99	10.53	7.86	11.21	8.42	11.55	8.35	11.90	8.28	12.60	8.67		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature ˚CDB				
˚CDB	˚CWB	16	18	20	22	24
-19.8	-20	14.11	14.00	13.89	13.78	13.66
-17.7	-18	14.17	14.06	13.94	13.83	13.72
-15.7	-16	14.23	14.11	14.00	13.89	13.77
-13.5	-14	14.23	14.11	14.00	13.89	13.77
-11.5	-12	14.22	14.11	14.00	13.89	13.77
-9.5	-10	14.22	14.11	14.00	13.89	13.77
-7.5	-8	14.22	14.11	14.00	13.89	13.77
-5.5	-6	14.22	14.11	14.00	13.88	13.77
-3.0	-4	14.22	14.11	14.00	13.88	13.77
-1.0	-2	14.22	14.11	14.00	13.88	13.76
1.0	0	14.22	14.11	14.00	13.88	13.76
2.0	1	14.22	14.11	14.00	13.88	13.76
3.0	2	14.22	14.11	14.00	13.88	13.76
5.0	4	14.22	14.11	14.00	13.88	13.76
7.0	6	14.22	14.11	14.00	13.88	13.77
9.0	8	14.81	14.70	14.59	14.47	14.35
11.5	10	15.41	15.29	15.18	15.06	14.94
13.5	12	16.22	16.09	15.97	15.85	15.90
15.5	14	17.03	16.90	16.76	16.65	16.86
16.5	16	17.44	17.30	17.16	17.04	17.34

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Notes (1) These data show average statuses.
Depending on the system control, there may be ranges where the operation is not conducted continuously.
These data show the case where the operation frequency of a compressor is fixed.
(2) Capacities are based on the following conditions.
Corresponding refrigerant piping length :7.5m
Level difference of Zero.
(3) Symbols are as follows.
TC : Total cooling capacity (kW)
SHC : Sensible heat capacity (kW)
HC : Heating capacity (kW)

(2) Triple type

Model SRK140VNXTZSX Indoor unit SRK50ZSX-S (3 units) Outdoor unit FDC140VNX

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18˚CDB		21˚CDB		23˚CDB		26˚CDB		27˚CDB		28˚CDB		31˚CDB		33˚CDB	
	12˚CWB		14˚CWB		16˚CWB		18˚CWB		19˚CWB		20˚CWB		22˚CWB		24˚CWB	
˚CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					11.66	9.96	12.38	10.79	12.73	10.71	13.13	10.64	13.91	11.27	14.70	11.09
13					12.08	10.13	12.83	10.96	13.21	10.89	13.62	10.82	14.45	11.45	15.28	11.26
15					12.50	10.31	13.29	11.14	13.68	11.07	14.12	11.00	14.99	11.63	15.87	11.44
17					12.92	10.49	13.75	11.32	14.16	11.25	14.62	11.18	15.54	11.81	16.45	11.62
19					13.21	10.61	14.06	11.45	14.48	11.37	14.95	11.30	15.88	11.93	16.82	11.73
21					13.50	10.74	14.36	11.57	14.80	11.49	15.28	11.43	16.23	12.04	17.19	11.85
23					13.50	10.74	14.40	11.58	14.83	11.50	15.31	11.44	16.28	12.06	17.25	11.87
25			12.53	10.92	13.50	10.74	14.43	11.59	14.87	11.52	15.35	11.45	16.33	12.08	17.30	11.88
27			12.48	10.90	13.50	10.74	14.46	11.61	14.90	11.53	15.34	11.45	16.23	12.04		
29			12.37	10.85	13.31	10.66	14.23	11.51	14.68	11.45	15.13	11.37	16.03	11.98		
31			12.26	10.80	13.11	10.57	13.99	11.42	14.45	11.36	14.91	11.29	15.82	11.91		
33	11.49	10.05	12.02	10.69	12.92	10.49	13.76	11.33	14.23	11.27	14.69	11.21	15.61	11.83		
35	10.88	9.75	11.63	10.51	12.72	10.40	13.53	11.24	14.00	11.19	14.47	11.13	15.41	11.77		
37	10.75	9.69	11.45	10.43	12.49	10.31	13.29	11.14	13.74	11.09	14.18	11.02	15.08	11.66		
39	10.62	9.63	11.26	10.34	12.26	10.21	13.04	11.04	13.47	10.99	13.90	10.92	14.76	11.55		
41	10.49	9.57	11.07	10.26	12.02	10.11	12.80	10.95	13.21	10.89	13.62	10.82	14.44	11.44		
43	10.35	9.50	10.89	10.18	11.79	10.01	12.55	10.85	12.94	10.79	13.33	10.72	14.11	11.33		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature ˚CDB				
˚CDB	˚CWB	16	18	20	22	24
-19.8	-20	10.42	10.34	10.26	10.17	10.09
-17.7	-18	11.06	10.97	10.88	10.79	10.70
-15.7	-16	11.69	11.60	11.50	11.41	11.32
-13.5	-14	12.20	12.10	12.00	11.91	11.81
-11.5	-12	12.70	12.60	12.50	12.40	12.30
-9.5	-10	13.21	13.11	13.00	12.90	12.79
-7.5	-8	13.71	13.61	13.50	13.39	13.28
-5.5	-6	14.28	14.17	14.06	13.94	13.83
-3.0	-4	14.84	14.73	14.61	14.49	14.37
-1.0	-2	15.41	15.29	15.17	15.04	14.91
1.0	0	15.97	15.85	15.72	15.59	15.45
2.0	1	16.26	16.13	16.00	15.86	15.73
3.0	2	16.25	16.13	16.00	15.86	15.73
5.0	4	16.25	16.13	16.00	15.86	15.73
7.0	6	16.25	16.12	16.00	15.87	15.73
9.0	8	16.93	16.80	16.68	16.54	16.40
11.5	10	17.61	17.48	17.35	17.21	17.07
13.5	12	18.53	18.39	18.25	18.12	18.17
15.5	14	19.46	19.31	19.16	19.02	19.27
16.5	16	19.93	19.77	19.61	19.48	19.82

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Model SRK140VSXTZSX Indoor unit SRK50ZSX-S (3 units) Outdoor unit FDC140VSX

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18˚CDB		21˚CDB		23˚CDB		26˚CDB		27˚CDB		28˚CDB		31˚CDB		33˚CDB	
	12˚CWB		14˚CWB		16˚CWB		18˚CWB		19˚CWB		20˚CWB		22˚CWB		24˚CWB	
˚CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					11.66	9.96	12.38	10.79	12.73	10.71	13.13	10.64	13.91	11.27	14.70	11.09
13					12.08	10.13	12.83	10.96	13.21	10.89	13.62	10.82	14.45	11.45	15.28	11.26
15					12.50	10.31	13.29	11.14	13.68	11.07	14.12	11.00	14.99	11.63	15.87	11.44
17					12.92	10.49	13.75	11.32	14.16	11.25	14.62	11.18	15.54	11.81	16.45	11.62
19					13.21	10.61	14.06	11.45	14.48	11.37	14.95	11.30	15.88	11.93	16.82	11.73
21					13.50	10.74	14.36	11.57	14.80	11.49	15.28	11.43	16.23	12.04	17.19	11.85
23					13.50	10.74	14.40	11.58	14.83	11.50	15.31	11.44	16.28	12.06	17.25	11.87
25			12.53	10.92	13.50	10.74	14.43	11.59	14.87	11.52	15.35	11.45	16.33	12.08	17.30	11.88
27			12.48	10.90	13.50	10.74	14.46	11.61	14.90	11.53	15.34	11.45	16.23	12.04		
29			12.37	10.85	13.31	10.66	14.23	11.51	14.68	11.45	15.13	11.37	16.03	11.98		
31			12.26	10.80	13.11	10.57	13.99	11.42	14.45	11.36	14.91	11.29	15.82	11.91		
33	11.49	10.05	12.02	10.69	12.92	10.49	13.76	11.33	14.23	11.27	14.69	11.21	15.61	11.83		
35	10.88	9.75	11.63	10.51	12.72	10.40	13.53	11.24	14.00	11.19	14.47	11.13	15.41	11.77		
37	10.75	9.69	11.45	10.43	12.49	10.31	13.29	11.14	13.74	11.09	14.18	11.02	15.08	11.66		
39	10.62	9.63	11.26	10.34	12.26	10.21	13.04	11.04	13.47	10.99	13.90	10.92	14.76	11.55		
41	10.49	9.57	11.07	10.26	12.02	10.11	12.80	10.95	13.21	10.89	13.62	10.82	14.44	11.44		
43	10.35	9.50	10.89	10.18	11.79	10.01	12.55	10.85	12.94	10.79	13.33	10.72	14.11	11.33		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature ˚CDB				
˚CDB	˚CWB	16	18	20	22	24
-19.8	-20	16.13	16.00	15.87	15.74	15.61
-17.7	-18	16.19	16.07	15.94	15.81	15.68
-15.7	-16	16.26	16.13	16.00	15.87	15.74
-13.5	-14	16.26	16.13	16.00	15.87	15.74
-11.5	-12	16.25	16.13	16.00	15.87	15.74
-9.5	-10	16.25	16.13	16.00	15.87	15.74
-7.5	-8	16.25	16.12	16.00	15.87	15.74
-5.5	-6	16.25	16.13	16.00	15.87	15.74
-3.0	-4	16.25	16.13	16.00	15.87	15.73
-1.0	-2	16.25	16.13	16.00	15.86	15.73
1.0	0	16.25	16.13	16.00	15.86	15.73
2.0	1	16.26	16.13	16.00	15.86	15.73
3.0	2	16.25	16.13	16.00	15.86	15.73
5.0	4	16.25	16.13	16.00	15.86	15.73
7.0	6	16.25	16.12	16.00	15.87	15.73
9.0	8	16.93	16.80	16.68	16.54	16.40
11.5	10	17.61	17.48	17.35	17.21	17.07
13.5	12	18.53	18.39	18.25	18.12	18.17
15.5	14	19.46	19.31	19.16	19.02	19.27
16.5	16	19.93	19.77	19.61	19.48	19.82

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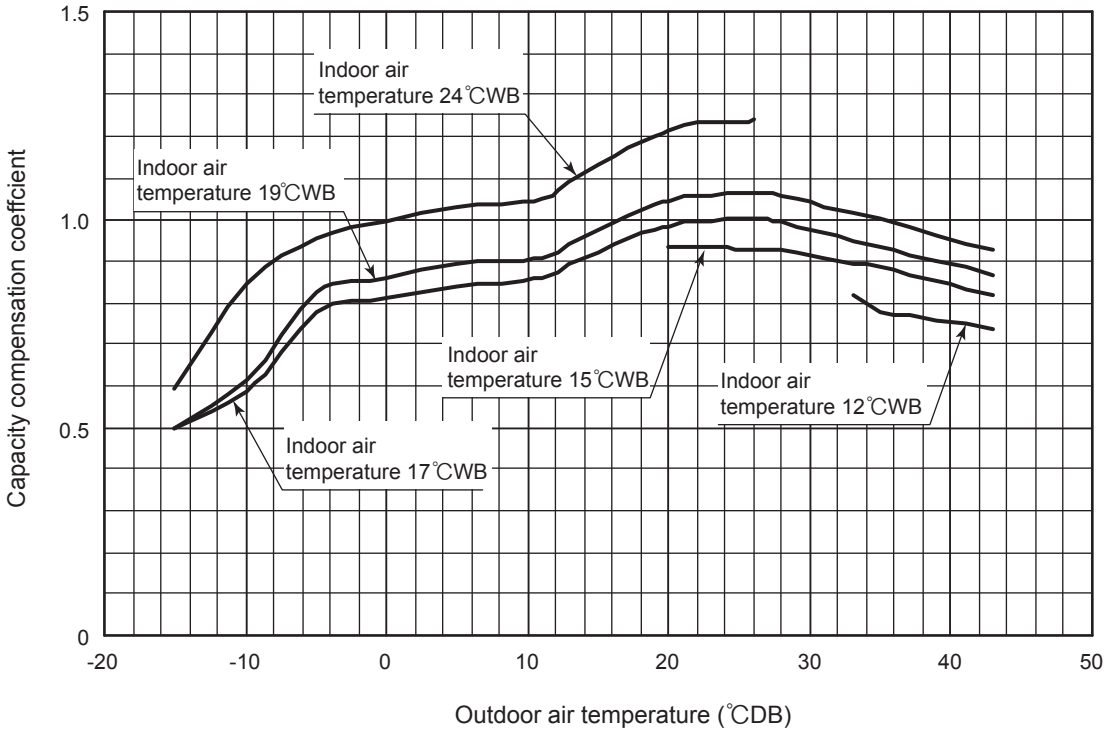
Notes (1) These data show average statuses.
Depending on the system control, there may be ranges where the operation is not conducted continuously.
These data show the case where the operation frequency of a compressor is fixed.
(2) Capacities are based on the following conditions.
Corresponding refrigerant piping length :7.5m
Level difference of Zero.
(3) Symbols are as follows.
TC : Total cooling capacity (kW)
SHC : Sensible heat capacity (kW)
HC : Heating capacity (kW)

[References data]

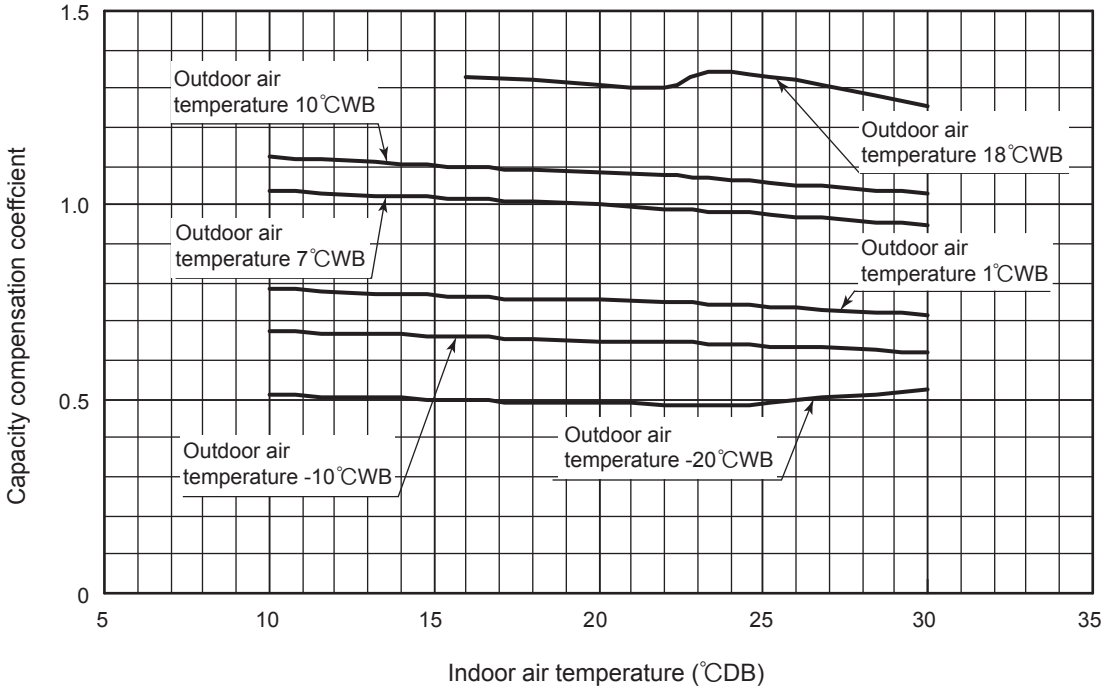
Capacity variation against outdoor and indoor temperature at the maximum compressor speed capacity compensation coefficient shows the ratio to nominal capacity.

Models FDC100, 125, 140VNX, 100, 125, 140VSX

① Cooling



② Heating



1.7.2 Correction of cooling and heating capacity in relation to air flow rate control (fan speed)

Fan speed	P-Hi or Hi	Me	Lo
Coefficient	1.00	0.97	0.95

1.7.3 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.

Models 100-140

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	100 model	ϕ15.88	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
	100 model	ϕ19.05	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

Equivalent piping length (1)(m)			60	65	70	75	80	85	90	95	100	105
Heating			0.983	0.983	0.978	0.978	0.973	0.973	0.968	0.968	0.963	0.963
Cooling	100 model	ϕ15.88	0.856	0.843	0.829	0.816	0.803	0.789	0.776	0.762	0.749	0.736
	125 model		0.806	0.788	0.770	0.752	0.734	0.716	0.698	0.680	0.662	0.644
	140 model		0.790	0.771	0.751	0.732	0.712	0.693	0.673	0.654	0.634	0.615
	100 model	ϕ19.05	0.959	0.955	0.951	0.948	0.944	0.940	0.936	0.932	0.929	0.926
	125 model		0.935	0.929	0.924	0.919	0.912	0.908	0.902	0.897	0.892	0.887
	140 model		0.928	0.920	0.913	0.907	0.900	0.894	0.888	0.882	0.876	0.870

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
Equivalent bend length	0.20	0.25	0.30

1.7.4 Height difference between the indoor unit and outdoor unit

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	0.99	0.98	0.97	0.96	0.95	0.94

Piping length limitations

Item \ Model	FDC100, 125, 140
Max. one way piping length	100m
Max. vertical height difference	Outdoor unit is higher 30m Outdoor unit is lower 15m

Note (1) Values in the table indicate the one way piping length between the indoor and outdoor units.

How to obtain the cooling and heating capacity

Example : The net cooling capacity of the model SRK100VNXPZSX with the air flow “Hi”, the piping length of 15m, the outdoor unit located 5m lower than the indoor unit, indoor wet-bulb temperature at 19.0℃ and outdoor dry-bulb temperature 35℃ is

Net cooling capacity = 10.0 × 1.00 × 0.978 × 0.99 ≒ 9.7kW

- 10.0: Net cooling total capacity of SRK100VNXPZSX (Outdoor temp. : 35℃DB Indoor temp. : 19℃WB) shown in table 1.7.1
- 1.00: Air flow : P-High shown in table 1.7.2
- 0.978: Piping length :15m (Gas pipe size is ϕ15.88) shown in table 1.7.3
- 0.99: Height diff. :5m (Outdoor unit : below) shown in table 1.7.4

1.8 APPLICATION DATA

RLF012A200

1.8.1 Installation of indoor unit

Model SRK20,25,35,50,60ZSX-S
R410A REFRIGERANT USED

• This installation manual deals with an indoor unit installation only. For an outdoor unit installation, refer to page 49.

SAFETY PRECAUTIONS

• Before installation, read the "SAFETY PRECAUTIONS" carefully and 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 Indicates a potentially hazardous situation which, if not avoided, can result in serious consequences such as death or severe injury.
⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, can result in personal injury or property damage.

Both mention the important items to protect your health and safety. Therefore, strictly follow them by any means.

• Be sure to confirm no operation problem on the equipment after completing the installation. If unusual noise can be heard during the test run, consult the dealer.
• Be sure to explain the operating methods as well as the maintenance methods of this equipment to the user according to the user's manual.
• Be sure to keep the installation manual together with user's manual at a place where it is easily accessible to the user any time. Moreover, ask the user to hand the manuals to a new user, whenever required.

⚠ WARNING

- **Be sure to use only for residential purpose.**
  If this unit is installed in inferior environment such as machine shop, vehicle (like ship), warehouse, etc., it can malfunction.
- **Installation must be carried out by the qualified installer completely in accordance with the installation manual.**
  Installation by non qualified person or incorrect installation can cause serious troubles such as water leak, electric shock, fire and personal injury.
- **Be sure to wear protective goggles and gloves while performing installation work.**
  Improper safety measures can result in personal injury.
- **Use the original accessories and the specified components for the installation.**
  Using parts other than those prescribed may cause water leak, electric shock, fire and personal injury.
- **Do not install the unit near the location where leakage of flammable gases can occur.**
  If leaked gases accumulate around the unit, it can cause fire resulting in property damage and personal injury.
- **When installing the unit in small rooms, make sure that refrigerant density does not exceed the limit (Reference: ISO5149) in the event of leakage.**
  If refrigerant density exceeds the limit, consult the dealer and install the ventilation system.
  Otherwise lack of oxygen can occur resulting in serious accident.
- **Install the unit in a location where unit will remain stable, horizontal and free of any vibration transmission.**
  Unsuitable installation location can cause the unit to fall resulting in material damage and personal injury.
- **Do not run the unit with removed panels or protections.**
  Touching rotating equipments, hot surfaces or high voltage parts can cause personal injury due to entrapment, burn or electric shock.
- **This unit is designed specifically for R410A.**
  Using any other refrigerant can cause unit failure and personal injury.
- **Do not vent R410A into atmosphere.**
  R410A is a fluorinated greenhouse gas with a Global Warming Potential(GWP)=2088.
- **Make sure that no air enters the refrigerant circuit when the unit is installed and removed.**
  If air enters the refrigerant circuit, the pressure in the refrigerant circuit will become too high, which can cause burst and personal injury.
- **Be sure to use the prescribed pipes, flare nuts and tools for R410A.**
  Using existing parts (for R22 or R407C) can cause refrigerant circuit burst resulting in unit failure and personal injury.
- **Be sure to connect both liquid and gas connecting pipes properly before operating the compressor.**
  Do not open the liquid and gas service valves before completing piping work, and evacuation.
  If the compressor is operated when connecting pipes are not connected and service valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
- **Be sure to tighten the flare nuts to specified torque using the torque wrench.**
  Tightening flare nuts with excess torque can cause burst and refrigerant leakage after a long period.
- **During pump down work, be sure to stop the compressor before closing service valves and removing connecting pipes.**
  If the connecting pipes are removed when the compressor is in operation and service valves are open, air can be sucked into the refrigerant circuit which can cause anomalous high pressure resulting in burst or personal injury.
- **In the event of refrigerant leakage during installation, be sure to ventilate the working area properly.**
  If the refrigerant comes into contact with naked flames, poisonous gases will be produced.
- **Electrical work must be carried out by the qualified electrician, strictly in accordance with national or regional electricity regulations.**
  Incorrect installation can cause electric shock, fire or personal injury.
- **Make sure that earth leakage breaker and circuit breaker of appropriate capacities are installed.**
  Circuit breaker should be able to disconnect all poles under over current. Absence of appropriate breakers can cause electric shock, personal injury or property damage.
- **Be sure to switch off the power source in the event of installation, maintenance or service.**
  If the power source is not switched off, there is a risk of electric shock, unit failure or personal injury.
- **Be sure to tighten the cables securely in terminal block and relieve the cables properly to prevent overloading the terminal blocks.**
  Loose connections or cable mountings can cause anomalous heat production or fire.
- **Do not process, splice or modify the power cable, or share the socket with other power plugs.**
  Improper power cable or power plug can cause fire or electric shock due to poor connection, insufficient insulation or over-current.
- **Do not perform any change in protective device or its setup condition yourself.**
  Changing protective device specifications can cause electric shock, fire or burst.
- **Be sure to clamp the cables properly so that they do not touch any internal component of the unit.**
  If cables touch any internal component, it can cause overheating and fire.
- **Be sure to install service cover properly.**
  Improper installation can cause electric shock or fire due to intrusion of dust or water.
- **Be sure to use the prescribed power and connecting cables for electrical work.**
  Using improper cables can cause electric leak, anomalous heat production or fire.
- **This appliance must be connected to main power source by means of a circuit breaker or switch with a contact separation of at least 3mm.**
  Improper electrical work can cause unit failure or personal injury.
- **When plugging this unit, a plug conforming to the norm IEC60884-1 must be used.**
  Using improper plug can cause electric shock or fire.
- **Be sure to connect the power source cable with power source properly.**
  Improper connection can cause intrusion of dust or water resulting in electric shock or fire.

⚠ CAUTION

- **Take care when carrying the unit by hand.**
  If the unit weight is more than 20kg, it must be carried by two or more persons.
  Do not carry the unit by the plastic straps. Always use the carry handle.
- **Do not install the outdoor unit in a location where insects and small animals can inhabit.**
  Insects and small animals can enter the electrical parts and cause damage resulting in fire or personal injury. Instruct the user to keep the surroundings clean.
- **If the outdoor unit is installed at height, make sure that there is enough space for installation, maintenance and service.**
  Insufficient space can result in personal injury due to falling from the height.
- **Do not install the unit near the location where neighbours are bothered by noise or air generating from the unit.**
  It can affect surrounding environment and cause a claim.
- **Do not install in the locations where unit is directly exposed to corrosive gases (like sulphide gas, chloride gas), sea breeze or salty atmosphere.**
  It can cause corrosion of heat exchanger and damage to plastic parts.
- **Do not install the unit close to the equipments that generate electromagnetic waves and/or high-harmonic waves.**
  Equipment such as inverters, standby generators, medical high frequency equipments and telecommunication equipments can affect the system, and cause malfunctions and breakdowns.
  The system can also affect medical equipment and telecommunication equipment, and obstruct its function or cause jamming.
- **Do not install the unit in the locations where:**
  • There are heat sources nearby.
  • Unit is directly exposed to rain or sunlight.
  • There is any obstacle which can prevent smooth air circulation from inlet and outlet side of the unit.
  • Unit is directly exposed to oil mist and steam such as kitchen.
  • Chemical substances like ammonia (organic fertilizer), calcium chloride (snow melting agent) and acid (sulfurous acid etc.), which can harm the unit, will generate or accumulate.
  • Drain water can not be discharged properly.
  • TV set or radio receiver is placed within 1m.
  • Height above sea level is more than 1000m.
  It can cause performance degradation, corrosion and damage of components, unit malfunction and fire.
- **Dispose of all packing materials properly.**
  Packing materials contain nails and wood which can cause personal injury.
  Keep the polybag away from children to avoid the risk of suffocation.
- **Do not put anything on the outdoor unit.**
  Object may fall causing property damage or personal injury.
- **Do not touch the aluminum fin of the outdoor unit.**
  Aluminium fin temperature is high during heating operation. Touching fin can cause burn.
- **Do not touch any refrigerant pipe with your hands when the system is in operation.**
  During operation the refrigerant pipes become extremely hot or extremely cold depending on the operating condition. Touching pipes can cause personal injury like burn (hot/cold).
- **Install isolator or disconnect switch on the power source wiring in accordance with the local codes and regulations.**
  The isolator should be locked in OFF state in accordance with EN60204-1.

1. ACCESSORIES AND TOOLS

Standard accessories (supplied with indoor unit)

(1)	Installation board	1pc	(5)	Wood screws (for remote control holder ø3.5 X 16mm)		2pcs
(2)	Wireless remote control	1pc	(6)	Batteries [R03 (AAA, Micro) 1.5V]		2pcs
(3)	Remote control holder	1pc	(7)	Air-cleaning filters		2pcs
(4)	Tapping screws (for installation board ø4 X 25mm)	4pcs	(8)	Insulation (#486 50 X 100 t3)		1pc

Locally procured parts

(a)	Sleeve (1pc)
(b)	Sealing plate (1pc)
(c)	Inclination plate (1pc)
(d)	Putty
(e)	Connecting cable
(f)	Drain hose (extension hose)
(g)	Piping cover (for insulation of connection piping)
(h)	Clamp and screw (for finishing work)
(i)	Electrical tape

Tools for installation Work

Plus headed driver	Pipe cutter
Knife	Hole core drill (65mm in diameter)
Saw	Wrench key (Hexagon) [4m/m]
Tape measure	Flaring tool set*
Torque wrench (14.0-62.0N·m (1.4-6.2kgf·m))	Gas leak detector*
	Pipe bender
Plier	Flare adjustment gauge

* Designed specifically for R410A

2. SELECTING INSTALLATION LOCATION

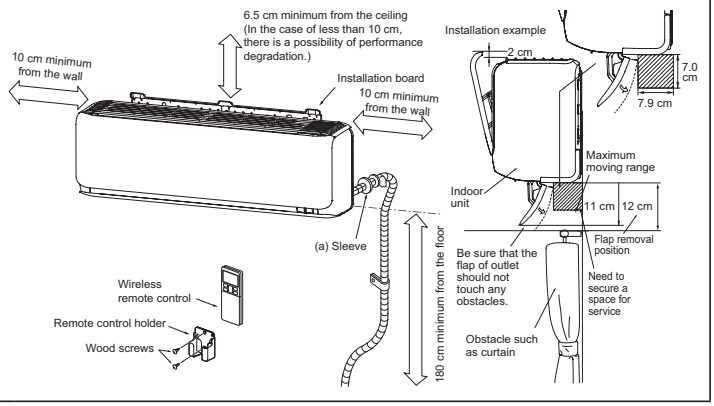
After getting customer's approval, select installation location according to following guidelines.

1. Indoor unit

- Where there is no obstruction to the airflow and where the cooled and heated air can be evenly distributed.
- A solid place where the unit or the wall will not vibrate.
- A place where there will be enough space for servicing. (Where space mentioned on the right side can be secured.)
- Where it is easy to conduct wiring and piping work.
- A place where unit is not directly exposed to sunlight or street light.
- A place where it can be easily drained.
- A place separated at least 1m away from the television or the radio. (To prevent interference to images and sounds.)
- A place where this unit is not affected by the high frequency equipment or electric equipment.
- Avoid installing this unit in place where there is much oil mist.
- A place where there is no electric equipment or household.
- Install the indoor unit on the wall where the height from the floor to the bottom of the unit is more than 180 cm.

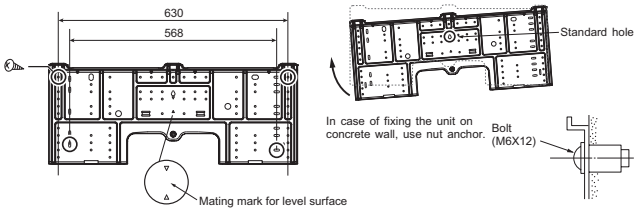
2. Wireless remote control

- A place where the air-conditioner can receive the signal surely during operating the wireless remote control.
- A place where it is not affected by the TV and radio etc.
- Do not place where it is exposed to direct sunlight or near heat devices such as a stove.



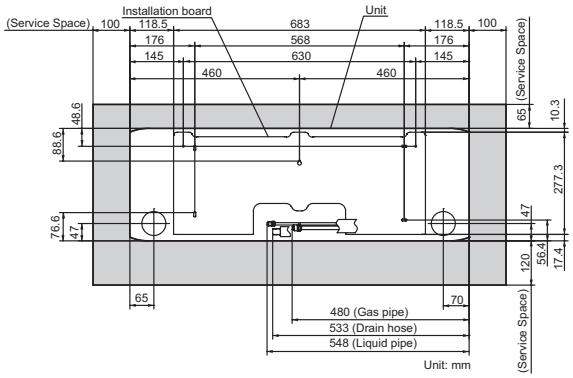
3. INSTALLING INSTALLATION BOARD

- Installation board should be installed on the wall which can support the weight of the indoor unit.
- Adjustment of the installation board in the horizontal direction is to be conducted with 4 screws in a temporary tightened state.
- With the standard hole as a center, adjust the board and level it.



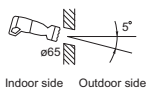
⚠ CAUTION

Improper adjustment of the installation board can cause water leakage.

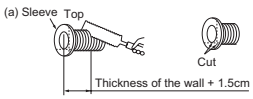


4. DRILLING HOLE AND FIXTURE OF SLEEVE

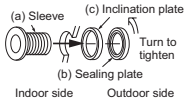
When drilling the wall that contains a metal lath, wire lath or metal plate, be sure to use sealing plate, sleeve and inclination plate (Locally procured parts).



(1) Drill a hole with hole core drill.



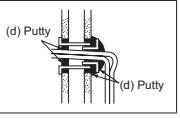
(2) Cut sleeve to adjust to wall thickness. In case of rear piping draw out, cut off the lower and the right side portions of the sleeve collar.



(3) Fix sealing plate, sleeve and inclination plate.

⚠ CAUTION

After passing the wirings and pipes through the hole, completely seal the hole on the wall with putty to prevent water leakage.



5. ELECTRICAL WIRING WORK

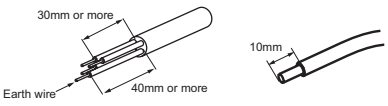
- Before installation, make sure that the power source complies with the air-conditioner's power specification.
- Carry out electrical wiring work according to following guidelines.

1. Preparing cable

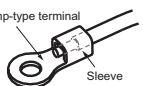
(1) Selecting cable
Select the connecting cable in accordance with the specifications mentioned below.
4-core* 1.5mm² conformed with 60245 IEC57 (CENELEC H05RN-F)
* 1 Earth wire is included (Yellow/Green).

(2) Arrange each wire length as shown below.
Make sure that each wire is stripped 10mm from the end.

<Connecting cable> <Wire end>



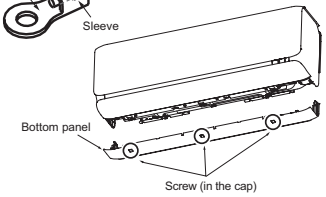
(3) Attach round crimp-type terminal to each wire as shown in the below.
Select the size of round crimp-type terminal after considering the specifications of terminal block and wire diameter.



2. Remove bottom panel

(1) Remove the 3 screws (in the cap).
(2) Remove the hooks of left and right side and then bottom panel can be removed.

NOTE
- Open the cap using a fine-tipped tool.
- When opening the cap, exercise care not to damage the design surface.

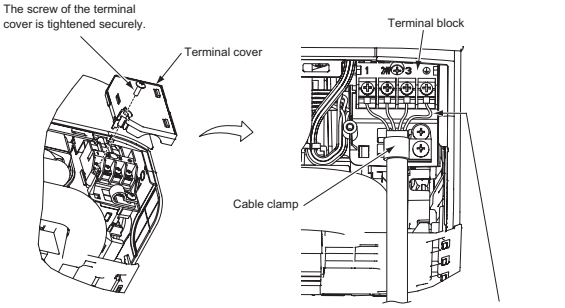


3. Connecting cable

(1) Remove the terminal cover.
(2) Remove the cable clamp.
(3) Connect the connecting wires to the terminal block.
(4) Fix the connecting cable by cable clamp.
(5) Fix the terminal cover.

NOTE

Take care not to confuse the terminal numbers for indoor and outdoor connections.



⚠ CAUTION

Incorrect wiring connection can cause malfunction or fire.

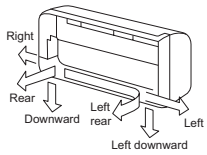
6. FORMING PIPING AND DRAIN HOSE

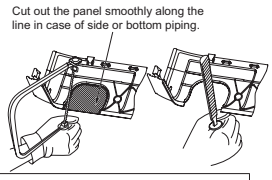
1. Forming piping

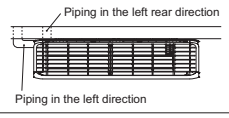
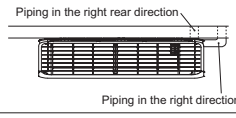
Piping is possible in the right, rear, downward, left, left rear or left downward direction.

NOTE

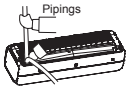
Sufficient care must be taken not to damage the panels when connecting pipes.





Left hand side piping	Right hand side piping
	

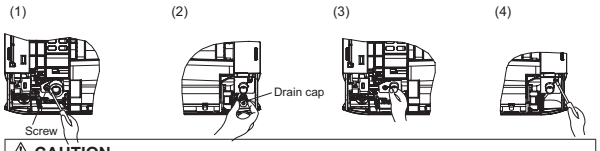
Forming of pipings
- Hold the bottom of the piping and fix direction before stretching it and shaping it.



Taping of the exterior
- Tape only the portion that goes through the wall.
- Always tape the wiring with the piping.

2. Drain change procedures

(1) Remove the screw and drain hose.
(2) Remove the drain cap by hand or pliers.
(3) Insert the drain cap which was removed at procedure (2) securely using a hexagonal wrench etc.
(4) Install the drain hose and screw securely.

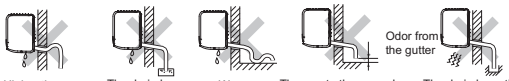


⚠ CAUTION

Incorrect installation of drain hose and cap can cause water leakage.

7. DRAINAGE WORK

- Arrange the drain hose in a downward angle.
- Avoid the following drain piping.

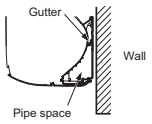


- Pour water to the drain pan located under the heat exchanger, and ensure that the water is discharged outdoor.
- When extended drain hose is present inside the room, insulate it securely with heat insulator available in the market.

Since this air-conditioner is designed to collect dew drops on the rear surface to the drain pan, do not install the connecting wire above the gutter.

⚠ CAUTION

Incorrect drainage work can cause water leakage.



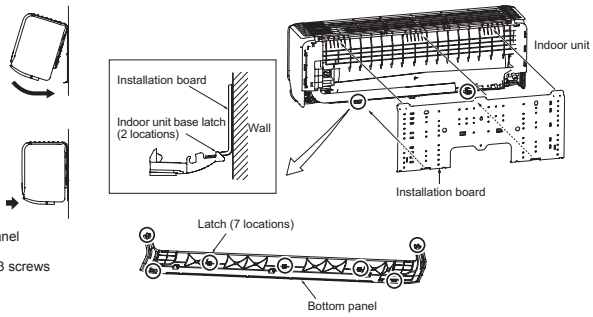
8. INSTALLING INDOOR UNIT

1. Installing the indoor unit to installation board

(1) Pass the pipe through the hole in the wall, and hook the upper part of the indoor unit to the installation board.

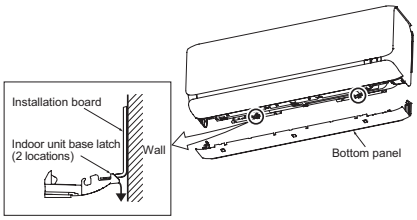
(2) Gently push the lower part to fix the indoor unit base lower latch to installation board.

(3) Install the latches of the bottom panel (7 locations).
Secure the bottom panel with the 3 screws (in the cap).



2. Removing the indoor unit from installation board

(1) Remove the bottom panel. (Refer to 5.2)
(2) Pull the indoor unit base latch downward. (both right and left hand sides). (The indoor unit base latch can be removed from the installation board.)
(3) Push up the indoor unit upward so that it can be removed from installation board.



9. CONNECTING PIPING WORK

1. Preparation of connecting pipe

1.1. Selecting connecting pipe

Select connecting pipe according to the following table.

	Model SRK20/25/35	Model SRK50/60
Gas pipe	ø9.52	ø12.7
Liquid pipe	ø6.35	ø6.35

- Pipe wall thickness must be greater than or equal to 0.8 mm.
- Pipe material must be O-type (Phosphorus deoxidized seamless copper pipe ICS 23.040.15, ICS 77.150.30).

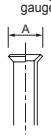
1.2. Cutting connecting pipe

(1) Cut the connecting pipe to the required length with pipe cutter.
(2) Hold the pipe downward and remove the burrs. Make sure that no foreign material enters the pipe.
(3) Cover the connecting pipe ends with the tape.

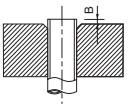
2. Piping work

2.1. Flaring pipe

(1) Take out flare nuts from the service valves of indoor unit and engage them onto connecting pipes.
(2) Flare the pipes according to table and figure shown below.
Flare dimensions for R410A are different from those for conventional refrigerant.
Although it is recommended to use the flaring tools designed specifically for R410A, conventional flaring tools can also be used by adjusting the measurement of protrusion B with a flare adjustment gauge.



Copper pipe outer diameter	A 0 −0.4
ø6.35	9.1
ø9.52	13.2
ø12.7	16.6

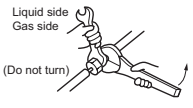


Copper pipe outer diameter	Rigid (clutch) type	
	R410A	Conventional
ø6.35	0 - 0.5	1.0 - 1.5
ø9.52		
ø12.7		

2.2 Connecting pipes

(1) Connect pipes on both liquid and gas sides.
(2) Tighten nuts to specified torque shown in the table below.

Operation valve size (mm)	Tightening torque (N·m)
ø6.35 (1/4")	14-18
ø9.52 (3/8")	34-42
ø12.7 (1/2")	49-61

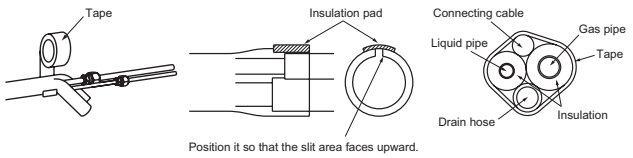


⚠ CAUTION

- Do not apply refrigerating machine oil to the flared surface. It can cause refrigerant leakage.
- Do not apply excess torque to the flared nuts. The flared nuts may crack resulting in refrigerant leakage.

3. Heating and condensation prevention

(1) Dress the connecting pipes (both liquid and gas pipes) with insulation to prevent it from heating and dew condensation.
Use the heat insulating material which can withstand 120°C or higher temperature. Make sure that insulation is wrapped tightly around the pipes and no gap is left between them.
(2) Wrap the refrigerant pipings of indoor unit with indoor unit heat insulation using tape.
(3) Cover the flare-connected joints (indoor side) with the indoor unit heat insulation and wrap it with an insulation pad (standard accessory provided with indoor unit).
(4) Wrap the connecting pipes, connecting cable and drain hose with the tape.



NOTE

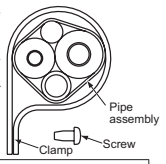
Locations where relative humidity exceeds 70%, both liquid and gas pipes need to be dressed with 20mm or thicker heat insulation materials.

⚠ CAUTION

- Improper insulation can cause condensate(water) formation during cooling operation. Condensate can leak or drip causing damage to household property.
- Poor heat insulating capacity can cause pipe outer surface to reach high temperature during heating operation. It can cause cable deterioration and personal injury.

4. Finishing work

(1) Make sure that the exterior portion of connecting pipes, connecting cable and drain hose is wrapped properly with tape. Shape the connecting pipes to match with the contours of the pipe assembly route.
(2) Fix the pipe assembly with the wall using clamps and screws. Pipe assembly should be anchored every 1.5m or less to isolate the vibration.
(3) Install the service cover securely. Water may enter the unit if service cover is not installed properly, resulting in unit malfunction and failure.



⚠ CAUTION

Make sure that the connecting pipes do not touch the components within the unit. If pipes touch the internal components, it may generate abnormal sounds and/or vibrations.

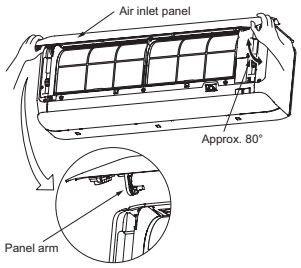
10. HOW TO OPEN, CLOSE, REMOVE AND INSTALL THE AIR INLET PANEL

1. Open
Pull the air inlet panel at both ends of lower part and release latches, then pull up the panel until you feel resistance.
(The panel stops at approx. 60° open position)

2. Close
Hold the panel at both ends of lower part, lower it downward slowly, then push it slightly until the latch works.

3. Removing
Open the panel by 80 degrees (as shown in the right illustration) and then pull it forward.

4. Installing
Insert the panel arm into the slot on the front panel from the position shown in right illustration, hold the panel at both ends of lower part, lower it downward slowly, then push it slightly until the latch works.



NOTE
- When carrying out maintenance, handle the air inlet panel with care.

11. HOW TO REMOVE AND INSTALL THE SIDE AND FRONT PANEL

1. Side panel (R/L)

1.1. Removing
(1) Remove the 2 screws.
(2) Remove the 3 latches and then side panel can be removed.

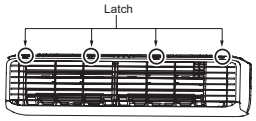
1.2. Installing
(1) Cover the unit with the side panel and fix 3 latches.
(2) Secure the side panel with the 2 screws.

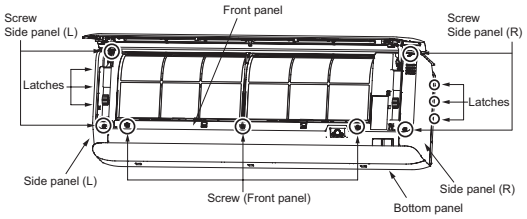
2. Front panel

2.1. Removing
(1) Remove the side panel (R/L), the air inlet panel, the air filters and the bottom panel.
(2) Remove the 3 screws.
(3) Remove the 4 upper latches and then front panel can be removed.

2.2. Installing
(1) Cover the unit with the front panel and fix 4 upper latches.
(2) Secure the front panel with the 3 screws.
(3) Install the bottom panel, the side panel (R/L), the air inlet panel and the air filters.

<Top view>

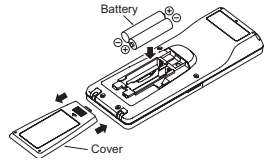




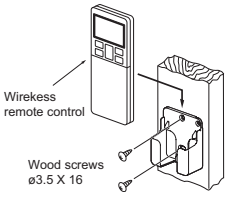
12. INSTALLING WIRELESS REMOTE CONTROL

Mount the batteries
(1) Slide and take out the cover of backside.
(2) Mount the batteries [R03 (AAA, Micro), ×2 pieces] in the body properly.
(Fit he poles with the indication marks + & −)
(3) Set the cover again.

NOTE
- Do not use new and old batteries together.
- In case the unit is not operated for a long time, take out the batteries



Installing remote control holder
(1) Select the place where the unit can receive signals.
(2) Fix the holder to pillar or wall with wood screws.

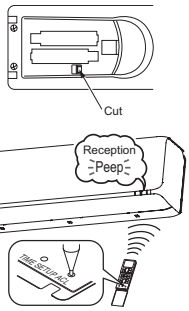


13. INSTALLING TWO AIR-CONDITIONERS IN THE SAME ROOM

In case two air-conditioners are installed in the same room, apply this setting so that one unit can be operated with only one wirelesss remote control.

Setting one wirelesss remote control
(1) Slide and take out the cover and batteries.
(2) Cut the switching line next to the battery with wire cutters.
(3) Set the batteries and cover again.

Setting one indoor unit
(1) Turn off the power source and turn it on after 1 minute.
(2) Send the signal by pressing the ACL switch on the wireless remote control that was set according to the procedure described on the above side.
(3) Check that the reception buzzer sound “peep” is emitted from the indoor unit. Since the signal is sent about 6 seconds after the ACL switch is pressed, point the wireless remote control to the indoor unit for a while.



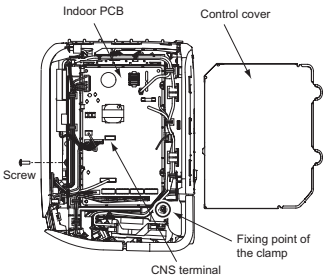
NOTE
If no reception buzzer is emitted, restart the setting from the beginning.

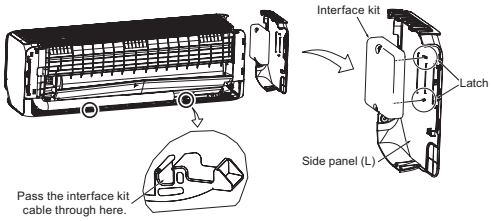
14. TERMINAL CONNECTION FOR AN INTERFACE

To install wired remote control, superlink etc., interface kit is needed.

(1) Remove the air inlet panel, bottom panel and side panel (R).
(2) Remove the control cover. (Remove the screw.)
(3) There is a terminal (respectively marked with CNS) for the indoor control board. While connecting an interface, connect to the respective terminal securely with the connection harness supplied with an option “Interface kit SC-BIKN-E” and fasten the connection harness onto the indoor control box with the clamp and screw supplied with the kit.
(4) Hook to fix the interface kit to the 2 latches on side panel (L).
For more details, refer to the user’s manual of “Interface kit SC-BIKN-E”.

<Right side>



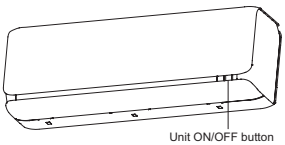


15. PUMP DOWN WORK

For the environmental protection, be sure to pump down when relocating or disposing of the unit. Pump down is the method of recovering refrigerant from the indoor unit to the outdoor unit before the connecting pipes are removed from the unit. When pump down is carried out, forced cooling operation is needed.

Forced cooling operation
(1) Turn off the power source and turn it on again after 1 minute. The air inlet panel and flap open and close.
(2) After the air inlet panel closes, press the ON/OFF button continuously for at least 5 seconds. Then operation will start.

For the detail of pump down, refer to the installation manual of outdoor unit.



16. INSTALLATION CHECK AND TEST RUN

After finishing the installation work, check the following points again before turning on the power. Conduct a test run and ensure that the unit operates properly.
At the same time, explain to the customer how to use the unit and how to take care of the unit following the user’s manual.

Before test run
Before test run, check following points.

Power source voltage complies with the rated voltage of air-conditioner.	
Earth leakage breaker and circuit breaker are installed.	
Power cable and connecting cable are securely fixed to the terminal block.	
Both liquid and gas service valves are fully open.	
No gas leaks from the joints of the service valves.	
Indoor and outdoor side pipe joints have been insulated.	
Hole on the wall is completely sealed with putty.	
Drain hose and cap are installed properly.	
Screw of the terminal cover is tightened securely.	

Test run
Check following points during test run.

Indoor unit receives signal of wireless remote control.	
Air-conditioning operation is normal.	
There is no abnormal noise.	
Water drains out smoothly.	
Display of wireless remote control is normal.	

After test run

Explain the operating and maintenance methods to the user according to the user’s manual.	
Keep this installation manual together with user’s manual.	

NOTE
During restart or change in operation mode, the unit will not start operating for approximately 3 minutes. This is to protect the unit and it is not malfunction.

8.2 Installation of wired remote control (Option)

PJZ012A131 A

(1) Model RC-EX3

1. Safety precautions

●Please read this manual carefully before starting installation work to install the unit properly.
Every one of the followings is important information to be observed strictly.

⚠WARNING	Failure to follow these instructions properly may result in serious consequences such as death, severe injury, etc.
⚠CAUTION	Failure to follow these instructions properly may cause injury or property damage.

It could have serious consequences depending on the circumstances.

●The following pictograms are used in the text.

	Never do.		Always follow the instructions given.

●Keep this manual at a safe place where you can consult with whenever necessary. Show this manual to installers when moving or repairing the unit. When the ownership of the unit is transferred, this manual should be given to a new owner.

⚠WARNING

Consult your dealer or a professional contractor to install the unit.
Improper installation made on your own may cause electric shocks, fire or dropping of the unit.

Installation work should be performed properly according to this installation manual.
Improper installation work may result in electric shocks, fire or break-down.

Be sure to use accessories and specified parts for installation work.
Use of unspecified parts may result in drop, fire or electric shocks.

Install the unit properly to a place with sufficient strength to hold the weight.
If the place is not strong enough, the unit may drop and cause injury.

Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.
Power source with insufficient and improper work can cause electric shock and fire.

Shut OFF the main power source before starting electrical work.
Otherwise, it could result in electric shocks, break-down or malfunction.

Do not modify the unit.
It could cause electric shocks, fire, or break-down.

Be sure to turn OFF the power circuit breaker before repairing/ inspecting the unit.
Repairing/inspecting the unit with the power circuit breaker turned ON could cause electric shocks or injury.

⚠WARNING

Do not install the unit in appropriate environment or where inflammable gas could generate, flow in, accumulate or leak.

If the unit is used at places where air contains dense oil mist, steam, organic solvent vapor, corrosive gas (ammonium, sulfuric compound, acid, etc) or where acidic or alkaline solution, special spray, etc. are used, it could cause electric shocks, break-down, smoke or fire as a result of significant deterioration of its performance or corrosion.

Do not install the unit where water vapor is generated excessively or condensation occurs.

It could cause electric shocks, fire, or break-down.

Do not use the unit in a place where it gets wet, such as laundry room.

It could cause electric shocks, fire, or break-down.

Do not operate the unit with wet hands.

It could cause electric shocks.

Do not wash the unit with water.

It could cause electric shocks, fire, or break-down.

Use the specified cables for wiring, and connect them securely with care to protect electronic parts from external forces.

Improper connections or fixing could cause heat generation, fire, etc.

Seal the inlet hole for remote control cable with putty.

If dew, water, insect, etc. enters through the hole, it could cause electric shocks, fire or break-down.

If dew or water enters the unit, it may cause screen display anomalies.

When installing the unit at a hospital, telecommunication facility, etc., take measures to suppress electric noises.

It could cause malfunction or break-down due to hazardous effects on the inverter, private power generator, high frequency medical equipment, radio communication equipment, etc.

The influences transmitted from the remote control to medical or communication equipment could disrupt medical activities, video broadcasting or cause noise interference.

Do not leave the remote control with its upper case removed.

If dew, water, insect, etc. enters through the hole, it could cause electric shocks, fire or break-down.

⚠CAUTION

Do not install the remote control at following places.

(1) It could cause break-down or deformation of remote control.
- Where it is exposed to direct sunlight
- Where the ambient temperature becomes 0 ˚C or below, or 40 ˚C or above
- Where the surface is not flat
- Where the strength of installation area is insufficient

(2) Moisture may be attached to internal parts of the remote control, resulting in a display failure.
- Place with high humidity where condensation occurs on the remote control
- Where the remote control gets wet

(3) Accurate room temperature may not be detected using the temperature sensor of the remote control.
- Where the average room temperature cannot be detected
- Place near the equipment to generate heat
- Place affected by outside air in opening/closing the door
- Place exposed to direct sunlight or wind from air-conditioner
- Where the difference between wall and room temperature is large

To connect to a personal computer via USB, use the dedicated software.
Do not connect other USB devices and the remote control at the same time.

It could cause malfunction or break-down of the remote control/personal computer.

2 . Accessories & Prepare on site

Following parts are provided.

Accessories	R/C main unit, wood screw (ø3.5 x 16) 2 pcs, Quick reference

Following parts are arranged at site. Prepare them according to the respective installation procedures.

Item name	Q'ty	Remark
Switch box For 1 piece or 2 pieces (JIS C 8340 or equivalent)	1	These are not required when installing directly on a wall.
Thin wall steel pipe for electric appliance directly on a wall. (JIS C 8305 or equivalent)	As required	
Lock nut, bushing (JIS C 8330 or equivalent)	As required	
Lacing (JIS C 8425 or equivalent)	As required	Necessary to run R/C cable on the wall.
Putty	Suitably	For sealing gaps
Molly anchor	As required	
R/C cable (0.3 mm^2 x 2 pcs)	As required	See right table when longer than 100 m

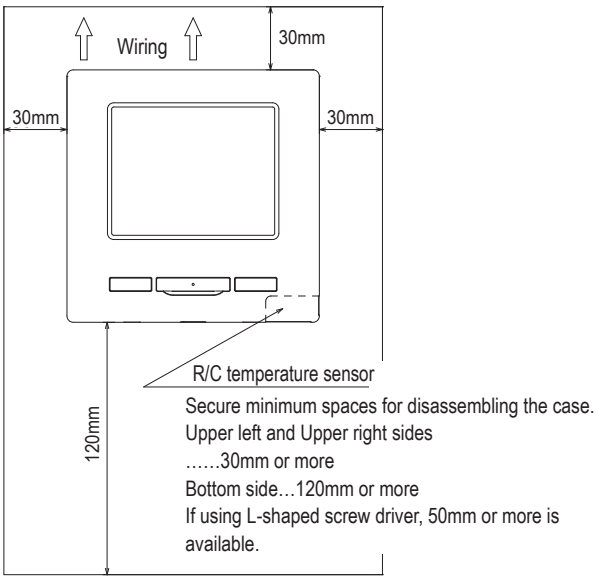
When the cable length is longer than 100 m, the max size for wires used in the R/C case is 0.5 mm^2 . Connect them to wires of larger size near the outside of R/C. When wires are connected, take measures to prevent water, etc. from entering inside.

≦ 200 m	0.5 mm^2 x 2 cores
≦ 300m	0.75 mm^2 x 2 cores
≦ 400m	1.25 mm^2 x 2 cores
≦ 600m	2.0 mm^2 x 2 cores

3 . Installation place

Secure the installation space shown in the figure.
For the installation method, “embedding wiring” or “exposing wiring” can be selected.
For the wiring direction, “Backward”, “Upper center” or “Upper left” can be selected.
Determine the installation place in consideration of the installation method and wiring direction.

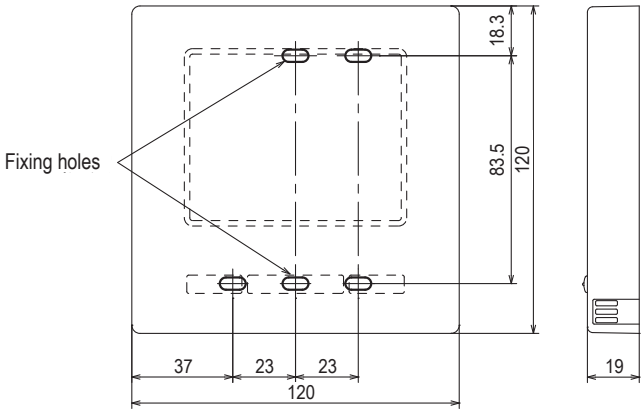
Installation space



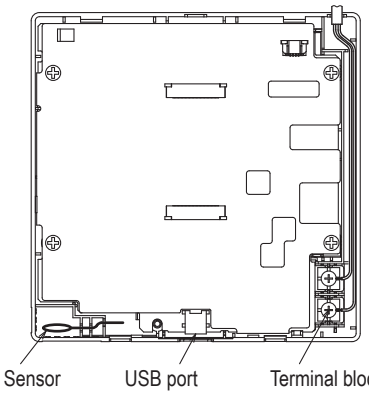
4 . Installation procedure

Perform installation and wiring work for the remote control according to the following procedure.

Dimensions (Viewed from front)

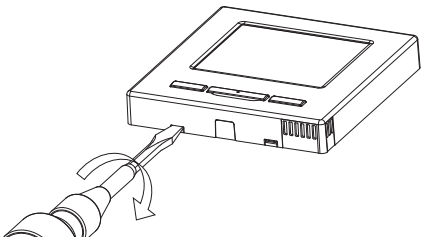


PCB side (Viewed from rear)



To remove the upper case from the bottom cases of R/C

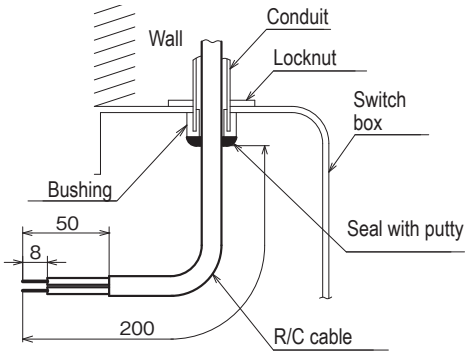
· Insert the tip of flat head screw driver or the like in the recess at the lower part of R/C and twist it lightly to remove. It is recommended that the tip of the screw driver be wrapped with tape to avoid damaging the case.
Take care to protect the removed upper case from moisture or dust.



In case of embedding wiring

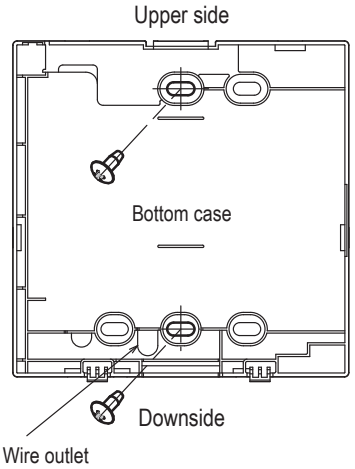
(When the wiring is retrieved “Backward”)

① Embed the switch box and the R/C wires beforehand.
Seal the inlet hole for the R/C wiring with putty.

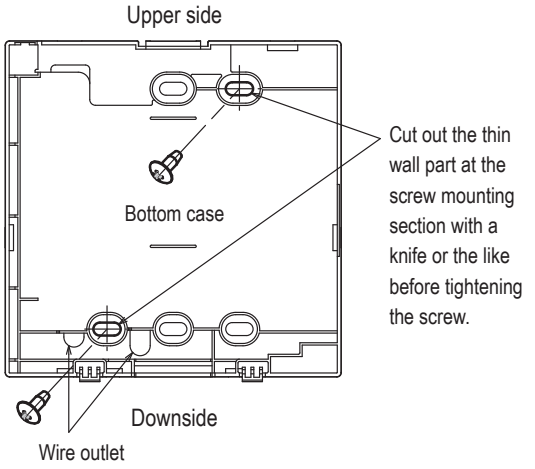


② When wires are passed through the bottom case, fix the bottom case at 2 places on the switch box.

Switch box for 1 pcs

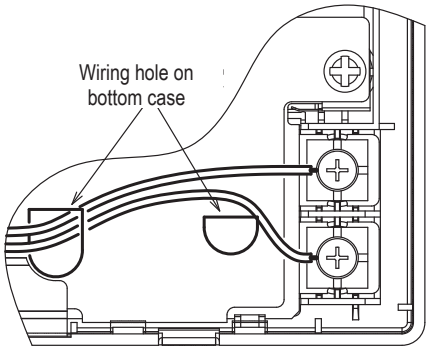


Switch box for 2 pcs



③ Connect wires from X and Y terminals of R/C to X and Y terminals of indoor unit. R/C wires (X, Y) have no polarity. Fix wires such that the wires will run around the terminal screws on the top case of R/C.

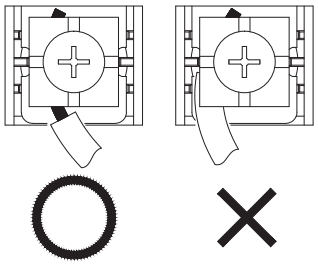
④ Install the upper case with care not to pinch wires of R/C.



Cautions for wire connection

Use wires of no larger than 0.5 mm^2 for wiring running through the remote control case. Take care not to pinch the sheath.

Tighten by hand (0.7 N·m or less) the wire connection. If the wire is connected using an electric driver, it may cause failure or deformation.

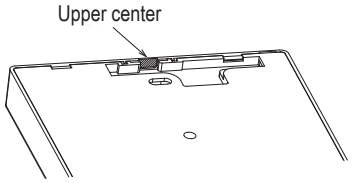


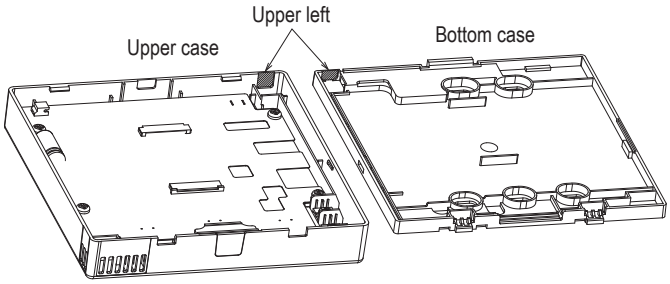
In case of exposing wiring

(When the wiring is taken out from the "upper center" or "upper left" of R/C)

① Cut out the thin wall sections on the cases for the size of wire.

When taking the wiring out from the upper center, open a hole before separating the upper and bottom cases. This will reduce risk of damaging the PCB and facilitate subsequent work.
When taking the wiring out from the upper left, take care not to damage the PCB and not to leave any chips of cut thin wall inside.





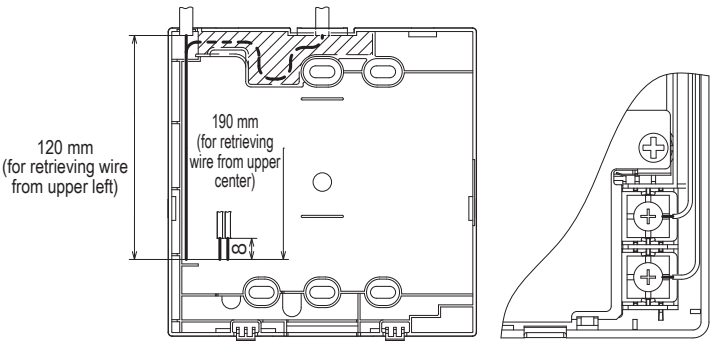
② Fix the bottom R/C case on a flat surface with two wood screws.

③ In case of the upper center, pass the wiring behind the bottom case. (Hatched section)

④ Connect wires from X and Y terminals of R/C to X and Y terminals of indoor unit. R/C wires (X, Y) have no polarity. Fix wires such that the wires will run around the terminal screws on the top case of R/C.

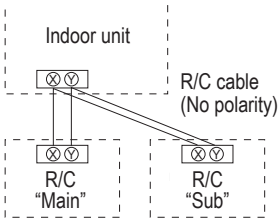
⑤ Install the top case with care not to pinch wires of R/C.

⑥ Seal the area cut in ① with putty.



5 . Main/Sub setting when more than one remote control are used

Up to two units of R/C can be used at the maximum for 1 indoor unit or 1 group.
One is main R/C and the other is sub R/C.
Operating range is different depending on the main or sub R/C.



Set the "Main" and "Sub" as described at Section 8.

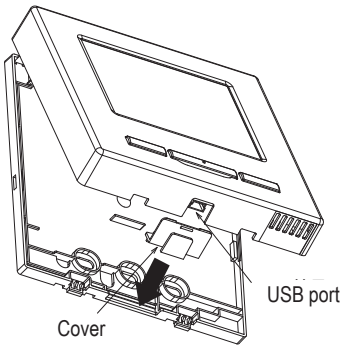
○: operable ×: not operable

R/C operations			Main	Sub
Run/Stop, Change set temp, Change flap direction, Auto swing, Change fan speed operations			○	○
High power operation, Energy-saving operation			○	○
Silent mode control			○	×
Useful functions	Individual flap control		○	×
	Anti draft setting		○	×
	Timer		○	○
	Favorite setting		○	○
	Weekly timer		○	×
	Home leave mode		○	×
	External ventilation		○	○
	Select the language		○	○
Energy-saving setting			○	×
Filter	Filter sign reset		○	○
User setting	Initial settings		○	○
	Administrator settings	Permission/ Prohibition setting	○	×
		Outdoor unit silent mode timer	○	×
		Setting temp. range	○	×
		Temp. increment setting	○	×
		Set temp. display	○	○
		R/C display setting	○	○
		Change administrator password	○	○
		F1/F2 function setting	○	○

R/C operations				Main	Sub
Service setting	Installation settings	Installation date		○	×
		Company information		○	○
		Test run		○	×
		Static pressure adjustment		○	×
		Change auto-address		○	×
		Address setting of main IU		○	×
		IU back-up function		○	×
		Infrared sensor (motion sensor) setting		○	×
	R/C function settings	Main/Sub of R/C		○	○
		Return air temp.		○	×
		R/C sensor		○	×
		R/C sensor adjustment		○	×
		Operation mode		○	×
		°C / °F		○	×
		Fan speed		○	×
		External input		○	×
		Upper/lower flap control		○	×
		Left/right flap control		○	×
		Ventilation setting		○	×
		Auto-restart		○	×
		Auto temp. setting		○	×
		Auto fan speed		○	×
	IU settings			○	×
	Service & Maintenance	IU address		○	○
		Next service date		○	×
		Operation data		○	×
		Error display	Error history	○	○
			Display/erase anomaly data	○	×
			Reset periodical check	○	○
		Saving IU settings		○	×
		Special settings	Erase IU address	○	×
			CPU reset	○	○
			Restore of default setting	○	×
			Touch panel calibration	○	○
		Indoor unit capacity display		○	×

Advice: Connection to personal computer

It can be set from a personal computer via the USB port (mini-B).
Connect after removing the cover for USB port of upper case.
Replace the cover after use.
Special software is necessary for the connection.
For details, view the web site or refer to the engineering data.

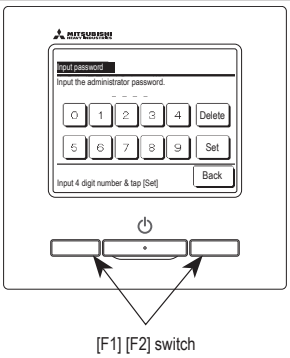


Advice: Initializing of password

Administrator password (for daily setting items) and
service password (for installation, test run and maintenance) are used.

○ The administrator password at factory default is "0000". This setting can be changed (Refer to User's Manual).
If the administrator password is forgotten, it can be initialized by holding down the [F1] and [F2] switches together for five seconds on the administrator password input screen.

○ Service password is "9999", which cannot be changed.
When the administrator password is input, the service password is also accepted.



(2) Model RC-E5

PJA012D730

Read together with indoor unit's installation manual.

⚠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 source is turned off when electric wiring work.
  Otherwise, electric shock, malfunction and improper running may occur.

⚠CAUTION

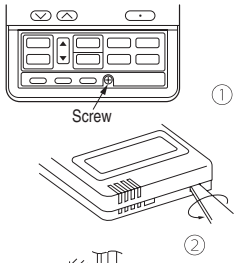
- DO NOT install the remote control at the following places in order to avoid malfunction.
  (1) Places exposed to direct sunlight
  (2) Places near heat devices
  (3) High humidity places
  (4) Hot surface or cold surface enough to generate condensation
  (5) Places exposed to oil mist or steam directly
  (6) Uneven surface
- DO NOT leave the remote control without the upper case.
  In case the upper cace needs to be detached, protect the remote control with a packaging box or bag in order to keep it away from water and dust.

Accessories	Remote control, wood screw (ø3.5×16) 2 pieces
Prepare on site	Remote control cord (2 cores) the insulation thickness in 1mm or more. [In case of embedding cord] Erectrical box, M4 screw (2 pieces) [In case of exposing cord] Cord clamp (if needed)

Installation procedure

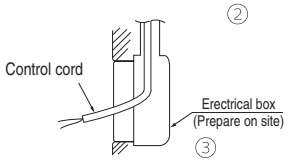
① Open the cover of remote control, and remove the screw under the buttons without fail.

② Remove the upper case of remote control.
Insert a flat-blade screwdriver into the dented part of the upper part of the remote control, and wrench slightly.

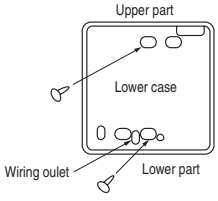


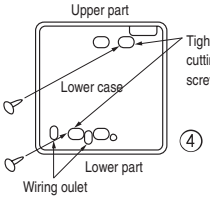
[In case of embedding cord]

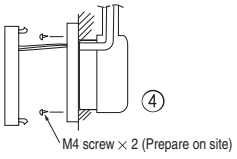
③ Embed the erectrical box and remote control cord beforehand.



④ 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.

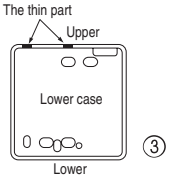






⑤ Connect the remote control cord to the terminal block.
Connect the terminal of remote control (X,Y) with the terminal of indoor unit (X,Y). (X and Y are no polarity)

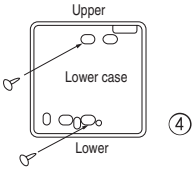
⑥ Install the upper case as before so as not to catch up the remote control cord, and tighten with the screws.



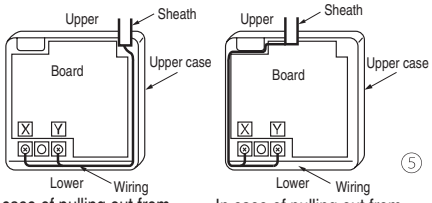
[In case of exposing cord]

③ You can pull out the remote control cord from left upper part or center upper part.
Cut off the upper thin part of remote control lower case with a nipper or knife, and grind burrs with a file etc.

④ Install the lower case to the flat wall with attached two wooden screws.



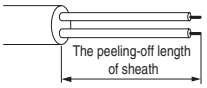
⑤ Connect the remote control cord to the terminal block.
Connect the terminal of remote control (X,Y) with the terminal of indoor unit (X,Y).
(X and Y are no polarity)
Wiring route is as shown in the right diagram depending on the pulling out direction.



In case of pulling out from upper left　　In case of pulling out from upper center

The wiring inside the remote control case should be within 0.3mm^2 (recommended) to 0.5mm^2.
The sheath should be peeled off inside the remote control 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



⑥ Install the upper case as before so as not to catch up the remote control cord, and tighten with the screws.
⑦ In case of exposing cord, fix the cord on the wall with cord clamp so as not to slack.

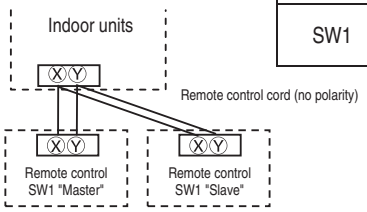
Installation and wiring of remote control

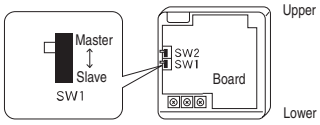
① Wiring of remote control should use 0.3mm^2 × 2 core wires or cables. (on-site configuration)
② Maximum prolongation of remote control wiring is 600 m.
If the prolongation is over 100m, change to the size below.
But, wiring in the remote control case should be under 0.5mm^2 . Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.
100 - 200m·····0.5mm^2 × 2 cores
Under 300m·····0.75mm^2 × 2 cores
Under 400m·····1.25mm^2 × 2 cores
Under 600m·····2.0mm^2 × 2 cores

Master/ slave setting when more than one remote controls are used

A maximum of two remote controls can be connected to one indoor unit (or one group of indoor units.)

Switch	Setting	Contents
SW1	M	Master remote control
	S	Slave remote control



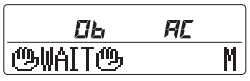


Set SW1 to "Slave" for the slave remote control. It was factory set to "Master" for shipment.
Note: The setting "Remote control thermistor enabled" is only selectable with the master remote control in the position where you want to check room temperature.
The air-conditioner operation follows the last operation of the remote control regardless of the master/ slave setting of it.

The indication when power source is supplied

When power source is turned on, the following is displayed on the remote control until the communication between the remote control and indoor unit settled.
Master remote control : "WAIT M"
Slave remote control : "WAIT S"

At the same time, a mark or a number will be displayed for two seconds first.
This is the software's administration number of the remote control, not an error cord.



※ The left mark is only an example. Other marks may appear.

When remote control cannot communicate with the indoor unit for half an hour, the below indication will appear.
Check wiring of the indoor unit and the outdoor unit etc.

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)

●Upper limit and lower limit of set temperature can be changed with remote control.

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.

1. When ⑫TEMP RANGE SET, remote control 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.

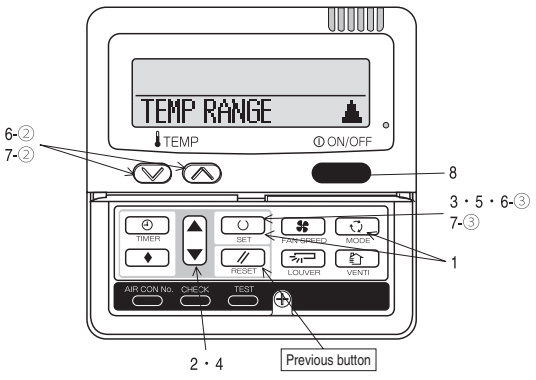
2. When ⑫TEMP RANGE SET, remote control function of function setting mode is "NO INDN CHANGE"
   【If upper limit value is set】
   During heating, even if the value exceeding the upper limit is set, upper limit value will be sent to the indoor unit. But, the indication is the same as the temperature set.

   【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.

●How to set upper and lower limit value

1. Stop the air-conditioner, and press (SET) and (MODE) button at the same time for over three seconds.
   The indication changes to "FUNCTION SET ▼".
2. Press ▼ button once, and change to the "TEMP RANGE ▲ " indication.
3. Press (SET) button, and enter the temperature range setting mode.
4. Select "UPPER LIMIT ▼" or "LOWER LIMIT ▲" by using ▲ ▼ button.
5. Press (SET) button to fix.
6. 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 ▼".
7. When "LOWER LIMIT ▲" is selected (valid during cooling, dry, fan, automatic)
   ① Indication: "☝ ∨ ∧ SET UP" → "LOWER 18˚C ∧"
   ② Select the lower limit value with temperature setting button ▽ △. Indication example: "LOWER 24˚C ∨ ∧" (blinking)
   ③ Press (SET) button to fix. Indication for example: "LOWER 24˚C" (Displayed for two seconds)
   After the fixed lower limit value displayed for two seconds, the indication will return to "LOWER LIMIT ▼".
8. Press ON/OFF button to finish.

- 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.



The functional setting

●The initial function setting for typical using is performed automatically by the indoor unit connected, when remote control and indoor unit are connected.
As long as they are used in a typical manner, there will 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.

[Flow of function setting]

Start : Stop air-conditioner and press " ( ) " (SET) and " ( ) " (MODE) buttons at the same time for over three seconds.
Finalize : 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

Record and keep the setting

Consult the technical data etc. for each control details

Stop air-conditioner and press ( ) (SET) + ( ) (MODE) buttons at the same time for over three seconds.

FUNCTION SET ▼

To next page

FUNCTION ▼ (Remote control function)

Function	setting		
01 ESP SET	ESP VALID	○	Validate setting of ESP:External Static Pressure
	ESP INVALID		Invalidate setting of ESP
02 AUTO RUN SET			
	AUTO RUN ON	※	
	AUTO RUN OFF	※	Automatical operation is impossible
03 TEMP SW			
	VALID	○	
	INVALID		Temperature setting button is not working
04 MODE SW			
	VALID	○	
	INVALID		Mode button is not working
05 ON/OFF SW			
	VALID	○	
	INVALID		On/Off button is not working
06 FAN SPEED SW			
	VALID	※	
	INVALID	※	Fan speed button is not working
07 LOUVER SW			
	VALID	※	
	INVALID	※	Louver button is not working
08 TIMER SW			
	VALID	○	
	INVALID		Timer button is not working
09 SENSOR SET			
	SENSOR OFF	○	Remote thermistor is not working.
	SENSOR ON		Remote thermistor is working.
	SENSOR +3.0℃		Remote thermistor is working, and to be set for producing +3.0°C increase in temperature.
	SENSOR +2.0℃		Remote thermistor is working, and to be set for producing +2.0°C increase in temperature.
	SENSOR +1.0℃		Remote thermistor is working, and to be set for producing +1.0°C increase in temperature.
	SENSOR -1.0℃		Remote thermistor is working, and to be set for producing -1.0°C increase in temperature.
	SENSOR -2.0℃		Remote thermistor is working, and to be set for producing -2.0°C increase in temperature.
	SENSOR -3.0℃		Remote thermistor is working, and to be set for producing -3.0°C increase in temperature.
10 AUTO RESTART			
	INVALID	○	
	VALID		
11 VENT LINK SET			
	NO VENT	○	
	VENT LINK		In case of Single split series, by connecting ventilation device to CnT of the indoor printed circuit board (in case of VRF series, by connecting it to CnD of the indoor printed circuit board), the operation of ventilation device is linked with the operation of indoor unit.
	NO VENT LINK		In case of Single split series, by connecting ventilation device to CnT of the indoor printed circuit board (in case of VRF series, by connecting it to CnD of the indoor printed circuit board), you can operate /stop the ventilation device independently by ( ) (VENT) button.
12 TEMP RANGE SET			
	INDOOR CHANGE	○	If you change the range of set temperature, the indication of set temperature will vary following the control.
	NO INDOOR CHANGE		If you change the range of set temperature, the indication of set temperature will not vary following the control, and keep the set temperature.
13 I/U FAN			
	HI-MID-LO	※	Air flow of fan becomes of ※-※-※or the four speed of ※-※-※-※.
	HI-LO	※	Air flow of fan becomes of ※-※.
	HI-MID		Air flow of fan becomes of ※-※.
	1 FAN SPEED	※	Air flow of fan is fixed at one speed.
14 POSITION			If you change the remote control function "14 POSITION ", you must change the indoor function "04 POSITION" accordingly.
	4POSITION STOP	○	You can select the louver stop position in the four.
	FREE STOP		The louver can stop at any position.
15 MODEL TYPE			
	HEAT PUMP	※	
	COOLING ONLY	※	
16 EXTERNAL CONTROL SET			
	INDIVIDUAL	○	If you input signal into CnT of the indoor printed circuit board from external, the indoor unit will be operated independently according to the input from external.
	FOR ALL UNITS		If you input into CnT of the indoor printed circuit board from external, all units which connect to the same remote control are operated according to the input from external.
17 ROOM TEMP INDICATION SET			
	INDICATION OFF	○	
	INDICATION ON		In normal working indication, indoor unit temperature is indicated instead of air flow. (Only the master remote control can be indicated.)
18 ※ INDICATION			
	INDICATION ON	○	
	INDICATION OFF		Heating preparation indication should not be indicated.
19 ℃/℉ SET			
	℃	○	Temperature indication is by degree C
	℉		Temperature indication is by degree F

To next page

ON/OFF button (finished)

Note 1: The initial setting marked "※" is decided by connected indoor and outdoor unit, and is automatically defined as following table.

Function No.	Item	Default	Model
Remote control function02	AUTO RUN SET	AUTO RUN ON	"Auto-RUN" mode selectable indoor unit.
		AUTO RUN OFF	Indoor unit without "Auto-RUN" mode
Remote control function06	FAN SPEED SW	VALID	Indoor unit with two or three step of air flow setting
		INVALID	Indoor unit with only one of air flow setting
Remote control function07	LOUVER SW	VALID	Indoor unit with automatically swing louver
		INVALID	Indoor unit without automatically swing louver
Remote control function13	I/U FAN	HI-MID-LO	Indoor unit with three step of air flow setting
		HI-LO	Indoor unit with two step of air flow setting
		HI-MID	
		1 FAN SPEED	Indoor unit with only one of air flow setting
Remote control function15	MODEL TYPE	HEAT PUMP	Heat pump unit
		COOLING ONLY	Exclusive cooling unit

Note 3: As for plural indoor unit, set indoor functions to each master and slave indoor unit.
But only master indoor unit is received the setting change of indoor unit function "05 EXTERNAL INPUT" and "06 PERMISSION / PROHIBISHION".

From previous page

(Indoor unit function) I/U FUNCTION ▲

Indoor unit No. are indicated only when plural indoor units are connected.

I/U000 ▲
I/U001 ≑
I/U002 ≑
I/U003 ≑
I/U004 ≑

To set other indoor unit, press AIR CON No. button, which allows you to go back to the indoor unit selection screen (for example: I/U 000 ▲).

Function / **setting**

- 02 FAN SPEED SET
  - STANDARD ※
  - HIGH SPEED 1 ※
  - HIGH SPEED 2
- 03 FILTER SIGN SET
  - INDICATION OFF
  - TYPE 1 ○ — The filter sign is indicated after running for 180 hours.
  - TYPE 2 — The filter sign is indicated after running for 600 hours.
  - TYPE 3 — The filter sign is indicated after running for 1000 hours.
  - TYPE 4 — The filter sign is indicated after running for 1000 hours, then the indoor unit will be stopped by compulsion after 24 hours.
- 04 POSITION — If you change the indoor function "04 POSITION", you must change the remote control function "14 POSITION" accordingly.
  - 4POSITION STOP ○ — You can select the louver stop position in the four.
  - FREE STOP — The louver can stop at any position.
- 05 EXTERNAL INPUT
  - LEVEL INPUT ○
  - PULSE INPUT
- 06 OPERATION PERMISSION/PROHIBITION
  - INVALID ○
  - VALID — Permission/prohibition control of operation will be valid.
- 07 EMERGENCY STOP
  - INVALID ○
  - VALID — With the VRF series, it is used to stop all indoor units connected with the same outdoor unit immediately. When stop signal is inputed from remote on-off terminal "CnT-6", all indoor units are stopped immediately.
- 08 ※SP OFFSET
  - OFFSET +3.0℃ — To be reset for producing +3.0˚C increase in temperature during heating.
  - OFFSET +2.0℃ — To be reset for producing +2.0˚C increase in temperature during heating.
  - OFFSET +1.0℃ — To be reset for producing +1.0˚C increase in temperature during heating.
  - NO OFFSET ○
- 09 RETURN AIR TEMP
  - OFFSET +2.0℃ — To be reset producing +2.0˚C increase in return air temperature of indoor unit.
  - OFFSET +1.5℃ — To be reset producing +1.5˚C increase in return air temperature of indoor unit.
  - OFFSET +1.0℃ — To be reset producing +1.0˚C increase in return air temperature of indoor unit.
  - NO OFFSET ○
  - OFFSET -1.0℃ — To be reset producing -1.0˚C increase in return air temperature of indoor unit.
  - OFFSET -1.5℃ — To be reset producing -1.5˚C increase in return air temperature of indoor unit.
  - OFFSET -2.0℃ — To be reset producing -2.0˚C increase in return air temperature of indoor unit.
- 10 ※FAN CONTROL
  - LOW FAN SPEED ○ — When heating thermostat is OFF, fan speed is low speed.
  - SET FAN SPEED — When heating thermostat is OFF, fan speed is set speed.
  - INTERMITTENCE — When heating thermostat is OFF, fan speed is operated intermittently.
  - FAN OFF — When heating thermostat is OFF, the fan is stopped. When the remote thermistor is working, "FAN OFF" is set automatically. Do not set "FAN OFF" when the indoor unit's thermistor is working.
- 11 FROST PREVENTION TEMP — Change of indoor heat exchanger temperature to start frost prevention control.
  - TEMP HIGH
  - TEMP LOW ○
- 12 FROST PREVENTION CONTROL — Working only with the Single split series.
  - FAN CONTROL ON ○ — To control frost prevention, the indoor fan tap is raised.
  - FAN CONTROL OFF
- 13 DRAIN PUMP LINK
  - ❄/♨ ○ — Drain pump is run during cooling and dry.
  - ❄/♨ AND ※ — Drain pump is run during cooling, dry and heating.
  - ❄/♨ AND ※ AND ≋ — Drain pump is run during cooling, dry, heating and fan.
  - ❄/♨ AND ≋ — Drain pump is run during cooling, dry and fan.
- 14 ※FAN REMAINING
  - NO REMAINING ○ — After cooling is stopped, the fan does not perform extra operation.
  - 0.5 HOUR — After cooling is stopped, the fan perform extra operation for half an hour.
  - 1 HOUR — After cooling is stopped, the fan perform extra operation for an hour.
  - 6 HOUR — After cooling is stopped, the fan perform extra operation for six hours.
- 15 ※FAN REMAINING
  - NO REMAINING ○ — After heating is stopped or heating thermostat is OFF, the fan does not perform extra operation.
  - 0.5 HOUR — After heating is stopped or heating thermostat is OFF, the fan perform extra operation for half an hour.
  - 2 HOUR — After heating is stopped or heating thermostat is OFF, the fan perform extra operation for two hours.
  - 6 HOUR — After heating is stopped or heating thermostat is OFF, the fan perform extra operation for six hours.
- 16 ※FAN INTERMITTENCE
  - NO REMAINING ○
  - 20min OFF 5min ON — During heating is stopped or heating thermostat is OFF, the fan perform intermittent operation for five minutes with low fan speed after twenty minutes' OFF.
  - 5min OFF 5min ON — During heating is stopped or heating thermostat is OFF, the fan perform intermittent operation for five minutes with low fan speed after five minutes' OFF.
- 17 PRESSURE CONTROL
  - STANDARD ※
  - TYPE1 ※ — Connected "OA Processing" type indoor unit, and is automatically defined.

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Note2: Fan setting of "HIGH SPEED"

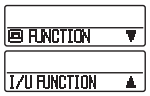
Fan tap		Indoor unit air flow setting			
		※ - ※ - ※ - ※	※ - ※ - ※ - ※	※ - ※ - ※	※ - ※
FAN SPEED SET	STANDARD	UH - Hi - Me - Lo	Hi - Me - Lo	Hi - Lo	Hi - Me
	HIGH SPEED1, 2	UH - UH - Hi - Me	UH - Hi - Me	UH - Me	UH - Hi

Initial function setting of some indoor unit is "HIGH SPEED".
4 speed is not able to be set with wireless remote control.

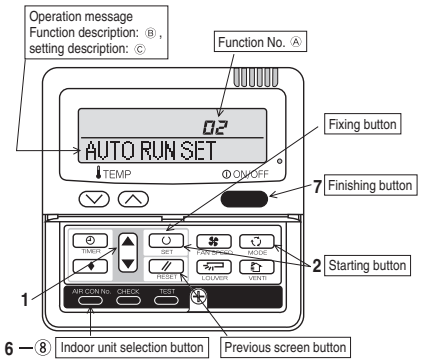
How to set function

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 control function) or "I/U FUNCTION▲ " (indoor unit function).**
4. **Press ▲ or ▼ button.**
   Selecct "FUNCTION ▼" (remote control function) or "I/U FUNCTION ▲" (indoor unit function).



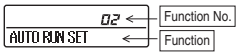
5. **Press (SET) button.**



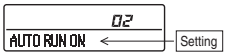
6. **【On the occasion of remote control function selection】**

① "DATA LOADING" (Indication with blinking)
↓
Display is changed to "01 ESP SET".

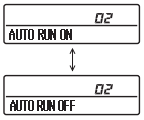
② Press ▲ or ▼ button.
"No. and function"are indicated by turns on the remote control function table, then you can select from them.
(For example)



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.

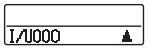
7. **Press ON/OFF button.**
   Setting is finished.

【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 "02 FAN SPEED SET".
Go to ②.

[Note]

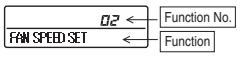
(1) If plural indoor units are connected to a remote control, the indication is "I/U 000" (blinking) ← The lowest number of the indoor unit connected is indicated.



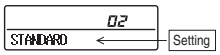
(2) Press ▲ or ▼ button.
Select the number of the indoor unit you are to set
If you select "ALL UNIT ▼", you can set the same setting with all unites.

(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 control, press the AIR CON 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 control 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.)

PSB012D955T

Inverter driven split PAC
100VN–140VN,100VS–140VS
100VNX–140VNX,100VSX–140VSX
Designed for R410A refrigerant

◎This installation manual deals with outdoor units and general installation specifications only. For indoor units, refer to page 32.
◎When install the unit, be sure to check whether the selection of installation place, power source specifications, usage limitation (piping length, height differences between indoor and outdoor units, power source voltage and etc.) and installation spaces

SAFETY PRECAUTIONS

- We recommend you to read this "SAFETY PRECAUTIONS" carefully before the installation work in order to gain full advantage of the functions of the unit and to avoid malfunction due to mishandling.
- The precautions described below are divided into ⚠WARNING and ⚠CAUTION. The matters with possibilities leading to serious consequences such as death or serious personal injury due to erroneous handling are listed in the ⚠WARNING and the matters with possibilities leading to personal injury or damage of the unit due to erroneous handling including probability leading to serious consequences in some cases are listed in ⚠CAUTION. **These are very important precautions for safety. Be sure to observe all of them without fail.**
- The meaning of "Marks" used here are as shown below.

⃠	Never do it under any circumstance.	❗ ⏚	Always do it according to the instruction

- For 3 phase power source outdoor unit,EN61000-3-2 is not applicable if consent by the utility company or nortification to the utility company is given before usage.
- 3 phase power source unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment. If installed as a house-hold appliance it could cause electromagnetic interference.
- 5 and 6 HP units of single phase power source are equipment complying with IEC 61000-3-12.
- Be sure to confirm no anomaly on the equipment by commissioning after completed installation and explain the operating methods as well as the maintenance methods of this equipment to the user according to the owner's manual.
- Keep the installation manual together with owner's manual at a place where any user can read at any time. Moreover if necessary, ask to hand them to a new user

Check before installation work

[Accessory]

Edging		1 piece	knock-out hole protection

- Model name and power source
- Refrigerant piping length
- Piping, wiring and miscellaneous small parts
- Indoor unit installation manual

⚠ WARNING

❗
- **Installation must be carried out by the qualified installer.**
  If you install the system by yourself, it may cause serious trouble such as water leaks, electric shocks, fire and personal injury, as a result of a system malfunction.
- **Install the system in full accordance with the instruction manual.**
  Incorrect installation may cause bursts, personal injury, water leaks, electric shocks and fire.
- **Use the original accessories and the specified components for installation.**
  If parts other than those prescribed by us are used, it may cause fall of the unit, water leaks, electric shocks, fire, refrigerant leak, substandard performance, control failure and personal injury.
- **When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the event of leakage accordance with ISO5149.**
  Consult the expert about prevention measures. If the density of refrigerant exceeds the limit in the event of leakage, lack of oxygen can occur, which can cause serious accidents.
- **Ventilate the working area well in the event of refrigerant leakage during installation.**
  If the refrigerant comes into contact with naked flames, poisonous gas is produced.
- **After completed installation, check that no refrigerant leaks from the system.**
  If refrigerant leaks into the room and comes into contact with an oven or other hot surface, poisonous gas is produced.
- **Hang up the unit at the specified points with ropes which can support the weight in lifting for portage. And to avoid jolting out of alignment, be sure to hang up the unit at 4-point support.**
  An improper manner of portage such as 3-point support can cause death or serious personal injury due to falling of the unit
- **Install the unit in a location with good support.**
  Unsuitable installation locations can cause the unit to fall and cause material damage and personal injury.
- **Ensure the unit is stable when installed, so that it can withstand earthquakes and strong winds.**
  Unsuitable installation locations can cause the unit to fall and cause material damage and personal injury.
- **The electrical installation must be carried out by the qualified electrician in accordance with "the norm for electrical work" and "national wiring regulation", and the system must be connected to the dedicated circuit.**
  Power source with insufficient capacity and incorrect function done by improper work can cause electric shocks and fire,
- **Be sure to shut off the power before starting electrical work.**
  Failure to shut off the power can cause electric shocks, unit failure or incorrect function of equipment.
- **Be sure to use the cables conformed to safety standard and cable ampacity for power distribution work.**
  Unconformable cables can cause electric leak, anomalous heat production or fire.
- **Use the prescribed cables for electrical connection, tighten the cables securely in terminal block and relieve the cables correctly to prevent overloading the terminal blocks.**
  Loose connections or cable mountings can cause anomalous heat production or fire.
- **Arrange the wiring in the control box so that it cannot be pushed up further into the box. Install the service panel correctly.**
  Incorrect installation may result in overheating and fire.

❗
- **Do not perform brazing work in the airtight room**
  It can cause lack of oxygen.
- **Use the prescribed pipes, flare nuts and tools for R410A.**
  Using existing parts (for R22 or R407C) can cause the unit failure and serious accidents due to burst of the refrigerant circuit.
- **Tighten the flare nut by using double spanners and torque wrench according to prescribed method. Be sure not to tighten the flare nut too much.**
  Loose flare connection or damage on the flare part by tightening with excess torque can cause burst or refrigerant leaks which may result in lack of oxygen.
- **Do not open the service valves for liquid line and gas line until completed refrigerant piping work, air tightness test and evacuation.**
  If the compressor is operated in state of opening service valves before completed connection of refrigerant piping work, you may incur frost bite or injury from an abrupt refrigerant outflow and air can be sucked into refrigerant circuit, which can cause burst or personal injury due to anomalously high pressure in the refrigerant
- **Only use prescribed option parts. The installation must be carried out by the qualified installer.**
  If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire.
- **Do not perform any change of protective device itself or its setup condition**
  The forced operation by short-circuiting protective device of pressure switch and temperature controller or the use of non specified component can cause fire or burst.
- **Be sure to switch off the power source in the event of installation, inspection or servicing.**
  If the power source is not shut off, there is a risk of electric shocks, unit failure or personal injury due to the unexpected start of fan.
- **Consult the dealer or an expert regarding removal of the unit.**
  Incorrect installation can cause water leaks, electric shocks or fire.
- **Stop the compressor before closing valve and disconnecting refrigerant pipes in case of pump down operation.**
  If disconnecting refrigerant pipes in state of opening service valves before compressor stopping, you may incur frost bite or injury from an abrupt refrigerant outflow and air can be sucked, which can cause burst or personal injury due to anomalously high pressure in the refrigerant circuit

⃠
- **Ensure that no air enters in the refrigerant circuit when the unit is installed and removed.**
  If air enters in the refrigerant circuit, the pressure in the refrigerant circuit becomes too high, which can cause burst and personal injury.
- **Do not run the unit with removed panels or protections**
  Touching rotating equipments, hot surfaces or high voltage parts can cause personal injury due to entrapment, burn or electric shocks.
- **Be sure to fix up the service panels.**
  Incorrect fixing can cause electric shocks or fire due to intrusion of dust or water.
- **Do not perform any repairs or modifications by yourself. Consult the dealer if the unit requires repair.**
  If you repair or modify the unit, it can cause water leaks, electric shocks or fire.

⚠ CAUTION

- **Carry out the electrical work for ground lead with care**
  Do not connect the ground lead to the gas line, water line, lightning conductor or telephone line's ground lead. Incorrect grounding can cause unit faults such as electric shocks due to short-circuiting. Never connect the grounding wire to a gas pipe because if gas leaks,it could cause explosion or ignition.
- **Use the circuit breaker for all pole with correct capacity.**
  Using the incorrect circuit breaker, it can cause the unit malfunction and fire.
- **Install isolator or disconnect switch on the power source wiring in accordance with the local codes and regulations.**
  The isolator should be locked in accordanced with EN60204-1.
- **Take care when carrying the unit by hand.**
  If the unit weights more than 20kg, it must be carried by two or more persons. Do not carry by the plastic straps, always use the carry handle when carrying the unit by hand. Use gloves to minimize the risk of cuts by the aluminum fins.
- **Dispose of any packing materials correctly.**
  Any remaining packing materials can cause personal injury as it contains nails and wood. And to avoid danger of suffocation, be sure to keep the plastic wrapper away from children and to dispose after tear it up.
- **Pay attention not to damage the drain pan by weld spatter when welding work is done near the indoor unit.**
  If weld spatter entered into the indoor unit during welding work, it can cause pin-hole in drain pan and result in water leakage. To prevent such damage, keep the indoor unit in its packing or cover it.
- **Be sure to insulate the refrigerant pipes so as not to condense the ambient air moisture on them.**
  Insufficient insulation can cause condensation, which can lead to moisture damage on the ceiling, floor, furniture and any other valuables.
- **Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work.**
  If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents.
- **Perform installation work properly according to this installation manual.**
  Improper installation can cause abnormal vibrations or increased noise generation.
- **Earth leakage breaker must be installed**
  If the earth leakage breaker is not installed, it can cause fire or electric shocks.
- **Do not use any materials other than a fuse with the correct rating in the location where fuses are to be used.**
  Connecting the circuit with copper wire or other metal thread can cause unit failure and fire.
- **Do not install the unit near the location where leakage of combustible gases can occur.**
  If leaked gases accumulate around the unit, it can cause fire.
- **Do not install the unit where corrosive gas (such as sulfurous acid gas etc.) or combustible gas (such as thinner and petroleum gases) can accumulate or collect, or where volatile combustible substances are handled.**
  Corrosive gas can cause corrosion of heat exchanger, breakage of plastic parts and etc. And combustible gas can cause fire.
- **Secure a space for installation, inspection and maintenance specified in the manual.**
  Insufficient space can result in accident such as personal injury due to falling from the installation place..
- **When the outdoor unit is installed on a roof or a high place, provide permanent ladders and handrails along the access route and fences and handrails around the outdoor unit.**
  If safety facilities are not provided, it can cause personal injury due to falling from the installation place.
- **Do not install nor use the system close to the equipment that generates electromagnetic fields or high frequency harmonics**
  Equipment such as inverters, standby generators, medical high frequency equipments and telecommunication equipments can affect the system, and cause malfunctions and breakdowns. The system can also affect medical equipment and telecommunication equipment, and obstruct its function or cause jamming.
- **Do not install the outdoor unit in a location where insects and small animals can inhabit.**
  Insects and small animals can enter the electric parts and cause damage or fire. Instruct the user to keep the surroundings clean.
- **Do not use the base flame for outdoor unit which is corroded or damaged due to long periods of operation.**
  Using an old and damage base flame can cause the unit falling down and cause personal injury.
- **Do not install the unit in the locations listed below**
  - Locations where carbon fiber, metal powder or any powder is floating.
  - Locations where any substances that can affect the unit such as sulphide gas, chloride gas, acid and alkaline can occur.
  - Vehicles and ships
  - Locations where cosmetic or special sprays are often used.
  - Locations with direct exposure of oil mist and steam such as kitchen and machine plant.
  - Locations where any machines which generate high frequency harmonics are used.
  - Locations with salty atmospheres such as coastlines
  - Locations with heavy snow (If installed, be sure to provide base flame and snow hood mentioned in the manual)
  - Locations where the unit is exposed to chimney smoke
  - Locations at high altitude (more than 1000m high)
  - Locations with ammonic atmospheres (e.g. organic fertilizer).
  - Locations with calcium chloride (e.g. snow melting agent).
  - Locations where heat radiation from other heat source can affect the unit
  - Locations without good air circulation.
  - Locations with any obstacles which can prevent inlet and outlet air of the unit
  - Locations where short circuit of air can occur (in case of multiple units installation)
  - Locations where strong air blows against the air outlet of outdoor unit

  It can cause remarkable decrease in performance, corrosion and damage of components, malfunction and fire.
- **Do not install the outdoor unit in the locations listed below.**
  - Locations where discharged hot air or operating sound of the outdoor unit can bother neighborhood.
  - Locations where outlet air of the outdoor unit blows directly to an animal or plants. The outlet air can affect adversely to the plant etc.
  - Locations where vibration can be amplified and transmitted due to insufficient strength of structure.
  - Locations where vibration and operation sound generated by the outdoor unit can affect seriously. (on the wall or at the place near bed room)
  - Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m)
  - Locations where drainage cannot run off safely.

  It can affect surrounding environment and cause a claim
- **Do not use the unit for special purposes such as storing foods, cooling precision instruments and preservation of animals, plants or art.**
  It can cause the damage of the items.
- **Do not touch any buttons with wet hands**
  It can cause electric shocks
- **Do not touch any refrigerant pipes with your hands when the system is in operation.**
  During operation the refrigerant pipes become extremely hot or extremely cold depending the operating condition, and it can cause burn injury or frost injury.
- **Do not clean up the unit with water**
  It can cause electric shocks
- **Do not operate the outdoor unit with any article placed on it.**
  You may incur property damage or personal injure from a fall of the article.
- **Do not step onto the outdoor unit.**
  You may incur injury from a drop or fall.

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 cylinder containing R410A has a pink indication mark on the top.
- 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. Check connectable indoor unit models in a catalog, etc. (A wrong indoor unit, if connected into the system, will impair proper system operation)

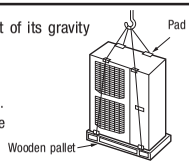
	Dedicated R410A tools
a)	Gauge manifold
b)	Charge hose
c)	Electronic scale for refrigerant charging
d)	Torque wrench
e)	Flare tool
f)	Protrusion control copper pipe gauge
g)	Vacuum pump adapter
h)	Gas leak detector

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 unit is hoisted with slings for haulage, take into consideration the offset of its gravity center position.
If not properly balanced, the unit can be thrown off-balance and fall.

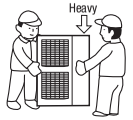
1) Delivery

- Deliver the unit as close as possible to the installation site before removing it from the packaging.
- 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.



2) 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.



3) Selection of installation location for the outdoor unit

Be sure to select a suitable installation place in consideration of following conditions.

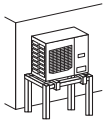
- ○ A place where it is horizontal, stable and can endure the unit weight and will not allow vibration transmittance of the unit.
- ○ A place where it can be free from possibility of bothering neighbors due to noise or exhaust air from the unit
- ○ A place where the unit is not exposed to oil splashes.
- ○ A place where it can be free from danger of flammable gas leakage.
- ○ A place where drain water can be disposed without any trouble.
- ○ A place where the unit will not be affected by heat radiation from other heat source.
- ○ A place where snow will not accumulate.
- ○ A place where the unit can be kept away 5m or more from TV set and/or radio receiver in order to avoid any radio or TV interference.
- ○ A place where good air circulation can be secured, and enough service space can be secured for maintenance and service of the unit safely.
- ○ A place where the unit will not be affected by electromagnetic waves and/or high-harmonic waves generated by other equipment.
- ○ A place where chemical substances like sulfuric gas, chloric gas, acid and alkali (including ammonia), which can harm the unit, will not be generated and not remain.
- ○ A place where strong wind will not blow against the outlet air blow of the unit.

Do not install the unit in places which exposed to sea breeze (e.g. coastal area) or calcium chloride (e.g. snow melting agent), exposed to ammonia substance (e.g. organic fertilizer).

4) Caution about selection of installation location

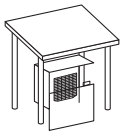
(1) If the unit is installed in the area where the snow will accumulate, following measures are required.
The bottom plate of unit and intake, outlet may be blocked by snow.

1.Install the unit on the base so that the bottom is higher than snow cover surface.



2.Provide a snow hood to the outdoor unit on site. Regarding outline of a snow hood, refer to our technical manual.

3.Install the unit under eaves or providen the roof on site.

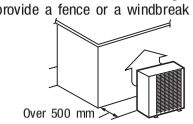


Since drain water generated by defrost control may freeze, following measures are required.

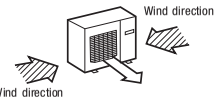
- ● Don't execute drain piping work by using a drain elbow and drain grommets (optional parts). [Refer to Drain piping work.]
- ● Recommend setting Defrost Control (SW3-1) and Snow Guard Fan Control (SW3-2). [Refer to Setting SW3-1, SW3-2.]
- ● Attach heater on a base plate on site, if there is possibility to freeze drain water.
  In case that the product has a corrective drainage system, the drainage paths should have suitable measure against freezing but be sure not to melt the material of drainage paths with heat.

(2) If the unit can be affected by strong wind, following measures are required.
Strong wind can cause damage of fan (fan motor), or can cause performance degradation, or can trigger anomalous stop of the unit due to rising of high pressure.

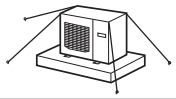
1.Install the outlet air blow side of the unit to face a wall of building, or provide a fence or a windbreak screen.



2.Install the outlet air blow side of the unit in a position perpendicular to the direction of wind.



3.The unit should be installed on the stable and level foundation. If the foundation is not level, tie down the unit with wires.

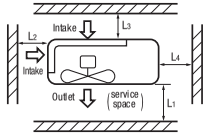


5) Installation space

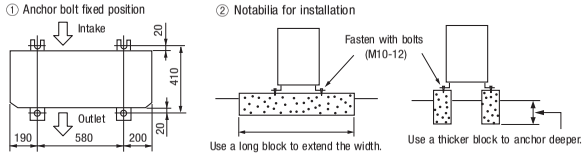
- ● Walls surrounding the unit in the four sides are not acceptable.
- ● There must be a 1-meter or larger space in the above.
- ● Where a danger of short-circuiting exists, install guide louvers.
- ● When more than one unit are installed, provide sufficient intake space consciously so that short-circuiting may not occur.
- ● Where piling snow can bury the outdoor unit, provide proper snow guards.
- ● A barrier wall placed in front of the exhaust diffuser must not be higher than the unit.

(mm)

Size \ Example installation	I	II	III
L1	Open	Open	500
L2	300	5	Open
L3	150	300	150
L4	5	5	5



6) 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.

7) To run the unit for a cooling operation, when the outdoor temperature is –5°C or lower.

- ● When the outdoor air temperature is -5°C or lower, provide a snow hood to the outdoor unit on site.
  So that strong wind will not blow against the outdoor heat exchanger directly. Regarding outline of a snow hood, refer to our technical manual.

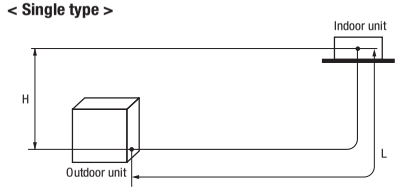
2. REFRIGERANT PIPING WORK

1) Restrictions on unit installation and use

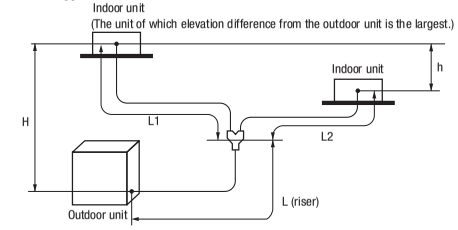
- ● Check the following points in light of the indoor unit specifications and the installation site.
- ● Observe the following restrictions on unit installation and use. Improper installation can result in a compressor failure or performance degradation.

Descriptions	One-way pipe length difference from the first branching point to the indoor unit			Marks appearting in the drawing			
						< 3m	≧ 3m
	Model for outdoor units		Dimensional limitations	Single type	Twin type	Triple type A	Triple type B
One-way pipe length of refrigerant piping	100VN,125VN,100VS,125VS		≦ 50m	L	L+L1+L2	—	—
	140VN,140VS					L+L1+L2+L3	L+La+L1+L2+L3
	100VNX,125VNX,100VSX,125VSX		≦ 100m			—	—
	140VNX,140VSX					L+L1+L2+L3	L+La+L1+L2+L3
Main pipe length	100VN,125VN,100VS,125VS		≦ 50m	—	L	—	—
	140VN,140VS					L	L
	100VNX,125VNX,100VSX,125VSX		≦ 100m			—	—
	140VNX,140VSX					L	L
One-way pipe length between the first branching point from to the second branching point	Triple type	140VN,140VS, 140VNX,140VSX	≦ 5m	—	—	—	La
One-way pipe length after the first branching point	Twin type	All Models	≦ 30m	—	L1, L2	—	—
	Triple type	140VN,140VS, 140VNX,140VSX			—	L1, L2, L3	L1 (1)
One-way pipe length after the first branching point and second branching point	Triple type	140VN,140VS 140VNX, 140VSX	≦ 27m	—	—	—	La+L2, La+L3 (1)
One-way pipe length difference from the first branching point to the indoor unit	Twin type	All Models	≦ 10m	—	| L1—L2 |	—	—
	Triple type	140VN,140VS, 140VNX,140VSX	≦ 3m		—	| L1—L2 | , | L2—L3 | , | L3—L1 |	
			≦ 10m			—	L1—(La+L2), L1—(La+L3) (1)
One-way pipe length difference from the second branching point to the indoor unit	Triple type	140VN,140VS, 140VNX,140VSX	≦ 10m	—	—	—	| L2—L3 |
Elevation difference between indoor and outdoor units	When the outdoor unit is positioned higher,		≦ 30m	H	H	H	H
	When the outdoor unit is positioned lower,		≦ 15m				
Elevation difference between indoor units			≦ 0.5m	—	h	h1, h2, h3	h1, h2, h3

< Single type >



< Twin type >



⚠CAUTION

- The use restrictions appearing in the table above are applicable to the standard pipe size combinations shown in the table below. Where an existing pipe system is utilized, different one-way pipe length restrictions should apply depending on its pipe size. For more information, see " 6. UTILIZATION OF EXISTING PIPING."
- With the triple pipe connection, the way of use is different when the difference of one-way pipe length after the first branching point is 3m to 10m. For details, refer to the above table and right figure.

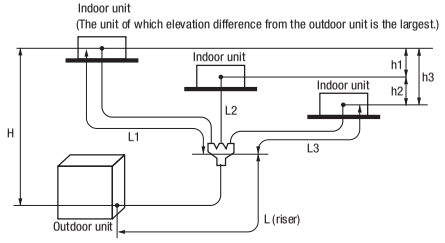
Note (1) Install the indoor units so that L + L1 becomes the longest one-way pipe.
Keep the pipe length difference between L1 and (La + L2) or (La + L3) within 10m.

2) Determination of pipe size

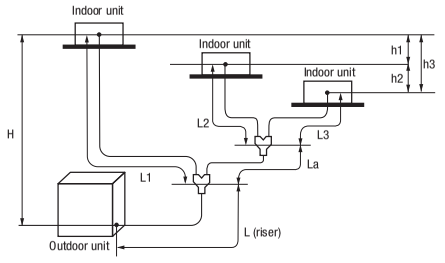
- Determine refrigerant pipe size pursuant to the following guidelines based on the indoor unit specifications.

		Model 100V		Model 125V		Model 140V	
		Gas pipe	Liquid pipe	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe
Outdoor unit connected		ϕ15.88	ϕ9.52	ϕ15.88	ϕ9.52	ϕ15.88	ϕ9.52
		Flare	Flare	Flare	Flare	Flare	Flare
Refrigerant piping (Main pipe L)		ϕ15.88	ϕ9.52	ϕ15.88	ϕ9.52	ϕ15.88	ϕ9.52
In the case of a single type	Indoor unit connected	ϕ15.88	ϕ9.52	ϕ15.88	ϕ9.52	ϕ15.88	ϕ9.52
	Capacity of indoor unit	Model 100V		Model 125V		Model 140V	
In the case of a twin type	Branching pipe set	DIS-WA1		DIS-WA1		DIS-WA1	
	Refrigerant piping (branch pipe L1,L2)	ϕ12.7	ϕ9.52	ϕ12.7	ϕ9.52	ϕ15.88	ϕ9.52
	Indoor unit connected	ϕ12.7	ϕ6.35	ϕ12.7	ϕ6.35	ϕ15.88	ϕ9.52
	Capacity of indoor unit	Model 50V×2		Model 60V×2		Model 71V×2	
In the case of a triple type A	Branching pipe set	–		–		DIS-TA1	
	Refrigerant piping (branch pipe L1,L2,L3)					ϕ12.7	ϕ9.52
	Indoor unit connected					ϕ12.7	ϕ6.35
	Capacity of indoor unit					Model 50Vx3	
In the case of a triple type B	Branching pipe set	–		–		DIS-WA1	
	Refrigerant piping (branch pipe La)					ϕ15.88	ϕ9.52
	Refrigerant piping (branch pipe L1)					ϕ12.7	ϕ9.52
	Branching pipe set (After branch pipe La)					DIS-WA1	
	Refrigerant piping (branch pipe L2,L3)					ϕ12.7	ϕ9.52
	Indoor unit connected					ϕ12.7	ϕ6.35
	Capacity of indoor unit					Model 50V×3	

< Triple type A >



< Triple type B >



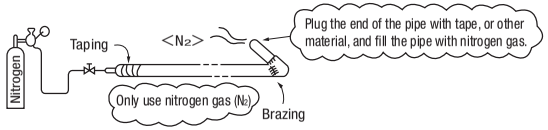
⚠CAUTION

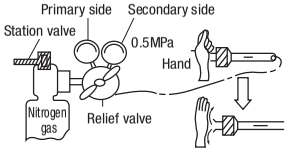
- When the 50V or 60V model is connected as an indoor unit, always use a ϕ9.52 liquid pipe for the branch (branching pipe – indoor unit) and a different diameter joint supplied with the branching pipe set for connection with the indoor unit (ϕ6.35 on the liquid pipe side).
  If a ϕ6.35 pipe is used for connection with a branching pipe, a refrigerant distribution disorder may occur, causing one of the indoor units to fall short of the rated capacity.
- A riser pipe must be a part of the main. A branching pipe set should be installed horizontally at a point as close to an indoor unit as possible.
  A branching part must be dressed with a heat-insulation material supplied as an accessory.
- For the details of installation work required at and near a branching area, see the installation manual supplied with your branching pipe set.

About brazing

Brazing must be performed under a nitrogen gas flow.

Without nitrogen gas, a large quantity of foreign matters (oxidized film) are created, causing a critical failure from capillary tube or expansion valve clogging.





3) Refrigerant pipe wall thickness and material

- Select refrigerant pipes of the table shown on the right wall thickness and material as specified for each pipe size.
- This unit uses R410A. Always use 1/2H pipes having a 1.0mm or thicker wall for ϕ19.05 or larger pipes, because O-type pipes do not meet the pressure resistance requirement.

Pipe diameter [mm]	6.35	9.52	12.7	15.88	22.22	25.4	28.58
Minimum pipe wall thickness [mm]	0.8	0.8	0.8	1.0	1.0	1.0	1.0
Pipe material*	O-type pipe	O-type pipe	O-type pipe	O-type pipe	1/2H-type pipe	1/2H-type pipe	1/2H-type pipe

*Phosphorus deoxidized seamless copper pipe C1220T, JIS H 3300

NOTE

- Select pipes having a wall thickness larger than the specified minimum pipe thickness.

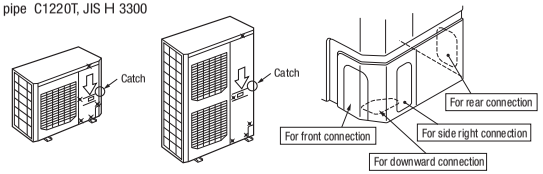
4) On-site piping work

⚠IMPORTANT

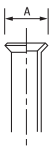
- Take care so that installed pipes may not touch components within a unit. If touching with an internal component, it will generate abnormal sounds and/or vibrations.

How to remove the service panel

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.

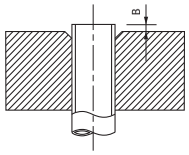


- The pipe can be laid in any of the following directions: side right, front, rear and downward.
- Remove a knock-out plate provided on the pipe penetration to open a minimum necessary area and attach an edging material supplied as an accessory by cutting it to an appropriate length before laying a pipe.
- Carry out the on site piping work with the service valve fully closed.
- Give sufficient protection to a pipe end (compressed and blazed, or with an adhesive tape) so that water or foreign matters may not enter the piping.
- Bend a pipe to a radius as large as practical.(R100~R150) Do not bend a pipe repeatedly to correct its form.
- Flare connection is used between the unit and refrigerant pipe. Flare a pipe after engaging a flare nut onto it. Flare dimensions for R410A are different from those for conventional R407C. Although we recommend the use of flaring tools designed specifically for R410A, conventional flaring tools can also be used by adjusting the measurement of protrusion B with a protrusion control gauge.
- The pipe should be anchored every 1.5m or less to isolate the vibration.
- Tighten a flare joint securely with a double spanner.



Flared pipe end: A (mm)

Copper pipe outer diameter	A 0 −0.4
ϕ6.35	9.1
ϕ9.52	13.2
ϕ12.7	16.6
ϕ15.88	19.7



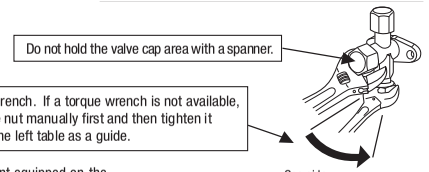
Copper pipe protrusion for flaring: B (mm)

Copper pipe outer diameter	In the case of a rigid (clutch) type	
	With an R410A tool	With a conventional tool
ϕ6.35	0-0.5	0.7-1.3
ϕ9.52		
ϕ12.7		
ϕ15.88		

⚠ CAUTION **Do not apply force beyond proper fastening torque in tightening the flare nut.**

Fix both liquid and gas service valves at the valve main bodies as illustrated on the right, and then fasten them, applying appropriate fastening torque.

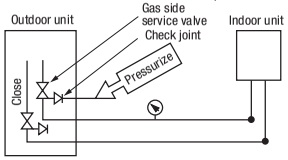
Service valve size (mm)	Tightening torque (N-m)	Tightening angle (°)	Recommended length of a tool handle (mm)
φ6.35 (1/4")	14-18	45-60	150
φ9.52 (3/8")	34-42	30-45	200
φ12.7 (1/2")	49-61	30-45	250
φ15.88 (5/8")	68-82	15-20	300



5) Air tightness test

① Although outdoor and indoor units themselves have been tested for air tightness at the factory, check the connecting pipes after the installation work for air tightness from the service valve's check joint equipped on the outdoor unit side. While conducting a test, keep the service valve shut all the time.
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 no pressure drop is observed with an installation pressurized to the specified level and left for about one day, it is acceptable. When the ambient Temperature fall 1℃, the pressure also fall approximately 0.01 MPa. The pressure, if changed, should be compensated for.
e) If a pressure drop is observed in checking e) and a) – d), a leak exists somewhere. Find a leak by applying bubble test liquid to welded parts and flare joints and repair it. After repair, conduct an air-tightness test again.

② In conducting an air-tightness test, use nitrogen gas and pressurize the system with nitrogen gas from the gas side. Do not use a medium other than nitrogen gas under any circumstances.

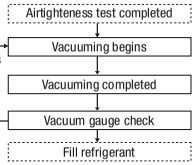


6) Evacuation

<Work flow> When the system has remaining moisture inside or a leaky point, the vacuum gauge indicator will rise.
Check the system for a leaky point and then draw air to create a vacuum again.

Run the vacuum pump for at least one hour after the vacuum gauge shows -101kPa or lower. (-755mmHg or lower)

Confirm that the vacuum gauge indicator does not rise even if the system is left for one hour or more.



Pay attention to the following points in addition to the above for the R410A and compatible machines.

○To prevent a different oil from entering, assign dedicated tools, etc. to each refrigerant type. Under no circumstances must a gauge manifold and a charge hose in particular be shared with other refrigerant types (R22, R407C, etc.).
○Use a counterflow prevention adapter to prevent vacuum pump oil from entering the refrigerant system.

7) Additional refrigerant charge

(1) Calculate a required refrigerant charge volume from the following table.

<Single type>

Item / Capacity	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
100VN～140VN 100VS～140VS	2.0	0	0.06	3.8	30
100VNX～140VNX 100VSX～140VSX	2.7			4.5	

<Twin, triple type>

Item / Capacity	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		
100VN～140VN 100VS～140VS	2.0	0	0.06		3.8	30
100VNX～140VNX 100VSX～140VSX	2.7				4.5	

- 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 shorter than 3m, reduce refrigerant by 1kg from the factory charged volume and adjust to 2.8kg or 3.5kg.
- If an existing pipe system is used, a required refrigerant charge volume will vary depending on the liquid pipe size. For further information, see "6. UTILIZATION OF EXISTING PIPING."

Formula to calculate the volume of additional refrigerant required

Additional charge volume (kg) = { Main pipe length (m) – Length covered without additional charge 30 (m) } x 0.06 (kg/m) + Total length of branch pipes (m) x 0.06 (kg/m)

*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 + additional charge volume for total pipe length.)**

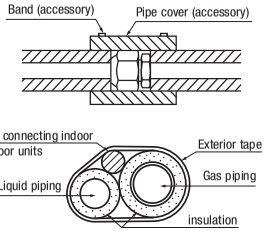
(2) Charging refrigerant

- 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.
- 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.
- In charging refrigerant, always charge a calculated volume by using a scale to measure the charge volume.
- 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.

NOTE Put down the refrigerant volume calculated from the pipe length onto the caution label attached on the back side of the service panel.

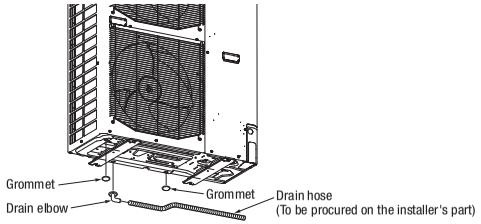
8) Heating and condensation prevention

(1) Dress refrigerant pipes (both gas and liquid pipes) for heat insulation and prevention of dew condensation.
(2) Use a heat insulating material that can withstand 120℃ or a higher temperature. Poor heat insulating capacity can cause heat insulation problems or cable deterioration.
- Improper heat insulation/anti-dew dressing can result in a water leak or dripping causing damage to household effects, etc.
- All gas pipes must be securely heat insulated in order to prevent damage from dripping water that comes from the condensation formed on them during a cooling operation or personal injury from burns because their surface can reach quite a high temperature due to discharged gas flowing inside during a heating operation.
- Wrap indoor units' flare joints with heat insulating parts (pipe cover) for heat insulation (both gas and liquid pipes).
- Give heat insulation to both gas and liquid side pipes. Bundle a heat insulating material and a pipe tightly together so that no gaps may be left between them and wrap them together with a connecting cable by a dressing tape.
- Although it is verified in a test that this air-conditioning unit shows satisfactory performance under JIS condensation test conditions, **both gas and liquid pipes need to be dressed with 20 mm or thicker heat insulation materials above the ceiling where relative humidity exceeds 70%.**

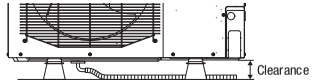


3. DRAIN PIPING WORK

- Execute drain piping by using a drain elbow and drain grommets supplied separately as option parts, where water drained from the outdoor unit is a problem.
- Water may drip where there is a larger amount of drain water. Seal around the drain elbow and drain grommets with putty or adequate caulking material.
- Condensed water may flow out from vicinity of service valve or connected pipes.
- Where you are likely to have several days of sub-zero temperatures in a row, do not use a drain elbow and drain grommets. (There is a risk of drain water freezing inside and blocking the drain.)
- Do not use drain elbow and grommet made of plastic for drain piping when base heater for outdoor unit is used. Plastic grommet and elbow will be damaged and burnt in worst case.
- Prepare another drain tray made of metallic material for collecting drain when base heater is used.



- 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.
  Then, please secure space for the drain elbow and the drain hose.

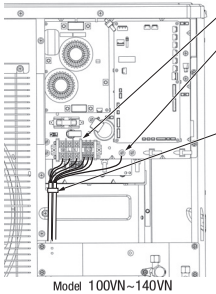


4. ELECTRICAL WIRING WORK For details of electrical cabling, refer to the indoor unit installation manual.

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.

- 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.
- Ground the unit. Do not connect the grounding wire to a gas pipe, water pipe, lightning rod or telephone grounding wire. If impropery grounded, an electric shock or malfunction may result.
- A grounding wire must be connected before connecting the power cable. Provide a grounding wire longer than the power cable.
- The installation of an impulse withstanding type earth leakage breaker is necessary. A failure to install an earth leakage breaker can result in an acccident such as an electric shock or a fire.



Model 100VN~140VN
100VS~140VS

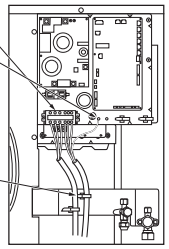
Power source, signal line and ground terminal block

Grounding terminal
○Do not connect to the grounding wire from another unit, but install a dedicated wire up to the grounding wire from the distribution board.

Wiring guide

Wiring diagram
○It is attached on the back side of the service panel.

Outgoing cable direction
○As like the refrigerant pipe, it can be let out in any of the following directions: side right, front, rear and downward.



Model 100VNX ~ 140VNX
100VSX ~ 140VSX

- Do not turn on the power until the electrical work is completeted .
- Do not use a condensive capacitor for power factor improvement under any circumstances. (It dose not improve power factor, while it can cause an abnormal overheat accident)
- For power source cables, use conduits.
- 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.
- Fasten cables so that may not touch the piping, etc.
- When cables are connected, 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.)
- Always use a three-core cable for an indoor-outdoor connecting cable. Never use a shield cable.
- Connect a pair bearing a common terminal number with an indoor-outdoor connecting wire.
- In cabling, fasten cables securely with cable clamps so that no external force may work on terminal connections.
- Grounding terminals are provided in the control box.

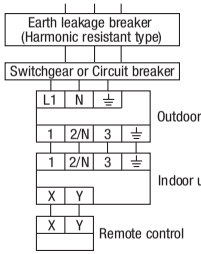
Main fuse specification

Model	Specification	Part No.
100VN~140VN 100VNX~140VNX	250V 30A	SSA564A049A
100VS~140VS 100VSX~140VSX	—	—

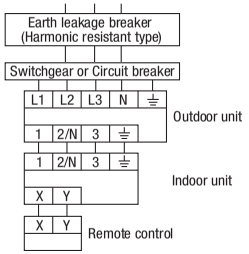
Power cable, indoor-outdoor connecting wires

- 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 100VN ~ 140VN
100VNX ~ 140VNX



Model 100VS ~ 140VS
100VSX ~ 140VSX

Model	Power source	Power cable thickness(mm²)	MAX. over current (A)	Cable length (m)	Grounding wire thickness	Indoor-outdoor wire thickness × number
100VN~140VN	Single phase 3 wire 220-240V 50Hz 220V 60Hz	5.5	24	25	ϕ1.6mm	ϕ1.6mm x 3
100VNX			26	23		
125VNX,140VNX						
100VS~140VS	3 phase 4 wire 380-415V 50Hz 380V 60Hz	3.5	15	27		
100VSX~140VSX						

※At the connection with the duct type indoor unit.

Model	Power source	Power cable thickness(mm²)	MAX. over current (A)	Cable length (m)	Grounding wire thickness	Indoor-outdoor wire thickness × number
100VN,100VNX	Single phase 3 wire 220-240V 50Hz 220V 60Hz	5.5	25	24	ϕ1.6mm	ϕ1.6mm x 3
125VN			27	22		
140VN		8	28	32		
125VNX			29	31		
140VNX			30	30		
100VS,100VSX	3 phase 4 wire 380-415V 50Hz 380V 60Hz	3.5	16	26		
125VS,125VSX			18	23		
140VS,140VSX			19	21		

- 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.
- Switchgear or Circuit breaker capacity which is calculated from MAX. over current should be chosen along the regulations in each country.
- 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, follow the internal cabling regulations. Adapt it to the regulation in effect in each country.

5. TEST RUN

⚠ WARNING

- Before conduct a test run, make sure that the service valves are closed.
- Turn on power 6 hours prior to a test run to energize the crank case heater.
- In case of the first operation after turning on power, even if the unit does not move for 30 minutes, it is not a breakdown.
- Always give a 3-minute or longer interval before you start the unit again whenever it is stopped.
- Removing the service panel will expose high-voltage live parts and high-temperature parts, which are quite dangerous. Take utmost care not to incur an electric shock or burns. Do not leave the unit with the service panel open.

} A failure to observe these instructions can result in a compressor breakdown.

⚠ CAUTION

- When you operate switches (SW3, SW5) for on-site setting, be careful not to touch a live part.
- You cannot check discharge pressure from the liquid service valve charge port.
- The 4-way valve (20S) is energized during a heating operation.
- When power source is cut off to reset the unit, give 3 or more minutes before you turn on power again after power is cut off. If this procedure is not observed in turning on power again, "Communication error between outdoor and indoor unit" may occur.

1) Test run method

(1) A test run can be initiated from an outdoor unit by using SW3-3 and SW3-4 for on-site setting.
(2) Switching SW3-3 to ON will start the compressor.
(3) The unit will start a cooling operation, when SW3-4 is OFF, or a heating operation, when SW3-4 is ON.
(4) **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, on-site

(1) 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.
(2) 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℃ or lower and the compressor is not running.
・When the unit is used in a very snowy country, set this switch to ON.

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	Blinking once	Blinking continuously	Open phase	Check power cables for loose contact or disconnection
E40	Blinking once	Blinking continuously	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	Blinking once	Blinking continuously	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.

Items to check before a test run

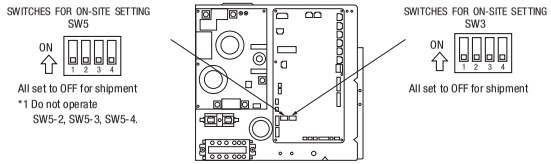
● When you leave the outdoor unit with power supplied to it, be sure to close the panel.

Item No.used in the installation manual	Item	Check item	Check
2	Refrigerant plumbing	If brazed, was it brazed under a nitrogen gas flow?	
		Were air-tightness test and vacuum extraction surely performed?	
		Are heat insulation materials installed on both liquid and gas pipes?	
		Are service valves surely opened for both liquid and gas systems?	
		Have you recorded the additional refrigerant charge volume and refrigerant pipe length on the panel's label?	
4	Electric wiring	Is the unit free of cabling errors such as uncompleted connection, an absent or reversed phase?	
		Are properly rated electrical equipments used for circuit breakers and cables?	
		Doesn't cabling cross-connect between units, where more than one unit are installed?	
		Aren't indoor-outdoor signal wires connected to remote control wires?	
		Do indoor-outdoor connecting cables connect between the same terminal numbers?	
		Are either VCT cabtyre cables or WF flat cables used for indoor-outdoor connecting cables?	
		Does grounding satisfy the D type grounding (type III grounding) requirements?	
		Is the unit grounded with a dedicated grounding wire not connected to another unit's grounding wire?	
		Are cables free of loose screws at their connection points?	
		Are cables held down with cable clamps so that no external force works onto terminal connections?	
—	Indoor unit	Is indoor unit installation work completed?	
		Where a face cover should be attached onto an indoor unit, is the face cover attached to the indoor unit?	

Test run procedure

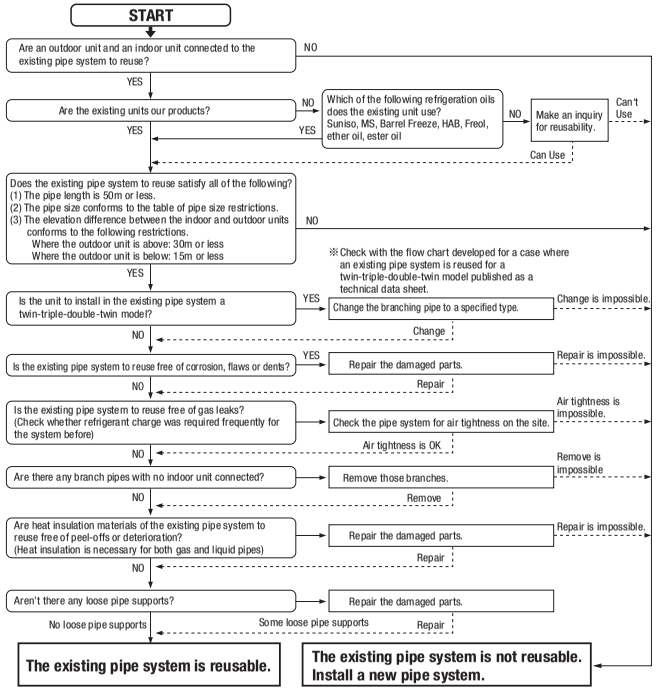
● Always carry out a test run and check the following in order as listed.

Turn	The contents of operation	Check
①	Open the gas side service valve fully.	
②	Open the liquid side service valve fully.	
③	Close the panel.	
④	Where a remote control unit is used for unit setup on the installation site, follow instructions for unit setup on the installation site with a remote control unit.	
⑤	SW3-3 ON / SW3-4 OFF: the unit will start a cooling operation.	
	SW3-3 ON / SW3-4 ON: the unit will start a heating operation.	
⑥	When the unit starts operation, press the wind direction button provided on the remote control unit to check its operation.	
⑦	Place your hand before the indoor unit's diffuser to check whether cold (warm) winds come out in a cooling (heating) operation.	
⑧	Make sure that a red LED is not blinking.	
⑨	When you complete the test run, do not forget to turn SW3-3 to the OFF position.	
⑩	Where options are used, check their operation according to the respective instruction manuals.	



6. UTILIZATION OF EXISTING PIPING.

Check whether an existing pipe system is reusable or not by using the following flow chart.



⚠ WARNING <Where the existing unit can be run for a cooling operation.>

Carry out the following steps with the excising unit (in the order of (1), (2), (3) and (4))

(1) Run the unit for 30 minutes for a cooling operation.
(2) Stop the indoor fan and run the unit for 3 minutes for a cooling operation (returning liquid)
(3) Close the liquid side service valve of the outdoor unit and pump down (refrigerant recovery)
(4) Blow with nitrogen gas. ※ If discolored refrigeration oil or any foreign matters is discharged by the blow, wash the pipe system or install a new pipe system.
- For the flare nut, do not use the old one, but use the one supplied with the outdoor unit. Process a flare to the dimensions specified for R410A.
- **Turn on-site setting switch SW5-1** to the ON position. (Where the gas pipe size is φ19.05)

<Where the existing unit cannot be run for a cooling operation.>

Wash the pipe system or install a new pipe system.
- If you choose to wash the pipe system, contact our distributor in the area.

<Table of pipe size restrictions>

◎:Standard pipe size ○:Usable
△:Restricted to shorter pipe length limits ×:Not usable

Additional charging amount of refrigerant per 1m		0.06kg/m		0.08kg/m	
Pipe size	Liquid pipe	φ9.52	φ9.52	φ12.7	φ12.7
	Gas pipe	φ15.88	φ19.05	φ15.88	φ19.05
100VN 100VS	Usability	◎	○※1	△	△※1
	Maximum one-way pipe length	50	50	25	25
	Length covered without additional charge	30	30	15	15
125VN 125VS	Usability	◎	○※1	△	△※1
	Maximum one-way pipe length	50	50	25	25
	Length covered without additional charge	30	30	15	15
140VN 140VS	Usability	◎	○※1	△	△※1
	Maximum one-way pipe length	50	50	25	25
	Length covered without additional charge	30	30	15	15

Additional charging amount of refrigerant per 1m		0.02kg/m	0.06kg/m		0.08kg/m	
Pipe size	Liquid pipe	φ6.35	φ9.52	φ9.52	φ12.7	φ12.7
	Gas pipe	φ15.88	φ15.88	φ19.05	φ15.88	φ19.05
100VNX 100VSX	Usability	△	◎	○※1	△	△※1
	Maximum one-way pipe length	20	100	100	50	50
	Length covered without additional charge	10	30	30	15	15
125VNX 125VSX	Usability	△	◎	○※1	△	△※1
	Maximum one-way pipe length	20	100	100	50	50
	Length covered without additional charge	10	30	30	15	15
140VNX 140VSX	Usability	△	◎	○※1	△	△※1
	Maximum one-way pipe length	20	100	100	50	50
	Length covered without additional charge	10	30	30	15	15

<Pipe system after the branching pipe>

			After 1st branch ※4			After 2nd branch		
Additional charging amount of refrigerant per 1m			0.06kg/m			0.06kg/m		
Pipe size	Liquid pipe		φ9.52			φ9.52		
	Gas pipe		φ12.7	φ15.88	φ19.05※1	φ12.7	φ15.88	φ19.05※1
Model	Combination type	Combination of capacity						
100V	Twin	50+50	◎	○	×	–	–	–
125V	Twin	60+60	◎	○	×	–	–	–
140V	Twin	71+71	×	◎	○	–	–	–
	Triple A	50+50+50	◎	○	×	–	–	–
	Triple B	50+50+50	×	◎※5	○※5	◎	○	×

※1 Because of its insufficient pressure resistance, **turn the dip switch SW5-1** provided on the outdoor unit board to the ON position for φ19.05 × t1.0. (In the case of a twin-triple-double-twin model, this also applies to the case where φ19.05 × t1.0 is used in a pipe system after the first branching point.) However, you need not turn the dip switch SW5-1 to the ON position, if 1/2H pipes or pipes having 1.2 or thicker walls are used.

※2 When the main pipe length exceeds 40m, a significant capacity drop may be experienced due to pressure loss in the liquid pipe system. Use φ12.7 for the liquid main.

※3 Keep the total pipe length, not one-way pipe length, below the specified maximum pipe length.

※4 Piping size after branch should be equal or smaller than main pipe size.

※5 Piping size from first branch to indoor unit should be φ9.52 (Liquid) / φ12.7 (Gas).

- When refrigerant piping is shoter than 3m, reduce refrigerant by 1kg from factory charged volume.
- Any combinations of pipe sizes not listed in the table or marked with × in the table are not usable.

<The model types of existing units of which branching pipes are reusable.>

Models later than Type 8.
- FDC ＊＊＊8□□□
- FDCP ＊＊＊8□□□

The branching pipes used with models other than those listed above are not reusable because of their insufficient pressure resistance. Please use our genuine branching pipes for R410A.

- ＊＊＊ are numbers representing horsepower. □□□ is an alphanumeric letter.

Formula to calculate additional charge volume

Additional charge volume (kg) = {Main pipe length (m) − Length covered without additional charge shown in the table (m)} × Additional charge volume per meter of pipe shown in the table (kg/m) + Total length of branch pipes (m) × Additional charge volume per meter of pipe shown in the table (kg/m)

※ If you obtain a negative figure as a result of calculation, no additional refrigerant needs to be charged.
Example) When an 140V (single installation) is installed in a 20m long existing pipe system (liquid φ12.7, gas φ19.05), the quantity of refrigerant to charge additionally should be (20m-15m) x 0.08kg/m = 0.4 kg.

1.8.4 Instructions for branching pipe set (DIS-WA1, WB1, TA1, TB1)

For R410A

PSB012D865 F

⚠ WARNING / CAUTION

- This set is for R410A refrigerant.
- Select a branching pipe set correctly rated for the combined total capacity of connected indoor units and install it according to this manual.
  An improperly installed branching pipe set can cause degraded performance or an abnormal unit stop.
- Provide good heat insulation to the pipes by following instructions contained in this manual.
  Improper heat insulation can result in degraded performance or a water leak accident from condensation.
- Please make sure that only parts supplied as accessories or the manufacturer's approved parts are used in installing the unit, because a leak of refrigerant can result in a lack-of-oxygen accident, if it reaches a concentration beyond the tolerable limit.

This manual explains how to use a branching pipe set that is indispensable in connecting pipes for a twin/triple/double-twin configuration installation (system). For the details of piping work, unit installation work and electrical installation work, please refer to the installation manuals and installation guides supplied with your outdoor and indoor units.

1. Branching pipe set specifications

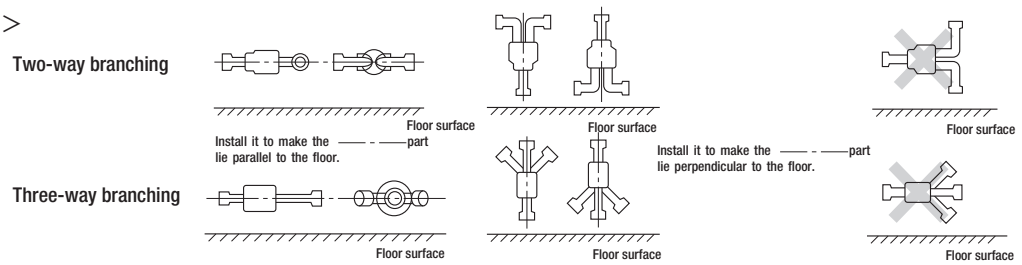
(1) Please make sure that you have chosen the right branching pipe set and the specifications of the parts contained in it by checking with the table below.
(2) Connect pipes as illustrated in the table below. The pipe from an outdoor unit must be brazed to the pipe connection port "①" and the pipes from indoor units to "②," "③" and "④."

Branching pipe set type	Supported outdoor/indoor unit combinations		Part lists			
	Outdoor unit model	Indoor unit model	Branching pipe set for a liquid pipe	Branching pipe set for a gas pipe	Different diameter pipe joint	Heat insulation material
DIS-WA1 (Two-way branching set)	3HP	1.5HP＋1.5HP	ID9.52 ① ② ③ ID9.52 ID9.52 1 piece	ID15.88 ① ② ③ ID15.88 ID15.88 1 piece	Joint A ID9.52 2 pieces Flare joint (for indoor unit side connection) Joint B OD15.88 2 pieces ID12.7	One each for liquid and gas
	4HP	2HP＋2HP				
		1.5HP＋2.5HP				
	5HP	2.5HP＋2.5HP				
		2HP＋3HP				
	6HP	3HP＋3HP				
		2HP＋4HP				
DIS-WB1 (Two-way branching set)	8HP	4HP＋4HP	ID9.52 ① ② ③ ID12.7 ID9.52 1 piece	ID15.88 ① ② ③ ID25.4 ID15.88 1 piece	Joint C OD12.7 1 piece ID9.52	One each for liquid and gas
		3HP＋5HP				
	10HP	5HP＋5HP				
DIS-TA1 (Three-way branching set)	6HP	2HP＋2HP＋2HP	ID9.52 ① ② ③ ④ ID9.52 1 piece	ID12.7 ① ② ③ ④ ID15.88 1 piece	Joint A ID9.52 3 pieces Flare joint (for indoor unit side connection)	One each for liquid and gas
DIS-TB1 (Three-way branching set)	8HP	3HP＋3HP＋3HP	ID9.52 ① ② ③ ④ ID9.52 1 piece	ID15.88 ① ② ③ ④ ID25.4 1 piece	Joint A ID9.52 2 pieces Flare joint (for indoor unit side connection) Joint B OD15.88 1 piece ID12.7 Joint D ID12.7 1 piece OD9.52	One each for liquid and gas

(3) To connect pipes for a Double Twin installation (involving 4 indoor units), please see 2-7. "Double Twin configuration."
(4) A branching pipe set must always be installed into the posture as illustrated in the drawing below.

ID stands for inner diameter and OD, outer diameter.

＜Posture to install into＞

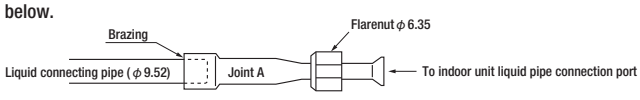


2. Pipe connecting procedure

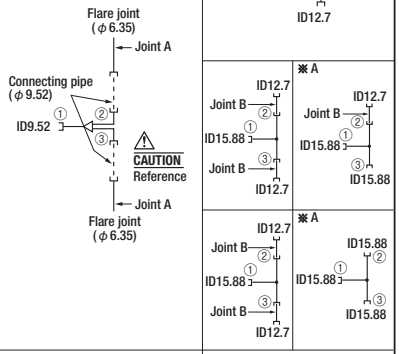
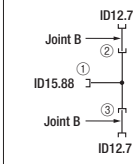
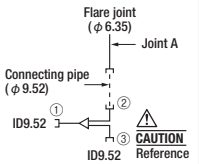
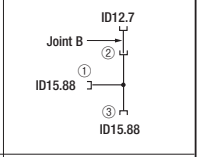
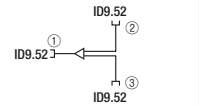
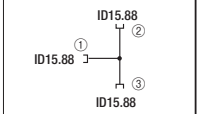
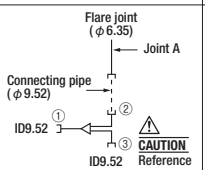
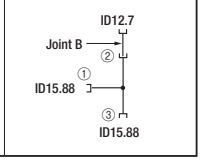
Braze the different diameter pipe joint found in the set matching the connected outdoor and indoor unit capacities according to the instructions set out below.

⚠ CAUTION

In connecting an indoor unit of which capacity is 1.5HP, 2HP or 2.5HP, always use a φ9.52 liquid pipe to connect to the branching pipe (branching pipe – indoor unit).
In connecting to an indoor unit (liquid pipe side: φ6.35), use the different diameter pipe joint A supplied with the set and follow the procedure set out below.

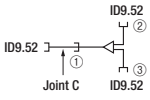
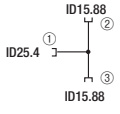
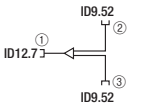
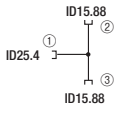


2-1 DIS-WA1

Supported combinations		Liquid branching pipe	Gas branching pipe
Outdoor unit model	Indoor unit model		
3HP	1.5HP＋1.5HP		
4HP	2HP＋2HP		
	1.5HP＋2.5HP		※A
5HP	2.5HP＋2.5HP		※A
	2HP＋3HP		
6HP	3HP＋3HP		
	2HP＋4HP		

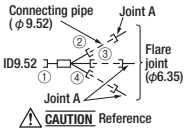
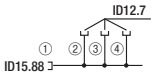
Note When connect the indoor unit of an old model that is shown in the model list, use the joint supplied with the branch piping set like ※A

2-2 DIS-WB1

Supported combinations		Liquid branching pipe	Gas branching pipe
Outdoor unit model	Indoor unit model		
8HP	3HP＋5HP 4HP＋4HP		
10HP	5HP＋5HP		

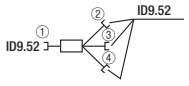
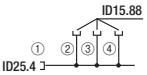
2-3 DIS-TA1

Applicable to the difference in length of pipes after the branch being less than 3 m
* Connection is not allowed when the difference in length of pipes is larger than 3 m.

Supported combinations		Liquid branching pipe	Gas branching pipe
Outdoor unit model	Indoor unit model		
6HP	2HP＋2HP＋2HP		

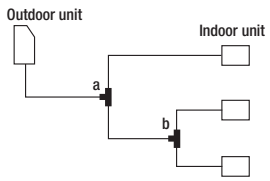
2-4 DIS-TB1

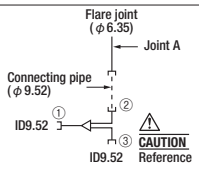
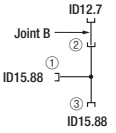
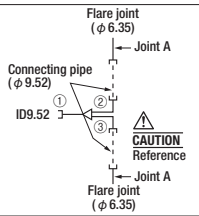
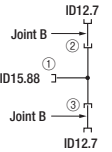
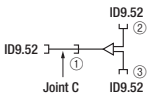
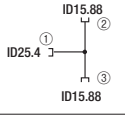
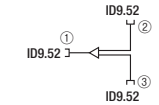
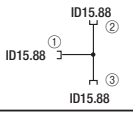
Applicable to the difference in length of pipes after the branch being less than 3 m
* Connection is not allowed when the difference in length of pipes is larger than 3 m.

Supported combinations		Liquid branching pipe	Gas branching pipe
Outdoor unit model	Indoor unit model		
8HP	3HP＋3HP＋3HP		

2-5. Triple type for same model/same capacity or different model/same capacity

When the difference in length of pipes after the branch is longer than 3 m and shorter than 10 m

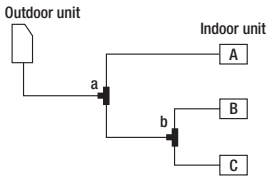


Outdoor unit model	Indoor unit model	Branching pipe	Branching pipe set type	Liquid branching pipe	Gas branching pipe
6HP	2HP＋2HP＋2HP	a	DIS-WA1		
		b			
8HP	3HP＋3HP＋3HP	a	DIS-WB1		
		b	DIS-WA1		

2-6. Triple type for same model/different capacity or different model/different capacity

Applicable to the difference in length of pipes after the branch being less than 3 m

* Connection is not allowed when the difference in length of pipes is larger than 3 m.



Connecting position

Outdoor unit model	Indoor unit model	A	B	C
10HP	2.5HP+2.5HP+5HP	5HP	2.5HP	2.5HP
	3HP+3HP+4HP	4HP	3HP	3HP

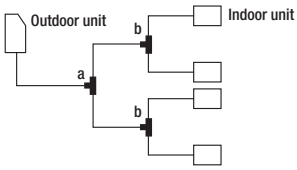
Outdoor unit model	Indoor unit model	Branching pipe	Branching pipe set type	Liquid branching pipe	Gas branching pipe
10HP	2.5HP+2.5HP+5HP	a	DIS-WB1	ID9.52 ② / ① ID12.7 / ③ ID9.52	ID15.88 ② / ① ID25.4 / ③ ID15.88
		b	DIS-WA1	Flare joint (φ6.35) Joint A / Connecting pipe (φ9.52) / ② ID9.52 ③ ① / ⚠ CAUTION Reference / Joint A Flare joint (φ6.35)	ID12.7 Joint B ② ① ID15.88 ③ Joint B ID12.7 / ※A: ID15.88 ② ① ID15.88 ③ ID15.88
10HP	3HP+3HP+4HP	a	DIS-WB1	ID9.52 ② / ① ID12.7 / ③ ID9.52	ID15.88 ② / ① ID25.4 / ③ ID15.88
		b	DIS-WA1	ID9.52 ② / ① ID9.52 / ③ ID9.52	ID15.88 ② / ① ID15.88 / ③ ID15.88

Note When connect the indoor unit of an old model that is shown in the model list, use the joint supplied with the branch piping set like※ A.

2-7. Double Twin type

Pipes should be connected as follows for a Double Twin installation (4 connected indoor units. The capacity of an outdoor unit available for this configuration is either 8HP or 10HP only):

Outdoor unit capacity	Indoor unit capacity
8HP	2HP×4 units
10HP	2.5HP×4 units



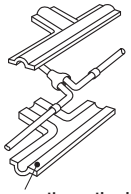
Branching pipe	Branching pipe set type	Outdoor unit model	Liquid branching pipe	Gas branching pipe
a	DIS-WB1	8HP	ID9.52 ② / ① ID9.52 Joint C / ③ ID9.52	ID15.88 ② / ① ID25.4 / ③ ID15.88
		10HP	ID9.52 ② / ① ID12.7 / ③ ID9.52	
b	DIS-WA1	8HP	Flare joint (φ6.35) Joint A / Connecting pipe (φ9.52) / ② ID9.52 ③ ① / ⚠ CAUTION Reference / Joint A Flare joint (φ6.35)	ID12.7 Joint B ② ① ID15.88 ③ Joint B ID12.7
		10HP		※A: ID15.88 ② ① ID15.88 ③ ID15.88 / ID12.7 Joint B ② ① ID15.88 ③ Joint B ID12.7

Note When connect the indoor unit of an old model that is shown in the model list, use the joint supplied with the branch piping set like※ A.

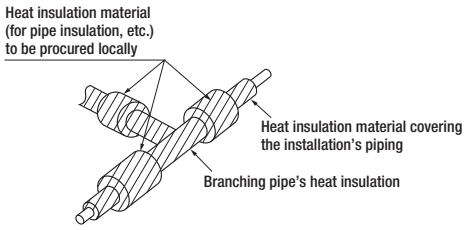
3. Heat insulation work

(1) Condensation can also occur on liquid pipes with this model. Please provide good heat insulation to both liquid and gas pipes.

(2) For the heat insulation of a branching pipe, always use the heat insulation material supplied with the set and provide heat insulation according to the instructions set out below.



1. It has an adhesive layer on the entire inner face. Remove a separator and wrap it around the branching pipe.

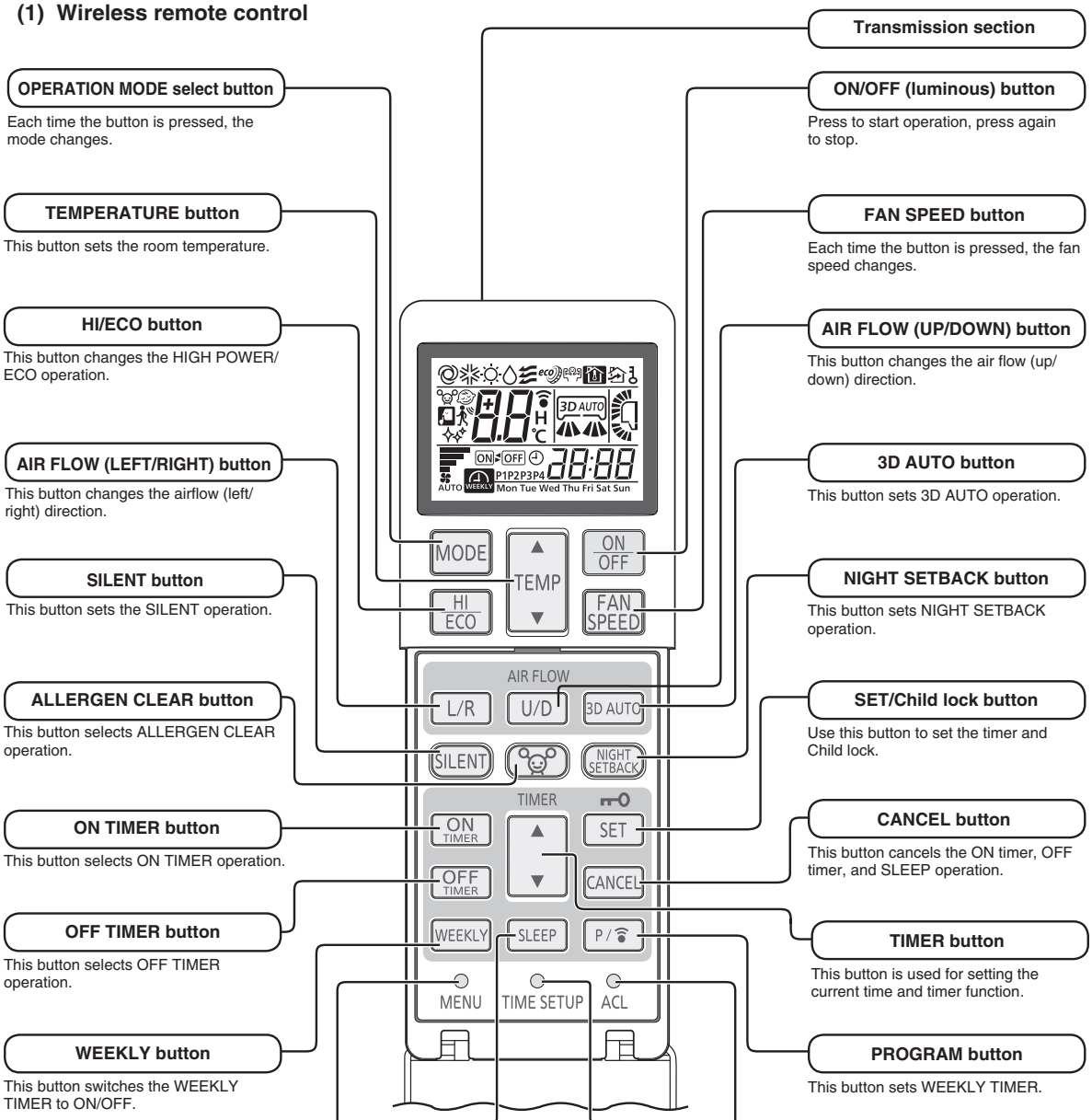


2. Apply a heat insulation material (to be procured locally) to the joint between the branching pipe's heat insulation and the heat insulation material covering the installation's piping as described above and wrap a tape over the gap shown as a hatched (///) area to complete dressing of the piping.

1.9 OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

1.9.1 Remote control

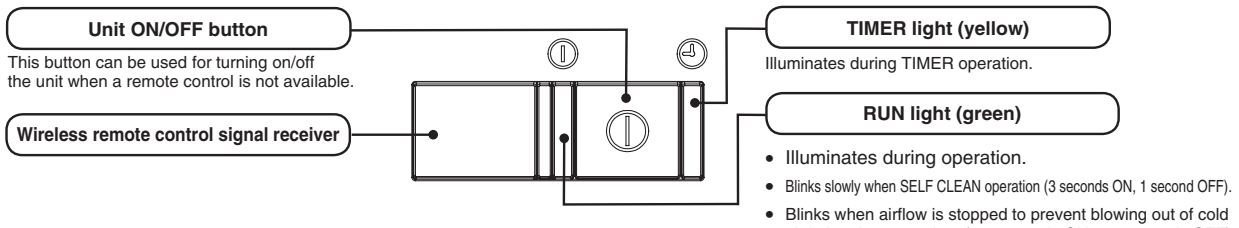
(1) Wireless remote control



[View with the cover opened]

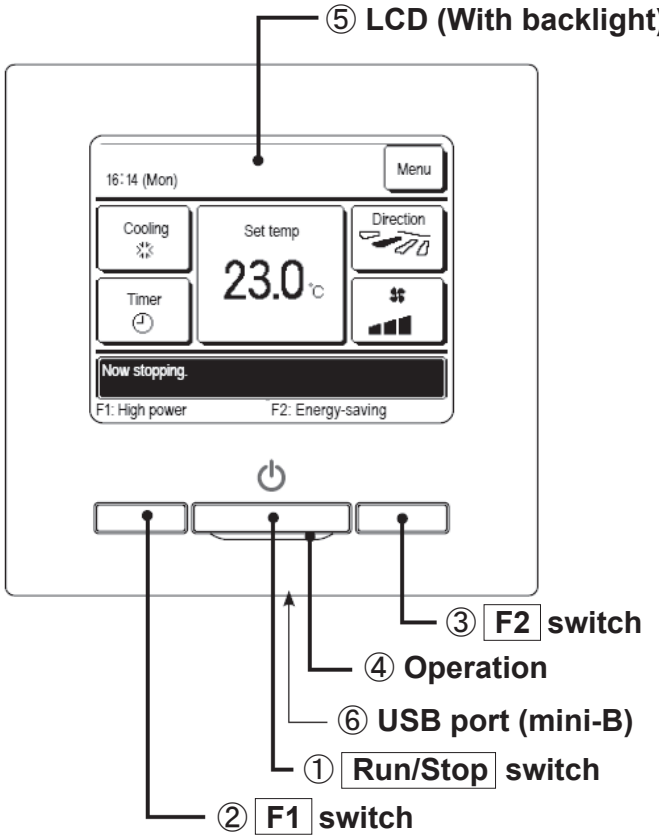
The above illustration shows all controls, but in practice only the relevant parts are shown.

Unit display section



• RUN lights blink quickly during invalid operation mode.

(2) Wired remote control
Model RC-EX3



Touch panel system, which is operated by tapping the LCD screen with a finger, is employed for any operations other than the ①Run/Stop, ②F1 and ③F2 switches.

① Run/Stop switch

One push on the button starts operation and another push stops operation.

② F1 switch③ F2 switch

This switch starts operation that is set in switch function change.

④ Operation

This lamp lights in green(yellow-green) during operation. It changes to red(orange) if any error occurs.
Operation lamp luminance can be changed.

⑤ LCD (With backlight)

A tap on the LCD lights the backlight.
The backlight turns off automatically if there is no operation for certain period of time.
Lighting period of the backlight lighting can be changed.

If the backlight is ON setting, when the screen is tapped while the backlight is turned off,the backlight only is turned on.(Operations with switches ①,② and ③are excluded.)

⑥ USB port

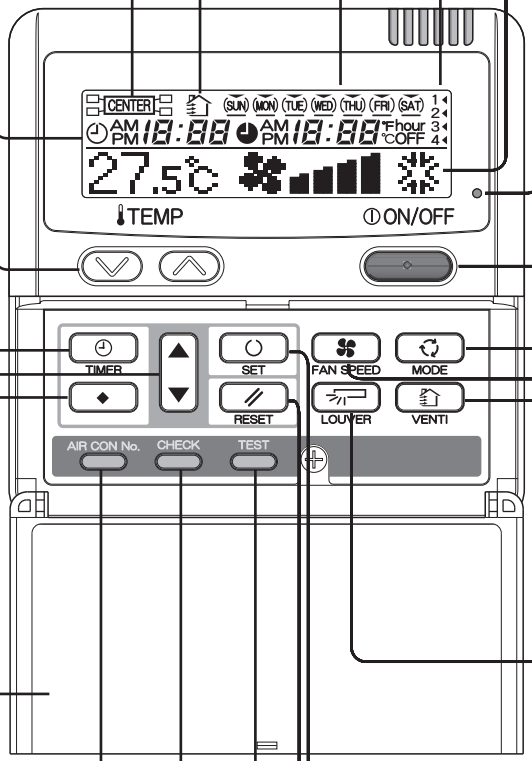
USB connector (mini-B) allows connecting to a personal computer.
For operating methods, refer to the instruction manual attached to the software for personal computer (eco-touch remote control utility software).

Note(1) When connecting to a personal computer, do not connect simultaneously with other USB devices.
Please be sure to connect to the computer directly,without going through a hub, etc.

Model RC-E5

The figure below shows the remote control 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.



Ventilaion display
Displayed during ventilation operation

Central control display
Displayed when the air conditioning system is controlled by centralized remote control.

Timer operation display
Displays the timer operation setting.

Temperature setting buttons
These buttons are used to set the temperature of the room.

Timer button
This button is used to set the timer mode.

Timer setting buttons
These buttons are used to set the timer mode and the time.

ESP button
This button is used to select the auto static pressure adjustment mode.

Cover

AIR CON No. button
Display the indoor unit number connected to this remote control.

CHECK button
This button is used at servicing.

TEST button
This button is used during test operation.

Weekly timer display
Displays the settings of the weekly timer.

Operation setting display area
Displays setting temperature, airflow volume, operation mode and oparation message.

Operation/check indicator light
During oparation: Lit in green
In case of error: Flashing in red

Operation/stop button
This button is used to operate and stop the air-conditioning system.
Press the button once to operate the system and press it once again to stop the system.

MODE button
This button is used to change the operation mode.

FAN SPEED button
This button is used to set the air flow volume.

VENT button
This button is used to operate external ventilator.

LOUVER button
This button is used to operate/stop the swing louver.

SET button
•This button is used to fix the setting.
•This button is used to set the silent mode.

RESET button
•Press this button while making settings to go back to the previous operation.
•This button is also used to reset the "**FILTER CLEANING**" display. (Press it after cleaning the air filter)

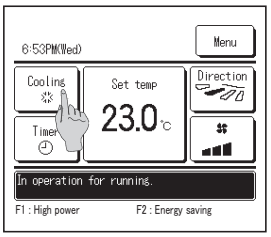
∗ All displays are described in the liguid crystal display for explanation.

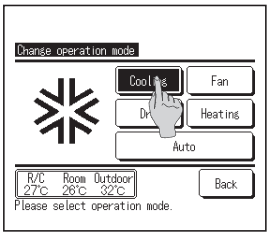
1.9.2 Operation control function by the wired remote control

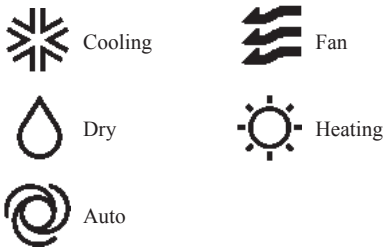
Model RC-EX3

(1) Switching sequence of the operation mode switches of remote control

(a) Tap the change operation mode button on the TOP screen.
(b) When the change operation mode screen is displayed, tap the button of desired mode.
(c) When the operation mode is selected, the display returns to the TOP screen.
Icons displayed have the following meanings.





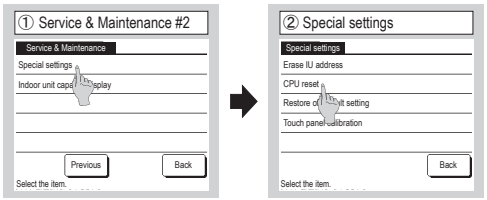


Notes(1) Operation modes which cannot be selected depending on combinations of indoor unit and outdoor unit are not displayed.
(2) When the Auto is selected,the cooling and heating switching operation is performed automatically according to indoor and outdoor temperatures.

(2) CPU reset

Reset CPU from the remote control as follows.

TOP screen [Menu] ⇒ [Service setting] ⇒ [Service & Maintenance] ⇒ [Service password]



The selected screen is displayed.

The selected screen is displayed.

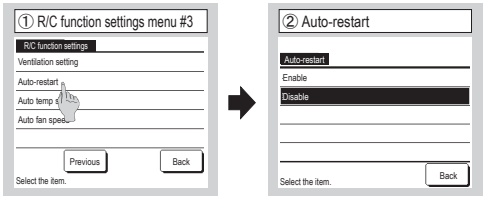
[CPU reset]

Microcomputers of indoor unit and outdoor unit connected are reset (State of restoration after power failure).

(3) Power failure compensation function (Electric power source failure)

Enable the Auto-restart function from the remote control as follows.

TOP screen [Menu] ⇒ [Service setting] ⇒ [R/C function settings] ⇒ [Service password]



If the unit stops during operation,

[Enable]

It returns to the state before the power failure as soon as the power source is restored (After the end of the primary control at the power on).

[Disable]

It stops after the restoration of power source.

●Since the status of remote control is retained in memory always, it restarts operations according to the contents of memory as soon as the power source is restored. Although the timer mode is cancelled, the weekly timer, peak cut timer and silent mode timer operate according to the following contents:
・When the clock setting is valid : These timer settings are also valid.
・When the clock setting is invalid : These timer settings become "Invalid" since the clock setting is invalid.
These timer settings have to be changed to "Valid" after the timer setting.

●Content memorized with the power failure compensation are as follows.

Note(1) Items (f) and (g) 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.

(a) At power failure – Operating/stopped
If it had been operating under the off timer mode, sleep timer mode, the state of stop is memorized.

(b) Operation mode

(c) Air flow volume mode

(d) Room temperature setting

(e) Louver auto swing/stop
However, the stop position (4-position) is cancelled so that it returns to Position (1).

(f) "Remote control function items" which have been set with the administrator or installation function settings ("Indoor function items" are saved in the memory of indoor unit.)

(g) Weekly timer, peak-cut timer or silent mode timer settings

(h) Remote control function setting

(4) Alert displays

If the following (a) to (c) appear, check and repair as follows.

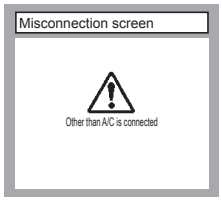
(a) Communication check between indoor unit and remote control

●This appears if communications cannot be established between the remote control and the indoor unit.
Check whether the system is correctly connected (indoor unit, outdoor unit, remote control) and whether the power source for the outdoor unit is connected.

(b) Clock setting check

●This appears when the timer settings are done without clock setting.
Set the clock setting before the timer settings.

(c) Misconnection



●This appears when something other than the air-conditioner has been connected to the remote control.
Check the location to which the remote control is connected.

Model RC-E5

(1) Switching sequence of the operation mode switches of remote control

(2) CPU reset

This functions when "CHECK" and "ESP" buttons on the remote control are pressed simultaneously. Operation is same as that of the power source reset.

(3) Power failure compensation function (Electric power source failure)

- This becomes effective if "Power failure compensation effective" is selected with the setting of remote control function.
- Since it memorizes always the condition of remote control, 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) Items (f), (g) and (h) 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.

(a) At power failure – Operating/stopped
If it had been operating under the off timer mode, sleep 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.)

(b) Operation mode

(c) Air flow volume mode

(d) Room temperature setting

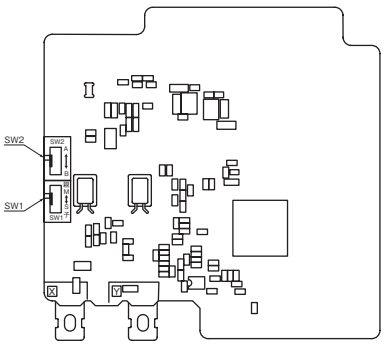
(e) Louver auto swing/stop
However, the stop position (4-position) is cancelled so that it returns to Position (1).

(f) "Remote control function items" which have been set with the remote control function setting ("Indoor function items" are saved in the memory of indoor unit.)

(g) Upper limit value and lower limit value which have been set with the temperature setting control

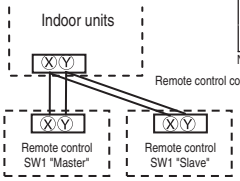
(h) Sleep timer and weekly timer settings (Other timer settings are not memorized.)

[Parts layout on remote control PCB]



Master/ slave setting when more than one remote controls are used

A maximum of two remote controls can be connected to one indoor unit (or one group of indoor units.)



Switch	Setting	Contents
SW1	M	Master remote control
	S	Slave remote control

Note (1) Don't change SW2 because it is not used normally.

Caution

When using multiple remote controls, the following dispiays or settings cannot be done with the slave remote control. It is available only with the master remote control.

①Louver position setting (set upper or lower limit of swinging range)
②Setting indoor unit functions
③Setting temperature range
④Operation data display
⑤Error data display
⑥Silent mode setting
⑦Test operation of drain pump
⑧Remote control sensor setting

1.9.3 Operation control function by the indoor control

(1) Unit ON/OFF button

When the wireless remote control batteries become weak, or if the wireless remote control is lost or malfunctioning, this button may be used to turn the unit on and off.

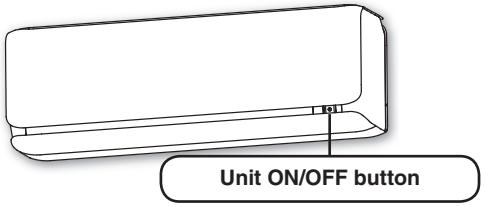
(a) Operation

Push the button once to place the unit in the automatic mode. Push it once more to turn the unit off.

(b) Details of operation

The unit will go into the automatic mode in which it automatically determines, from room temperature (as detected by sensor), whether to go into the COOL, DRY or HEAT modes.

Function / Operation mode	Room temperature setting	Fan speed	Flap/Louver	Timer switch
COOL	About 24ºC	Auto	Auto	Continuous
DRY	About 25ºC			
HEAT	About 26ºC			



(2) Auto restart function

(a) Auto restart function records the operational status of the air-conditioner immediately prior to be switched off by a power cut, and then automatically resumes operations after the power has been restored.

(b) The following settings will be cancelled:

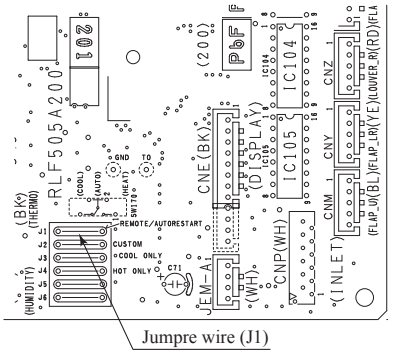
(i) Timer settings

(ii) HIGH POWER operation

Notes (1) Auto restart function is set at on when the air-conditioner is shipped from the factory. Consult with your dealer if this function needs to be switched off.

(2) When power failure ocurrs, the timer setting is cancelled. Once power is resumed, reset the timer.

(3) If the jumper wire (J1) "AUTO RESTART" is cut, auto restart is disabled. (See the diagram at right)



(3) Auto swing control

Note Even if [Auto Swing] is selected, the louver position with anti draft function is fixed to position 1.

(a) RC-EX3

(i) Louver control

1) To operate the swing louver when the air-conditioner is operating, press the "Direction" button on the TOP screen of remote control. The wind direction select screen will be displayed.

2) To swing the louver, touch the "Auto swing" button. The lover will move up and down. To fix the swing louver at a position, touch one of [1] - [4] buttons. The swing lover will stop at the selected position.

3) 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 control) at the power on.
This allows the microcomputer recognizing and inputting the louver motor (LM) position.

(ii) Automatic louver level setting during heating
At the hot start and 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 blowing of cool wind). The louver position display LCD continues to show the display which has been shown before entering this control.

(iii) Louver free stop control
If you touch the "Menu" → "Service setting" → "R/C settings" buttons one after another on the TOP screen of remote control, the "Flap control" screen is displayed. If the free stop is selected on this screen, the louver motor stops upon receipt of the stop signal from the remote control. If the auto swing signal is received from the remote control, the auto swing will start from the position before the stop.

(b) RC-E5

(i) Louver control

1) Press the "LOUVER" button to operate the swing louver when the air-conditioner is operating.
"SWING ⇆" is displayed for 3 seconds and then the swing louver moves up and down continuously.

2) 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.

3) 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 control) 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 "SWING ⇆" display 3 seconds later.

(ii) 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.

(iii) Louver free stop control

When the louver-free stop has been selected with the indoor function of wired remote control "⇆ POSITION", the louver motor stops when it receives the stop signal from the remote control. If the auto swing signal is received from the remote control, the auto swing will start from the position where it was before the stop.

Note (1) When the indoor function of wired remote control "⇆ POSITION" has been switched, switch also the remote control function "⇆ POSITION" in the same way.

(4) Timer operation

(a) RC-EX3

(i) Sleep timer

Set the time from the start to stop of operation. The time can be selected in the range from 30 to 240 minutes (in the unit of 10-minute).

Note (1) Enable the "Sleep timer" setting from the remote control. If the setting is enabled, the timer operates at every time.

(ii) Set OFF timer by hour

Set the time to stop the unit after operation, in the range from 1 to 12 hours (in the unit of hour).

(iii) Set ON timer by hour

Set the time to start the unit after the stop of operation, in the range from 1 to 12 hours (in the unit of hour). It is allowed also to set simultaneously the indoor temperature, operation mode, air flow rate and warm-up enabled/disabled.

(iv) Set ON timer by clock

Set the time to start operation. The time can be set in the unit of 5-minute. This setting can be activated only once or at every time. It is allowed also to set simultaneously the indoor temperature, operation mode, air flow rate and warm-up enabled/disabled.

Note (1) It is necessary to set the clock to use this timer.

(v) Set OFF timer by clock

Set the time to stop operation. The time can be set in the unit of 5-minute. This setting can be activated only once or at every time.

Note (1) It is necessary to set the clock to use this timer.

(vi) Weekly timer

Set the ON or OFF timer for a week. Up to 8 patterns can be set for a day. The day-off setting is provided for holidays and non-business days.

Note (1) It is necessary to set the clock to use the weekly timer.

(vii) **Combination of patterns which can be set for the timer operations**

	Sleep time	Set OFF timer by hour	Set ON timer by hour	Set OFF timer by clock	Set ON timer by clock	Weekly timer
Sleep time		×	×	○	○	○
Set OFF timer by hour	×		×	×	×	×
Set ON timer by hour	×	×		×	×	×
Set OFF timer by clock	○	×	×		○	×
Set ON timer by clock	○	×	×	○		×
Weekly timer	○	×	×	×	×	

Note (1) ○: Allowed ×: Not

(b) RC-E5

(i) Sleep 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 sleep timer setting, the remaining time is displayed with progress of time in the unit of hour.

(ii) OFF timer

Time to turn OFF the air-conditioner can be set in the unit of 10 minutes.

(iii) ON timer

Time to turn ON the air-conditioner can be set. Indoor temperature can be set simultaneously.

(iv) Weekly timer

Timer operation (ON timer, OFF timer) can be set up to 4 times a day for each weekday.

(v) 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

(2) Since the ON timer, sleep timer and OFF timer are set in parallel, when the times to turn ON and OFF the air-conditioner are duplicated, the setting of the OFF timer has priority.

(5) Remote control display during the operation stop

When the operation is stopped (the power source is turned ON), it displays preferentially the "Room temperature", "Center/ Remote", "Filter sign", "Inspection" and "Timer operation".

(6) Outline of heating or cooling operation

(a) Operation of major functional components in heating mode

	Heating		
	Thermostat ON	**Thermostat OFF**	**Failure**
Compressor	ON	OFF	OFF
Indoor fan	ON	ON(HOT KEEP)	OFF
Outdoor fan	ON	OFF (few minutes ON)	OFF
4-way valve	ON	ON	OFF (3 minutes ON)

(b) Operation of major functional components in Cooling mode

	Cooling		
	Thermostat ON	**Thermostat OFF**	**Failure**
Compressor	ON	OFF	OFF
Indoor fan	ON	ON	OFF
Outdoor fan	ON	OFF (few minutes ON)	OFF (few minutes ON)
4-way valve	OFF	OFF	OFF

(7) Indoor fan motor protection

When the air-conditioner is operating and the indoor fan motor is turned ON, if the indoor fan motor has operated at 300 min^{-1} or under for more than 30 seconds, the unit enters first in the stop mode and then stops the entire system.

(8) 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.

(9) Plural unit control – Control of 16 units group by one remote control

(a) Function

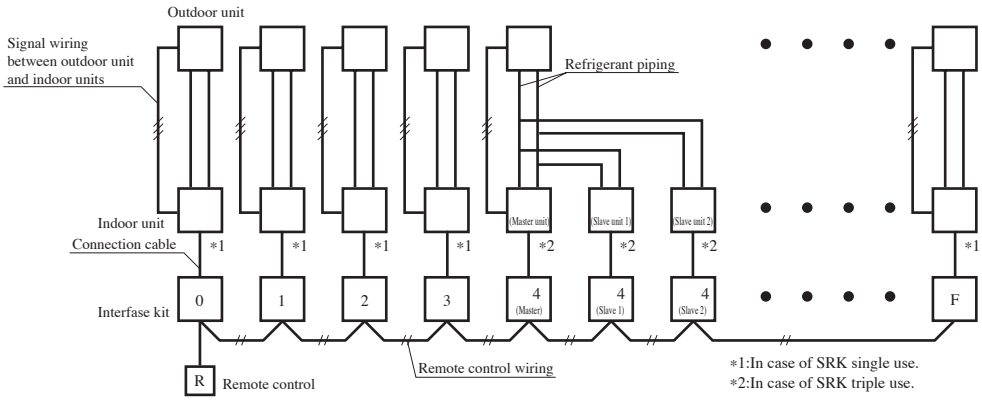
One remote control switch can control a group of multiple number of unit (Max. 16 indoor units). "Operation mode" which is set by the remote control switch can operate or stop all units in the group one after another in the order of unit No.(1). Thermostat and protective function of each unit function independently.

Note (1) Unit No. is set by SW1 on the interface PCB. Unit No. setting by SW1 is necessary for the interface only. In cases of the twin and triple specification, it is necessary set for the master and the slave units. This can be selected by SW3. (All are set for the master unit at the shipping from factory.)

SW1: For setting of 0 – 9, A – F
SW3: For setting of master and slave units
(See table shown at right.)

SW3 setting (For interface PCB)

Switch / Unit	SW3-1	SW3-2
Master	OFF	OFF
Stave1	OFF	ON
Stave2	ON	OFF



(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.

(b) Display to the remote control

(i) Center or each remote control 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.

(ii) Inspection display, filter sign: Any of unit that starts initially is displayed.

(iii) Confirmation of connected units

1) In case of RC-EX3 remote control

If you touch the buttons in the order of "Menu" → "Next" → "Service & Maintenance" → "IU address" on the TOP screen of remote control, the indoor units which are connected are displayed.

2) In case of RC-E5 remote control

Pressing "AIR CON No." button on the remote control displays the indoor unit address. If "▲" "▼" button is pressed at the next, it is displayed orderly starting from the unit of youngest No.

(c) In case of anomaly

a) 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.

b) 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 interface kit.
Connect the remote control communication wire separately from the power supply wire or wires of other electric devices (AC220V or higher).

(10) Filter sign

As the operation time (Total ON time of ON/OFF switch) accumulates to 180 hours (1), "Filter cleaning" is displayed on the remote control. (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 control "FILTER SIGN SET". (It is set at 1 at the shipping from factory.)

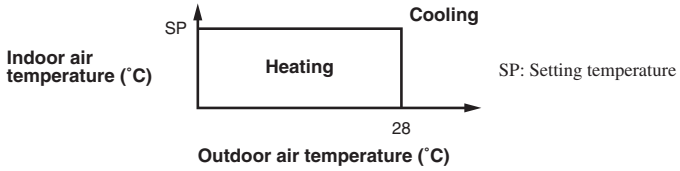
Filter sign setting	Function
Setting 1	Setting time: 180 hrs (Factory default)
Setting 2	Setting time: 600 hrs
Setting 3	Setting time: 1,000 hrs
Setting 4	Setting time: 1,000 hrs (Unit stop) (2)

(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.

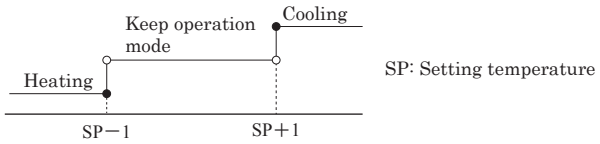
(11) Outline of automatic operation

(a) Determination of operation mode

Operation mode is determined by indoor air temperature and outdoor air temperature as following.



(b) Operation mode is changes when keep cooling and heating thermostat off 20 minutes and be satisfied following conditions. If the setting temperature is changed with the remote control, the operation mode is judged immediately.



※It can not be changed to heating mode if outdoor air temperature is 28℃ or higher.

(c) When the unit is started again within one hour after the stop of automatic operation or when the automatic operation is selected during heating, cooling or dehumidifying operation, the unit is operated in the previous operation mode.

(d) Setting temperature can be adjusted within the following range. There is the relationship as shown below between the signals of the wireless remote control and the setting temperature.

Unit : ℃

		Signals of wireless remote control (Display)												
		18	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Setting temperature	**Cooling**	18	19	20	21	22	23	24	25	26	27	28	29	30
	Heating	18	19	20	21	22	23	24	25	26	27	28	29	30

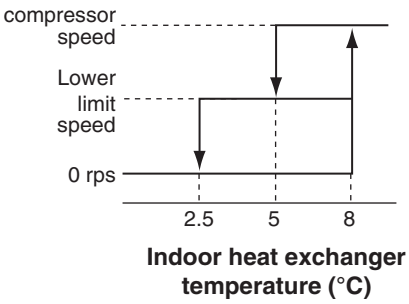
(12) Frost prevention control (During cooling or dehumidifying)

(a) Operating conditions

1) Indoor heat exchanger temperature (Th2) is lower than 5ºC.
2) 5 minutes after reaching the compressor 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 of compressor command speed	25 rps	0 rps
Indoor fan	Depends on operation mode	Keep the fan speed before frost prevention control
Outdoor fan	Depends on compressor speed	Depends on stop mode
4-way valve	OFF	



Notes (1) When the indoor heat exchanger temperature is in the range of 2.5–5ºC, the speed is reduced by 4 rps at each 20 seconds.
(2) When the temperature is lower than 2.5ºC, the compressor is stopped.
(3) When the indoor heat exchanger temperature is in the range of 5–8ºC, the compressor speed is been maintained.

(c) Reset conditions

When either of the following condition is satisfied.

1) The indoor heat exchanger temperature (Th2) is 8ºC or higher.
2) The compressor speed is 0 rps.

(13) Dew prevention control (During cooling or dehumidifying)

Prevents dewing on the indoor unit.

(a) Operating conditions

When the following conditions have been satisfied for more than 30 minutes after starting operation

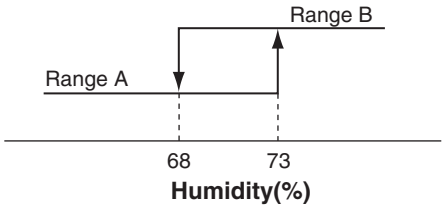
1) Compressor's speed is 22 rps or higher.
2) Detected value of humidity is 68% or higher.

(b) Contents of operation

1) Air capacity control

Item \ Model			SRK50, 60ZSX-S
Twin type	ULO	Upper limit of compressor's speed	RangeA: 30 rps, RangeB: 24 rps
		Indoor fan	4th speed
	AUTO, LO	Upper limit of compressor's speed	RangeA: 40 rps, RangeB: 24 rps
		Indoor fan	Adaptable to compressor speed
	ME	Upper limit of compressor's speed	RangeA: 50 rps, RangeB: 30 rps
		Indoor fan	Adaptable to compressor speed
	HI	Upper limit of compressor's speed	RangeA: 50 rps, RangeB: 30 rps
		Indoor fan	Adaptable to compressor speed
Triple type	ULO	Upper limit of compressor's speed	RangeA: 30 rps, RangeB: 24 rps
		Indoor fan	4th speed
	AUTO, LO	Upper limit of compressor's speed	RangeA: 50 rps, RangeB: 24 rps
		Indoor fan	Adaptable to compressor speed
	ME	Upper limit of compressor's speed	RangeA: 50 rps, RangeB: 30 rps
		Indoor fan	Adaptable to compressor speed
	HI	Upper limit of compressor's speed	RangeA: 70 rps, RangeB: 30 rps
		Indoor fan	Adaptable to compressor speed

Note (1) Ranges A and B are as shown below.



2) When this control has continued for more than 30 minutes continuously,the following wind direction control is performed.
a) When the vertical wind direction is set at other than the vertical swing,the flaps change to the horizontal position.
b) When the horizontal wind direction is set at other than the horizontal swing,the louver changes to the vertical position.

(c) Reset condition

Humidity is less than 63%.

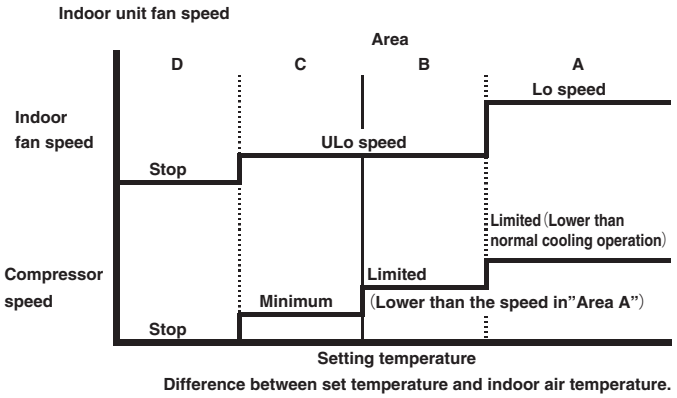
(14) Outline of dehumidifying (DRY) operation

(a) Purpose of DRY mode

The purpose is "Dehumidification", and not to control the humidity to the target condition.
Indoor/outdoor unit control the operation condition to reduce the humidity, and also prevent over cooling.

(b) Outline of control

(i) Indoor unit fan speed and compressor are controlled by the area which is selected by the temperature difference.



(ii) The indoor unit check the current area by every 5 minutes, and operate by the next checking.

1.9.4 Operation control function by the indoor control

(1) Determination of compressor speed (Frequency)

Required frequency

(a) Cooling/dehumidifying operation

Unit: rps

Model		FDC100	FDC125	FDC140
Max. required frequency	Usual operation	75	95(92)	95(92)
	Silent mode, outdoor temperature ≦ 15°C	50	60	70
Min. required frequency		20	20	20

Note (1) Value in ( ) are for the 3 phase models.

(b) Heating operation

Unit: rps

Model		FDC100	FDC125	FDC140
Max. required frequency	Usual operation	100	120	120
	Silent mode	60	70	70
Min. required frequency		20	20	20

(c) If the indoor unit fan speed becomes “Me” or “Lo”, Max required frequency goes down accordingly depending on indoor unit model.

(d) Max. required frequency under high outdoor air temperature in cooling mode

Maximum required frequency is selected according to the outdoor air temperature (Tho-A).

Unit: rps

Model		FDC100	FDC125	FDC140
Max. required frequency	Outdoor air temperature is 40°C or higher	75	75	75
	Outdoor air temperature is 46°C or higher	70	70	70

(e) Max. required frequency under outdoor air temperature in heating mode

Maximum required frequency is selected according to the outdoor air temperature (Tho-A).

Unit: rps

Model		FDC100	FDC125	FDC140
Max. required frequency	Outdoor air temperature is 10°C or higher	100	100	100
	Outdoor air temperature is 18°C or higher	75	80	85

(f) Selection of max. required frequency by heat exchanger temperature

(i) 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 (Th2) during heating mode.

(ii) When there are 3 indoor unit heat exchanger temperatures (Th2), whichever the highest applies,

Unit: rps

Model			FDC100	FDC125	FDC140
Max. required frequency	Cooling/ dehumidifying	Outdoor unit heat exchanger temperature is 56°C or higher	75	95〔92〕	95〔92〕
	Heating	Indoor unit heat exchanger temperature is 56°C or higher	100	100	100

Note (1) Value in 〔 〕 are for the 3 phase models.

(g) When any of the controls from (a) to (f) above may duplicate, whichever the smallest value among duplicated controls is taken as the maximum required frequency.

(h) During heating, it is operated with the maximum required frequency until the indoor unit heat exchanger temperature becomes 40°C or higher.

(2) Compressor start control

(a) Compressor starts upon receipt of the thermostat ON signal from the indoor unit.

(b) However, at initial start after turning the power source breaker, it may enter the standby state for maximum 30 minutes (" PREPARATION" is displayed on the remote control) in order to prevent the oil loss in the compressor.
If the cooling/dehumidifying/heating operation is selected from the remote control when the outdoor unit is in the standby state, " PREPARATION" is displayed for 3 seconds on the remote control.

(3) Compressor soft start control

(a) Compressor protection start I

[Control condition] Normally, the compressor operation frequency is raised in this start pattern.

[Control contents] (i) Starts with the compressor's target frequency at **A** rps.
However, when the ambient air temperature (Tho-A) is 35°C or higher during cooling/dehumidifying or the indoor return air temperature (Th1) is 25°C or higher during heating, it starts at **C** rps.

(ii) 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
FDC100, 125, 140	Cooling/Dehumidifying	45	45	25
	Heating	45	45	25

(b) Compressor protection start III

[Control condition] Number of compressor starts is only 1 counted after the power source breaker ON.

[Control contents] Operates by selecting one of following start patterns according to the operation mode and the outdoor air temperature (Tho-A).

(i) 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] a) 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.

b) 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
FDC100, 125, 140	Cooling/Dehumidifying	45	45	25

(ii) Low frequency operation control during heating

[Control condition] When the conditions of compressor protection start III are established and one of following conditions a) is satisfied, the low number of revolutions operation control is performed during heating.
a) At 30 minutes or more after turning the power source breaker on

[Control contents] a) Starts the compressor with its target frequency at **A** rps. However, when the indoor unit return air temperature (Th1) is 25°C or higher, it start at **C** rps.

b) 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
FDC100, 125, 140	Heating	45	45	25

(4) Outdoor unit fan control

(a) Outdoor unit fan tap and fan motor speed

Unit: min^{-1}

Model	Mode	Fan motor tap						
		① speed	② speed	③ speed	④ speed	⑤ speed	⑥ speed	⑦ speed
FDC100, 125, 140	Cooling/Dehumidifying	200	370	560	640	745	870	910
	Heating	200	370	560	650	830	870	910

(b) Fan tap control during Cooling/Defumidifying operation

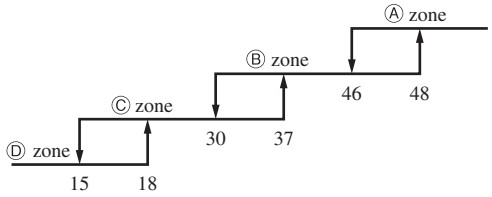
Fan taps are selected depending on the outdoor unit heat exchanger temperature (Tho-R1, R2) and the outdoor air temperature (Tho-A).

Note (1) It is detected by Tho-R1 or R2, whichever the higher.

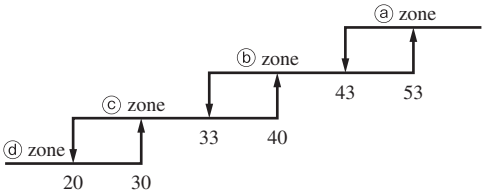
	Ⓐ zone	Ⓑ zone	Ⓒ zone	Ⓓ zone
ⓐ zone	Tap 5	Tap 5	Tap 5	Tap 4
ⓑ zone	Tap 5	Tap 5	Tap 4	Tap 3
ⓒ zone	Tap 4	Tap 4	Tap 3	Tap 2
ⓓ zone	Tap 3	Tap 3	Tap 2	Tap 1

• Silent mode only

	Ⓐ zone	Ⓑ zone	Ⓒ zone	Ⓓ zone
ⓐ zone	Tap 5	Tap 5	Tap 5	Tap 4
ⓑ zone	Tap 5	Tap 5	Tap 3	Tap 3
ⓒ zone	Tap 4	Tap 3	Tap 3	Tap 2
ⓓ zone	Tap 3	Tap 3	Tap 2	Tap 1



Outdoor air temp. (˚C)



Outdoor unit heat exchanger temp. (˚C)

(c) Fan tap control during heating operation

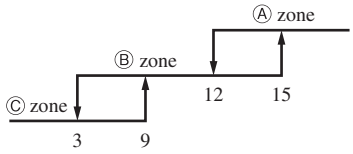
Fan taps are selected depending on the outdoor unit heat exchanger temperature (Tho-R1, R2) and the outdoor air temperature (Tho-A).

Note (1) It is detected by Tho-R1 or R2, whichever the lower.

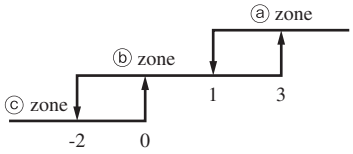
	Ⓐ zone	Ⓑ zone	Ⓒ zone
ⓐ zone	Tap 3	Tap 3	Tap 4
ⓑ zone	Tap 3	Tap 4	Tap 5
ⓒ zone	Tap 4	Tap 5	Tap 6

• Silent mode only

	Ⓐ zone	Ⓑ zone	Ⓒ zone
ⓐ zone	Tap 3	Tap 3	Tap 3
ⓑ zone	Tap 3	Tap 3	Tap 5
ⓒ zone	Tap 4	Tap 5	Tap 6



Outdoor air temp. (˚C)

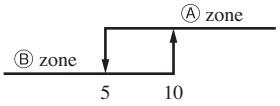


Outdoor unit heat exchanger temp. (˚C)

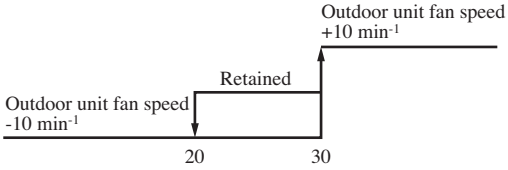
(d) Outdoor unit fan control at cooling low outdoor air

(i) 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.



Outdoor air temp. (˚C)



Outdoor unit heat exchanger temp. (˚C)

(ii) 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.

(iii) Range of the outdoor unit fan speed under this control is as follows.

1) Lower limit: 130 min^{-1}
2) Upper limit: 500 min^{-1}

(iv) As any of the following conditions is established, this control terminates.

1) 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.
2) When the outdoor fan speed is 500 min^{-1} and the outdoor unit heat exchanger temperature at 30°C or higher is established for 40 seconds or more continuously.
3) When the outdoor unit heat changer temperature at 45°C or higher is established for 40 seconds or more.

(e) 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.

(i) Cooling/dehumidifying

1) Outdoor air temperature Tho-A ≧ 33°C
2) Compressor's actual frequency ≧ **A** rps
3) Power transistor radiator fin temperature ≧ **C** °C

(ii) Heating

1) Outdoor air temperature Tho-A ≧ 16°C
2) Compressor's actual frequency ≧ **B** rps
3) Power transistor radiator fin temperature ≧ **C** °C

(iii) Contents of control

1) Raises the outdoor unit fan tap by 1 tap.
2) When the sampling is for 60 minutes and the value of power transistor radiator fin temperature (Tho-P) is as follows.
   a) When the power transistor radiator fin temperature (Tho-P) ≧ **C** °C, the outdoor unit fan tap is raised by 1 speed further.
   b) When **C** °C > power transistor radiator fin temperature (Tho-P) ≧ **D** °C, present outdoor unit fan tap is maintained.
   c) When the power transistor radiator fin temperature (Tho-P) ≧ **D** °C, the outdoor unit fan tap is dropped by 1 speed.

(iv) Ending conditions

When the operation under the condition of item 2), c) above and with the outdoor unit fan tap, which is determined by the item (b) is detected 2 times consecutively.

• Compressor's frequency and power transistor radiator fin temperature

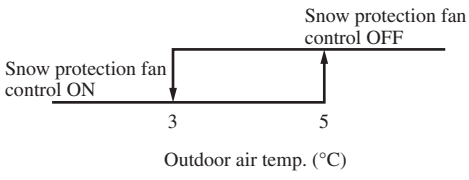
Item / Model	A	B	C	D
FDC100, 125, 140	65	65	72	68

(f) Caution at the outdoor unit fan start control (3 phase model only)

When the outdoor unit fan is running at 400 min^{-1} before operating the compressor, it may operate with the compressor only, without starting up the outdoor fan This is normal.

(g) 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.



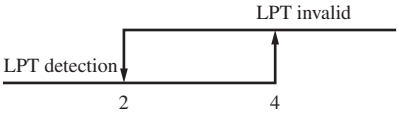
(5) Defrost operation

(a) Starting conditions

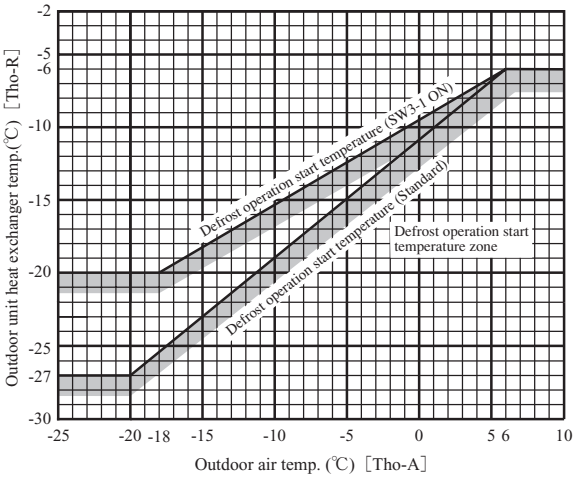
If all of the following defrost conditions A or conditions B are satisfied, the defrost operation starts.

(i) Defrost conditions A

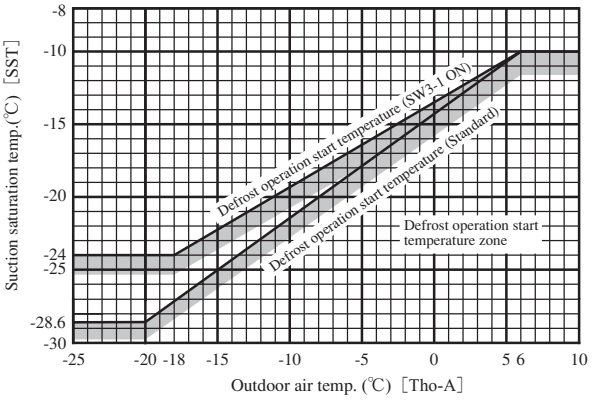
1) Cumulative compressor operation time after the end of defrost operation has elapsed 37 minutes, and the cumulative compressor operation time after the start of heating operation (remote control ON) has elapsed 30 minutes.
2) After 5 minutes from the compressor ON
3) After 5 minutes from the start of outdoor unit fan
4) After satisfying all above conditions, if temperatures of the outdoor unit heat exchanger temperature sensor (Tho-R1, R2) and the outdoor air temperature sensor (Tho-A) become lower than the defrost operation starting 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 defrost operation start temperature as shown by the right figure.However, it excludes for 10 minutes after the startof compressor and the outdoor air temperature is as shown by the lower figure.



Model FDC100-140



Model FDC100-140



(ii) Defrost conditions B

1) When previous defrost ending condition is the time out of defrost operation and it is in the heating operation after the cumulative compressor operation time after the end of defrost operation has become 30 minutes.
2) After 5 minutes from the start of compressor
3) After 5 minutes from the start of outdoor unit fan

(b) Ending conditions

When any of the following conditions is satisfied, heating operation starts.

(i) When it has elapsed 8 minutes and 20 seconds after the start of defrost operation.

(ii) When the outdoor unit heat exchanger temperatures (Tho-R1, R2), whichever the lower, becomes 12°C or higher for 10 seconds continuously.

(c) Switching of defrost control with SW3-1

(i) If SW3-1 on the outdoor unit control PCB is turned to ON, it becomes easier to enter the defrost operation. Use this when installing a unit at snowing regions.

(ii) Control contents

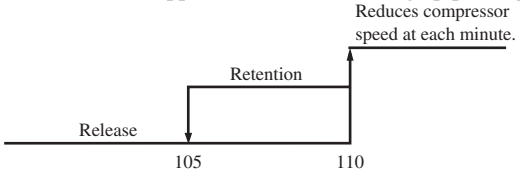
1) It allows entering the defrost operation under the defrost condition A when the cumulative heating operation time becomes 30 minutes. It is 37 minutes at SW3-1 OFF (Factory default).
2) It allows entering the defrost operation under the defrost condition B when the cumulative heating operation time becomes 25 minutes. It is 30 minutes at SW3-1 OFF (Factory default).
3) It allows the defrost operation with the outdoor unit heat exchanger temperature (Tho-R) and suction pressure saturation temperature (SST) being higher than normal.

(6) Protective control/anomalous stop control by compressor's number of revolutions

(a) Compressor discharge pipe temperature protection

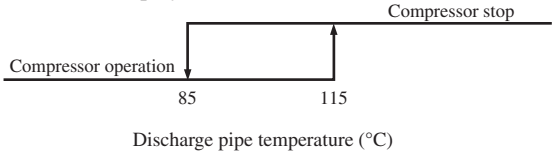
(i) Protective control

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.



(ii) Anomalous stop control

1) If the discharge pipe temperature (detected with Tho-D) exceeds the setting value, the compressor stops.
2) 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 control and it enters the anomalous stop mode.



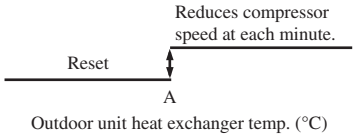
(iii) Reset of anomalous stop mode

As it drops to the reset value of 85°C or lower for 45 minutes continuously, it becomes possible to restart from the remote control.

(b) Cooling high pressure protection

(i) Protective control

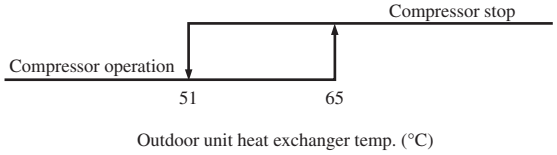
1) When the outdoor air temperature (Tho-A) is 40°C or higher and the outdoor unit heat exchanger temperature (Tho-R) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of high pressure.
2) Control value A is updated to an optimum value automatically according to the operating conditions.



Control value A
54-60°C

(ii) Anomalous stop control

1) As the outdoor unit heat exchanger temperature (Tho-R) exceeds the setting value, the compressor stops.
2) 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 control and it enters the anomalous stop mode.



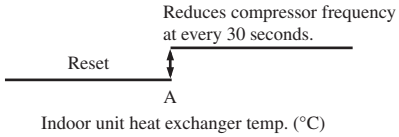
(iii) Reset of anomalous stop mode

As it reaches the reset value of 51°C or lower, it becomes possible to restart from the remote control.

(c) Heating high pressure protection

(i) Protective control

1) As the indoor unit heat exchanger temperature (Th2) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of high pressure.
2) Control value A is updated to an optimum value automatically according to the operating conditions.

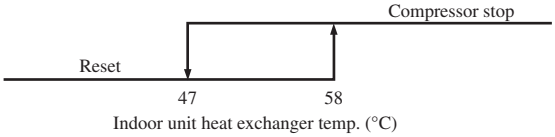


Model	Existing piping adaptation switch: SW5-1	
	OFF (Shipping)	ON
	Control value A (°C)	
FDC100-140	48-54	46-52

Note (1) Adaptation to existing piping is at ON.

(ii) Anomalous stop control
Operation control function by the indoor unit control.

(iii) Adaptation to existing piping, stop control
If the existing piping adaptation switch, SW5-1, is turned ON, the compressor stops to protect existing piping when the indoor unit heat exchanger temperature (Th2) exceeds the setting value.



(d) Anomaly detection control by the high pressure switch (63H1)

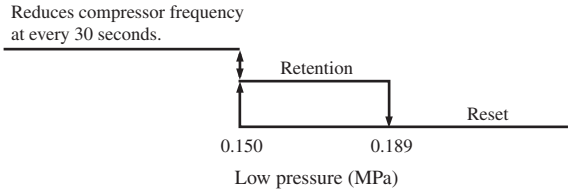
(i) If the pressure rises and operates the high pressure switch (opens at 4.15MPa/closes at 3.15MPa), the compressor stops.

(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.

(e) Low pressure control

(i) 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.



(ii) Anomalous stop control

1) When a value detected by the low pressure sensor (LPT) satisfies any of the following conditions, the compressor stops to run for its protection.
   a) When the low pressure drops to 0.079MPa or under for 15 seconds continuously.
   b) 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.
2) 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.
3) However, when the control condition 1). a) is established during the compressor protection start III, E49 is displayed at initial stop and it enters the anomalous stop mode.

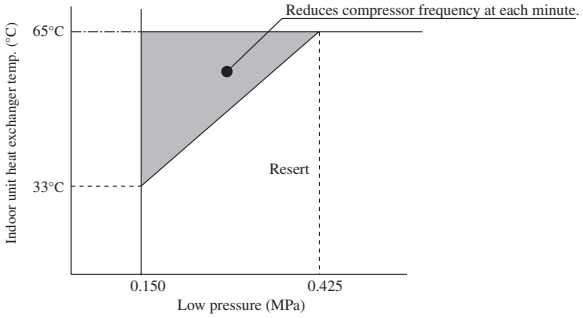
(f) Compressor pressure ratio protection control

(i) During heating operation, if the indoor unit heat exchanger temperature (Th2) and low pressure sensor (LPT) exceed the setting values at 10 minutes after the start of compressor, the compressor speed (frequency) is controlled to protect the compressor.

(ii) This control is not performed during the outdoor fan ON and for 10 minutes from the start of outdoor unit fan.

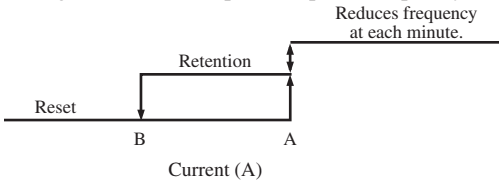
(iii) This control is not performed during defrost operation and at 10 minutes after the reset of defrost operation.

(iv) When there are 2 indoor unit heat exchanger temperatures (Th2), the highest temperature is detected.

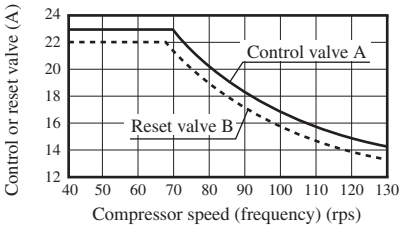


(g) Over-current protection current safe controls I, II

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.

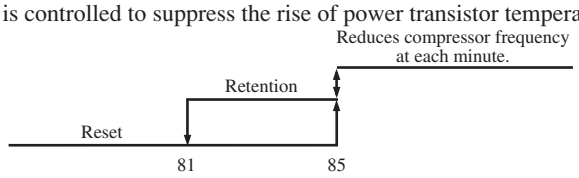


Model		Cooling		Heating	
		Control value A	Reset value B	Control value A	Reset value B
Primary current side	FDC100	11.0 (23.0)	10.0 (22.0)	11.0 (23.0)	10.0 (22.0)
	FDC125, 140	11.0 (23.0)	10.0 (22.0)	11.0 (25.0)	10.0 (24.0)
Secandary current side	FDC100	11.5 (Fig.C)	10.5 (Fig.C)	11.5 (Fig.C)	10.5 (Fig.C)
	FDC125, 140	11.5 (Fig.C)	10.5 (Fig.C)	11.5 (Fig.C)	10.5 (Fig.C)

Note (1) Value in ( ) are for the single phase models.

(h) Power transistor temperature protection

(i) 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.



(i) Anomalous power transistor current

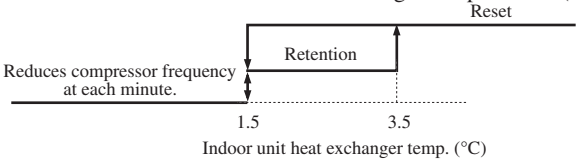
(i) Prevents over-current on the inverter. If the current value in the power transistor exceeds the setting value, the compressor stops.
(ii) If the current value in the power transistor exceeds the specified value and the compressor stops 4 times within 30 minutes, E42 is displayed on the remote control and it enters the anomalous stop mode.

(j) Anomalous inverter PCB

If the power transistor detects any anomaly for 15 minutes, including the stop of compressor, E51 is displayed on the remote control and it enters the anomalous stop mode.

(k) Anti-frost control by the compressor frequency control

(i) If the indoor unit heat exchanger temperature (detected with Th2) exceeds the setting value at 4 minutes after the start of compressor, the compressor speed (frequency) is controlled to initiate the anti-frost control of indoor unit heat exchanger.
(ii) When there are 2 indoor unit heat exchanger temperatures (Th2), the lowest temperature is detected.



(iii) Regarding the anti-frost control by the operation stop, refer to the operation control function by the indoor unit control and the cooling, dehumidifying frost prevention of page 71.

(l) 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.

(i) Cooling electronic expansion valve aperture (EEVC) is 500 pulses.
(ii) Suction overheat is 10°C or higher.
(iii) Compressor speed (frequency) is **A** rps or higher.

[Control contents] (i) When the suction overheat is 10°C or higher, the compressor speed (frequency) is reduced at each 1 minute.

(ii) Compressor speed (frequency) does not rise till the cooling expansion valve becomes 460 pulses.

(iii) 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
FDC100-140	60

(m) 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 (Th2) and the indoor unit return air temperature (Th1).

[Control condition] When the state that the indoor unit heat exchanger temperature (Th2) does not become lower than the indoor unit return air temperature (Th1) 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 control.

(n) Broken wire detection on temperature thermistor and low pressure sensor

(i) 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 defrost operation and for 3 minutes after the end of defrost operation, it is not detected.
- Outdoor unit heat exchanger thermistor: -50°C or lower
- Outdoor air temperature thermistor: -45°C or lower
- Low pressure sensor: 0V or under or 4.0V or over

(ii) Discharge pipe temperature thermistor, suction pipe temperature thermistor
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 defrost operation and for 3 minutes after the end of defrost operation, it is not detected.
- Discharge pipe temperature thermistor: -10°C or lower
- Suction pipe temperature thermistor: -50°C or lower

(o) Fan motor error

(i) If the fan speed of 100min^{-1} 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.

(ii) When the fan motor speed drops to 100min^{-1} or under 5 times within 60 minutes and the compressor stops, it enters the anomalous stop mode with E48 displayed on the remote control.

(p) Anomalous stop by the compressor start stop

(i) 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.

(ii) 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).

(7) Silent mode

(a) As "Silent mode start" signal is received from the remote control, it operates by dropping the outdoor unit fan tap and the compressor speed (frequency).

(b) For details, refer to items (1) and (4) above.

(8) Test run

(a) 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	OFF	Cooling test run
			ON	Heating test run
	OFF	Normal and end of test run		

Make sure to turn SW3-3 to OFF after the end of operation.

(b) Test run control

(i) Operation is performed at the maximum compressor speed (frequency), which is determined for each model.

(ii) Each protective control and error detection control are effective.

(iii) If SW3-4 is switched during test run, the compressor is stoped for once by the stop control and the cooling/heating operation is switched.

(iv) Setting and display of remote control during test run

Item / Mode	Contents of remote control setting/display
Cooling test run	Setting temperature of cooling is 5°C.
Heating test run	Setting temperature of heating (preparation) is 30°C.

(9) Pump-down control

Turning ON the pump-down switch SW1 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 source is turned OFF.)

(a) Control contents

(i) Close the service valve at the liquid side. (It is left open at the gas side.)

(ii) Compressor is started with the target speed (frequency) at FDC100. 125, 140:45 rps in the cooling mode.

(iii) Red and green lamps (LED) flash continuously on the outdoor unit control PCB.

(iv) Each of protection and error detection controls, excluding the low pressure control, anti-frost control and dewing prevention control, is effective.

(v) Outdoor unit fan is controlled as usual.

(vi) Electronic expansion valve is fully opened.

(b) Control ending conditions

Stop control is initiated depending on any of the following conditions.

(i) Low pressure of 0.087MPa or lower is detected for 5 seconds continuously.
  1) Red LED: Light, Green LED: Flashing, Remote control: Displays stop.
  2) It is possible to restart when the low pressure is 0.087MPa or higher.
  3) Electronic expansion valve (cooling/heating) is kept fully open.

(ii) Stop by the error detection control
  1) Red LED: Keeps flashing, Green LED: Flashing
  2) Restart is prohibited. To return to normal operation, reset the power source.
  3) Electronic expansion valve (cooling/heating) is left fully open.

(iii) When the cumulative operation time of compressor under the pump-down control becomes 5 minutes.
  1) Red LED: Stays OFF, Green LED: Flashing, Remote control: Stop
  2) It is possible to pump-down again.
  3) Electronic expansion valve (cooling/heating) is left fully open.

Note (1) After the stop of compressor, close the service valve at the gas side.

Caution: Since pressing the pump-down switch cancels communications with the indoor unit, the indoor unit and the remote control display "Transmission error – E5". This is normal.

(10) Base heater ON/OFF output control (Option)

(i) Base heater ON conditions

When all of following conditions are met, the base heater is turned ON.

· Outdoor air temperature (detected with Tho-A) is 3°C or lower.

· In the heating mode

· When the compressor is turned ON

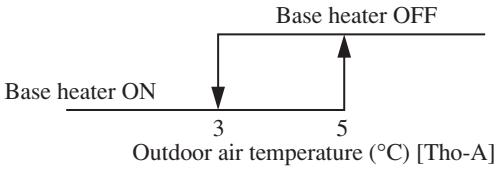
(ii) Base heater OFF conditions

When either one of following conditions is met, the base heater is turned OFF.

· Outdoor air temperature (detected with Tho-A) is 5°C or higher.

· When the compressor stop has been detected for 30 minutes continuously

· In the cooling or dehumidifying mode



1.10 MAINTENANCE DATA

1.10.1 Diagnosing of microcomputer circuit

(1) Selfdiagnosis function

Check Indicator Table

At the indoor unit side, errors are displayed with the combination of RUN light and TIMER light on the display panel.

(i) Indoor unit

SRK series

Remote control		Indoor unit display		Outdoor control PCB		Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	RUN light	TIMER light	Red LED	Green LED				
No-indication	Stays OFF	ON	Stays OFF	Stays OFF	Keeps flashing	—	**•Normal operation**	—	—
		—	—	2-time flash	Stays OFF	Indoor unit power source	•Power OFF, broken wire/blown fuse, broken transformer wire	Repair	116
		—	—	Stays OFF	Keeps flashing	Remote control wires	•Poor connection, breakage of remote control wire * For wire breaking at power ON, the LED is OFF.	Repair	117
						Remote control	• Defective remote control PCB	Replacement of remote control	
		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Limit switch, air inlet panel	**•Limit switch operate** **•Defective limit switch** (Poor contact of limit switch connector) **•Set is defective air inlet panel**	Replacement, repair	118
						Indoor control PCB	**•Defective indoor control PCB (Defective limit switch input circuit)?**	Replacement of PCB	
WAIT or INSPECT I/U		—	—	2-time flash	Keeps flashing	Indoor-outdoor units connection wire	• Poor connection, breakage of indoor-outdoor units connection wire	Repair	119−123
						Remote control	• Improper setting of master and slave by remote control		
E 1	Keeps flashing	—	—	Stays OFF	Keeps flashing	Remote control wires (Noise)	**•Poor connection of remote control signal wire (White)** * For wire breaking at power ON, the LED is OFF **•Intrusion of noise in remote control wire**	Repair	125
						Remote control indoor control PCB	*• Defective remote control or indoor control PCB (defective communication circ uit)?	Replacement of remote control or PCB	
E5		ON	6 -time flash	2 -time 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	126
		ON	6 -time flash	Stays OFF	Keeps flashing	(Noise)	**•CPU-runaway on outdoor control PCB**	Power reset or Repair	
						Outdoor control PCB	*•Occurrence of defective outdoor control PCB on the way of power source (defective communication circuit)?	Replacement of PCB	
		ON	6 -time flash	Stays OFF	Stays OFF	Outdoor control PCB	**•Defective outdoor control PCB on the way of power source**	Replacement	
						Fuse	**•Blown fuse**		
E6		1-time flash	ON	Stays OFF	Keeps flashing	Indoor heat exchanger tempera ture sensor 1	**•Defective indoor heat exchanger temperature sensor 1** (defective element, broken wire, short-circuit) • Poor contact of temperature sensor 1 connector	Replacement, repair of temperature sensor 1	127
						Indoor control PCB	**•Defective indoor control PCB (Defective temperature sensor 1 input circuit)?**	Replacement of PCB	
		3-time flash	ON	Stays OFF	Keeps flashing	Indoor heat exchanger tempera ture sensor 2	**•Defective indoor heat exchanger temperature sensor 2** (defective element, broken wire, short-circuit) • Poor contact of temperature sensor 2 connector	Replacement, repair of temperature sensor 2	
						Indoor control PCB	**•Defective indoor control PCB (Defective temperature sensor 2 input circuit)?**	Replacement of PCB	
No-indication		2-time flash	ON	Stays OFF	Keeps flashing	Indoor room temperature sensor	**•Defective indoor room temperature sensor** (defective element, broken wire, short-circuit) • Poor contact of temperature sensor connector	Replacement, repair of temperature sensor	128
						Indoor control PCB	※• **Defective indoor control PCB (Defective temperatuer sensor input circuit)?**	Replacement of PCB	
E 10		—	—	Stays OFF	Keeps flashing	Number of connected indoor units	**•When multi-unit control by remote control is performed, the number of units is over**	Repair	129
E 14		—	—	Stays OFF	Keeps flashing	Indoor unit No. setting	•No master is assigned to slaves.	Repair	130
						Remote control wires	•Anomalous remote control wire connection, broken wire between master and slave units		
E 16		6-time flash	ON	Stays OFF	Keeps flashing	Fan motor	**•Defective fan motor**	Replacement, repair	131
						Indoor control PCB	**•Defective indoor control PCB**	Replacement	
E28		—	—	Stays OFF	Keeps flashing	Remote control temperature thermistor	• Broken wire of remote control temperature thermistor	Repair	132

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.

(ii) Outdoor unit

FDC100-140VNX, 100-140VSX
FDC100-140VN, 100-140VS

Remote control		Indoor unit display		Outdoor control PCB		Outdoor inverter PCB	Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	RUN light	TIMER light	Red LED	Green LED	Yellow LED				
E35	Keeps flashing	ON	Keeps flashing	1-time flash	Keeps flashing	Keeps flashing	Installation or operating condition	• Higher outdoor heat exchanger temperature	Repair	133
							Outdoor heat exchanger temperature thermistor	• Defective outdoor heat exchanger temperature thermistor	Replacement of temperature thermistor	
							Outdoor control PCB	*• Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E36		ON	5-time flash	1-time flash	Keeps flashing		Installation or operating condition	• Higher discharge temperature	Repair	134
							temperature sensor	• Defective discharge pipe temperature thermistor	Replacement, repair of temperature thermistor	
							Outdoor control PCB	*• Discharge pipe Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E37		Keeps flashing	2-time flash	1-time flash	Keeps flashing		Outdoor heat exchanger temperature thermistor	• Defective outdoor heat exchanger temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	135
							Outdoor control PCB	*• Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E38		Keeps flashing	1-time flash	1-time flash	Keeps flashing		Outdoor air temperature thermistor	• Defective Outdoor air temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	136
							Outdoor control PCB	*• Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E39		Keeps flashing	4-time flash	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	137
							Outdoor control PCB	*• Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E40		—	—	1-time flash	Keeps flashing		Installation or operating condition	• Rising high pressure (Operation of 63H1) • Service valve closing operation	Repair	138
							Outdoor control PCB	*• Defective outdoor control PCB (Defective 63H input circuit)?	Replacement of PCB	
E41		—	—	1-time flash	Keeps flashing	6-time flash	Inverter PCB or radiator fin	• Power transistor overheat	Replacement of PCB or Repair	139
E42		ON	1-time flash	1-time flash	Keeps flashing	1-time flash	Outdoor control PCB compressor	• Current cut (Anomalous compressor over-current)	Replacement of PCB	140•141
							Installation or operating condition	• Service valve closing operation	Repair	
E45		—	—	1-time flash	Keeps flashing	Keeps flashing	Outdoor control PCB	• Anomalous outdoor control PCB communication	Replacement of PCB	142
							Inverter PCB	• Anomalous inverter PCB communication		
E48		ON	7-time flash	1-time flash	Keeps flashing		Outdoor fan motor	• Anomalous outdoor fan motor	Replacement, repair	143
							Outdoor control PCB	*• Defective outdoor control PCB (Defective motor input circuit)?	Replacement of PCB	
E49		—	—	1-time flash	Keeps flashing		Installation or operating condition	• Low pressure error • Service valve closing operation	Repair	144•145
							Low pressure sensor	• Anomalous low pressure, broken wire of low pressure sensor or poor connector connection	Replacement, repair of sensor	
							Outdoor control PCB	*• Defective outdoor control PCB (Defective sensor input circuit)?	Replacement of control PCB	
E51		ON	4-time flash	1-time flash	Keeps flashing	6-time flash	Inverter PCB	• Anomalous inverter PCB	Replacement of PCB	146
E53		Keeps flashing	5-time flash	1-time flash	Keeps flashing	Keeps flashing	Suction pipe temperature thermistor	• Defective suction pipe temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	147
							Outdoor control PCB	*• Defective outdoor PCB (Defective thermistor input circuit)?	Replacement of control PCB	
E54		—	—	1-time flash	Keeps flashing		Low pressure sensor	• Defective low pressure sensor	Replacement of sensor	148
							Outdoor control PCB	• Defective outdoor control PCB (Defective sensor input circuit)?	Replacement of control PCB	
E57		7-time flash	ON	1-time flash	Keeps flashing		Operation status	• Shortage in refrigerant quantity	Repair	149
							Installation status	• Service valve closing operation	Service valve opening check	
E59		—	—	5-time flash	Keeps flashing	Stays OFF	Compressor, inverter PCB	•Anomalous compressor startup	Replacement	150•151

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) Option control in-use

SRK series

		Indoor unit display panel		Outdoor unit control PCB		Description of trouble	Repair method
Error code	Red LED	RUN light	TIMER light	Red LED	Green LED		
E75	Keeps flashing	–	–	Stays OFF	Keeps flashing	• Communication error (Defective communication circuit on the main unit of SC-SL2N-E or SC-SL4) ete.	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 control	• Displays the error of higher priority (When plural errors are persisting)
Red LED on indoor control PCB	E1 > E5 > ····· > E10 > E32 > ····· E60
Red LED on outdoor control PCB	• Displays the present errors. (When a new error has occurred after the former error was reset.)

■ **Error detecting timing**

Section	Error description	Error code	Error detecting timing
Indoor	Communication error at initial operation	"WAIT"	No communication between indoor and outdoor units is established at initial operation.
	Remote control communication circuit error	E1	Communication between indoor unit and remote control 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 control	E10	Whenever excessively connected indoor units is detected after power ON.
	Indoor heat exchanger temperature thermistor anomaly	E6	-28°C or lower is detected for 15 seconds continuously within 60 minutes after initial detection of this anomalous temperature.
Outdoor	Outdoor air temperature thermistor anomaly	E38	-45°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -45°C or lower 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 4.0V or higher is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous pressure.

■ **Error log and reset**

Error indicator	Memorized error log	Reset
Remote control display	• Higher priority error is memorized.	• Stop the unit by pressing the ON/OFF switch of remote control. • If the unit has recovered from anomaly, it can be operated.
Red LED on indoor control PCB	• Not memorized.	
Red LED on outdoor control PCB	• Memorizes a mode of higher priority.	

■ **Resetting the error log**

• Resetting the memorized error log in the remote control

Holding down "CHECK" button, press "TIMER" button to reset the error log memorized in the remote control.

• Resetting the memorized error log in the indoor unit

The remote control 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.

Trouble → Confirmation of power source (Indoor/ outdoor unit) → Confirmation of remote control and LEDs on the PCB of indoor unit and outdoor unit (Indoor/ outdoor unit, remote control) → Check of the anomalous operation data on the remote control → Inspection of the unit/ control → Replacement/ repair of faulty part, test run, adjustment

(3) Troubleshooting at the indoor unit

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.

(i) Replacement part related to indoor PCB's

Control PCB, power source PCB, temperature thermistor (return air, indoor heat exchanger), remote control switch, transformer and fuse

Note (1) With regard to parts of high voltage circuits and refrigeration cycle, judge it according to ordinary inspection methods.

(ii) 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.

SRK series

1) Cautions

a) If you are disassembling and checking an air-conditioner, be sure to turn off the power before beginning.
When working on indoor units, let the unit sit for about 1 minute after turning off the power before you begin work.

b) When taking out printed circuit boards, be sure to do so without exerting force on the circuit boards or package components.

c) When disconnecting and connecting connectors, take hold of the connector housing and do not pull on the lead wires.

2) Items to check before troubleshooting

a) Is the air-conditioner running? Is it displaying any self-diagnosis information?

b) Is a power source with the correct voltage connected?

c) Are the control lines connecting the indoor and outdoor units wired correctly and connected securely?

d) Is the outdoor unit's service valve open?

3) Troubleshooting procedure (If the air-conditioner does not run at all)

If the air-conditioner does not run at all, diagnose the trouble using the following troubleshooting procedure.

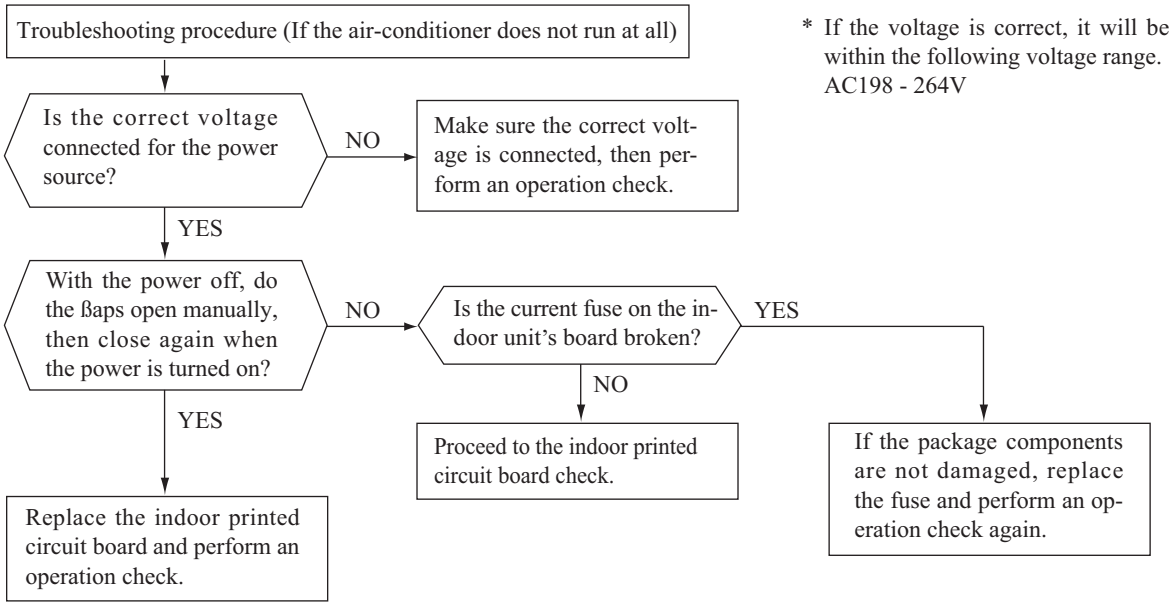
Important When all the following conditions are satisfied, we say that the air-conditioner will not run at all.

a) The RUN light does not light up.

b) The flaps do not open.

c) The indoor unit fan motors do not run.

d) The self-diagnosis display does not function.

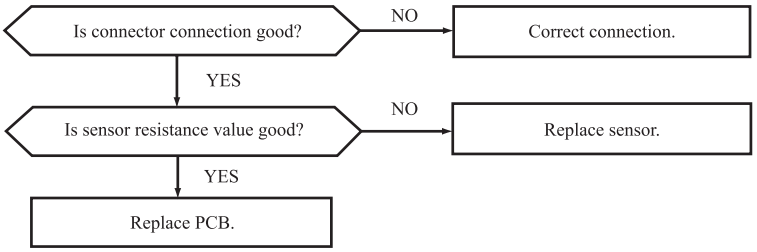


* If the voltage is correct, it will be within the following voltage range.
AC198 - 264V

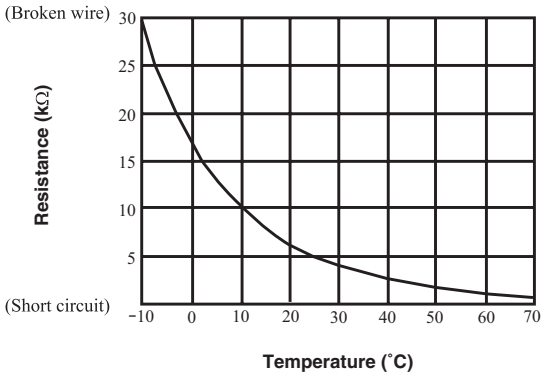
4) Inspection procedures corresponding to detail of trouble

Sensor error

[Broken sensor wire, connector poor connection]

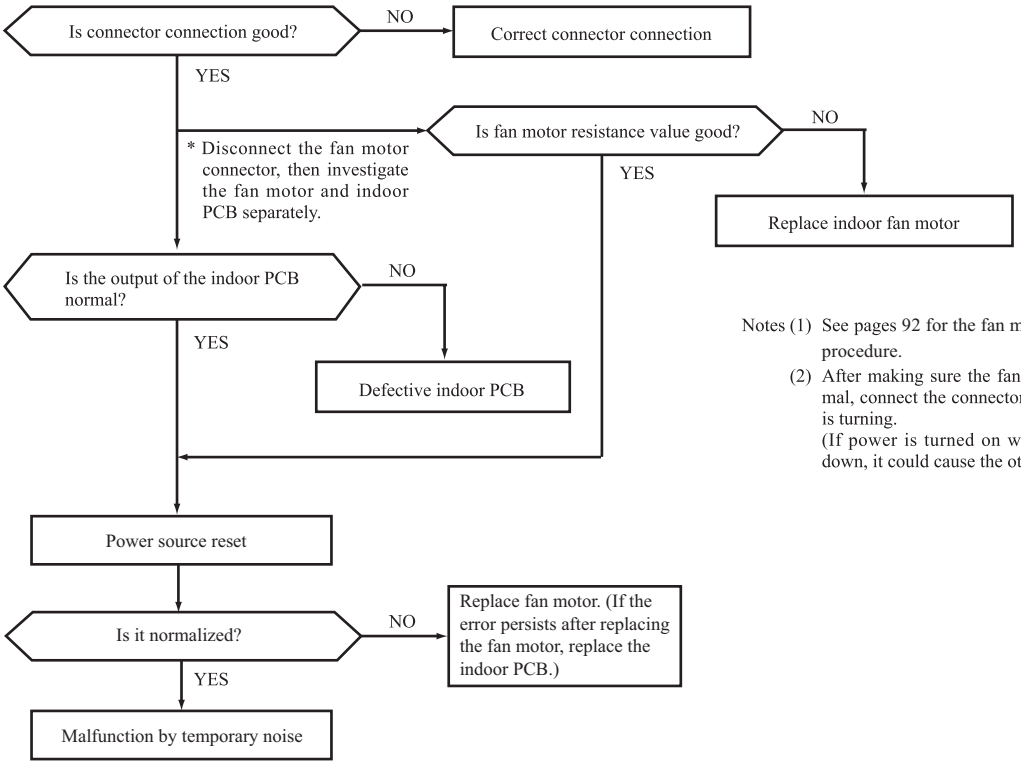


◆ **Sensor temperature characteristics (Room temp., indoor heat exchanger temp.)**



Indoor fan motor error

[Defective fan motor, connector poor connection, defective indoor PCB]

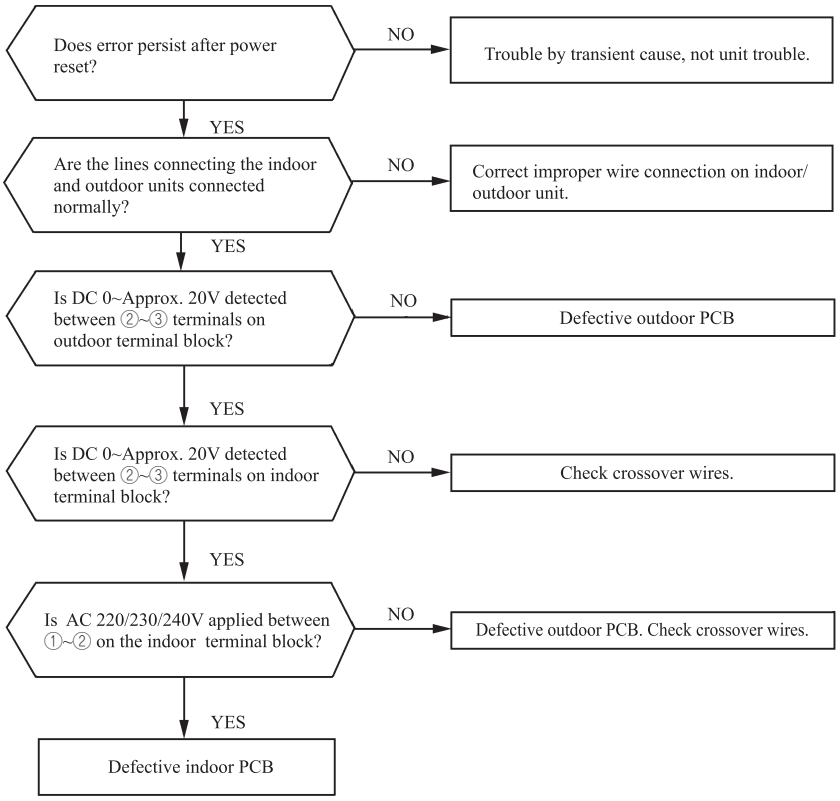


Notes (1) See pages 92 for the fan motor and indoor PCB check procedure.

(2) After making sure the fan motor and indoor PCB are normal, connect the connectors and confirm that the fan motor is turning.
(If power is turned on while one or the other is broken down, it could cause the other to break down also.)

Error of signal transmission

[Wiring error including power cable, defective indoor/ outdoor PCB]



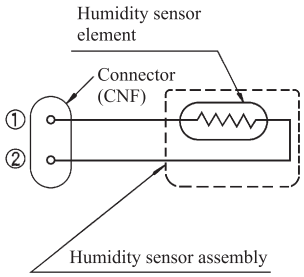
5) Phenomenon observed after shortcircuit, wire breakage on sensor

Sensor	Operation mode	Phenomenon	
		Shortcircuit	Disconnected wire
Room temperature sensor	Cooling	Release of continuous compressor operation command.	Continuous compressor operation command is not released.
	Heating	Continuous compressor operation command is not released.	Release of continuous compressor operation command.
Heat exchanger sensor	Cooling	Freezing cycle system protection trips and stops the compressor.	Continiuous compressor operation command is not released. (Anti-frosting)
	Heating	High pressure control mode (Compressor stop command)	Hot keep (Indoor fan stop)
Humidity sensor	Cooling	Refer to the table below.	Refer to the table below.
	Heating	Normal system operation is possible.	

■ Humidity sensor operation

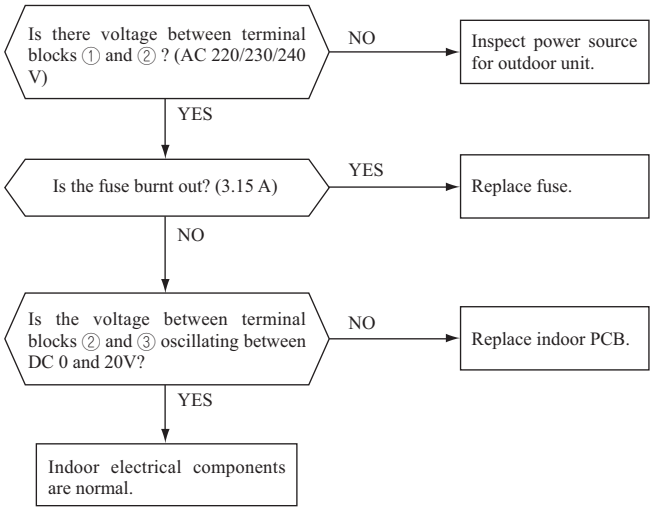
Failure mode		Control input circuit resding	Air conditioning system operation
Disconnected wire	① Disconnected wire	Humidity reading is 0%	Anti-condensation control is not done.
	② Disconnected wire		
	①② Disconnected wire		
Short circuit	① and ② are shot circuited	Humidity reading is 100%	Anti-condensation control keep doing.

Remark: Do not perform a continuity check of the humidity sensor with a tester. If DC current is applied, it could damage the sensor.



6) Checking the indoor electrical equipment

a) Indoor PCB check procedure



b) Indoor unit fan motor check procedure

This is a diagnostic procedure for determining if the indoor unit's fan motor or the indoor PCB is broken down.

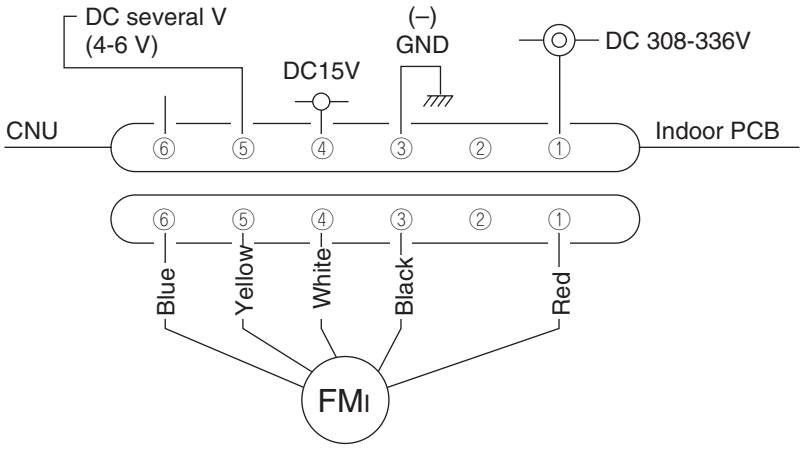
i) Indoor PCB output check

i) Turn off the power.

ii) Remove the front panel, then disconnect the fan motor lead wire connector.

iii) Turn on the power. If the unit operates when the ON/OFF button is pressed, if trouble is detected after the voltages in the following figure are output for approximately 30 seconds, it means that the indoor PCB is normal and the fan motor is broken down.

If the voltages in the following figure are not output at connector pins No. ①, ④ and ⑤, the indoor PCB has failed and the fan motor is normal.



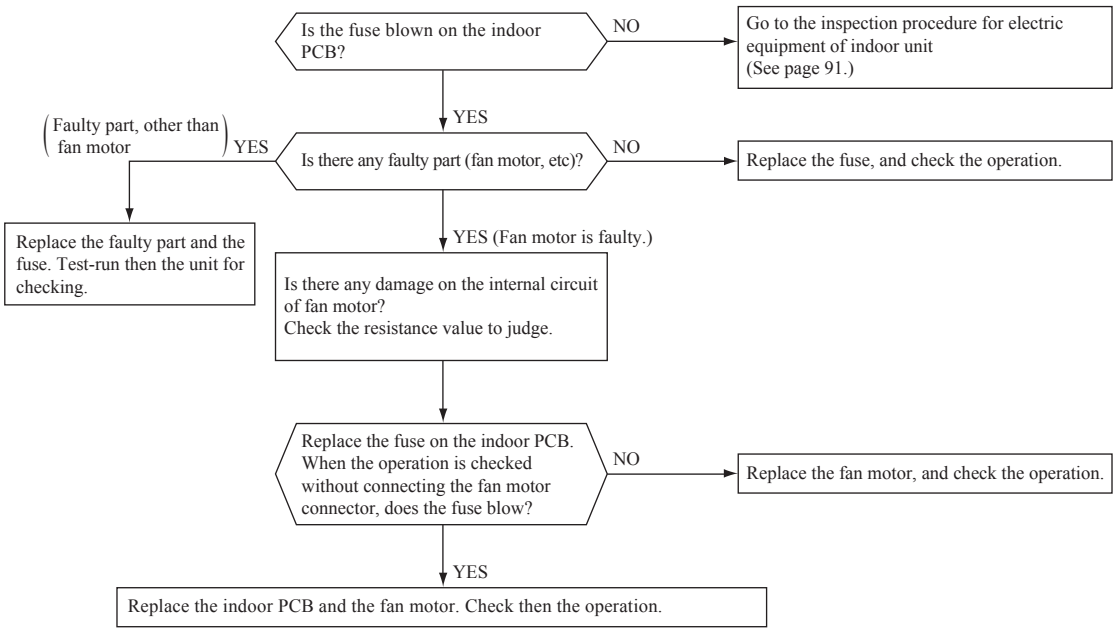
Measuring point	Voltage range when normal
① - ③	DC 308 - 336V
④ - ③	DC 15V
⑤ - ③	DC several V (4 - 6V)

ii) Fan motor resistance check

Measuring point	Resistance when normal
① - ③ (Red - Black)	20 MΩ or higher
④ - ③ (White - Black)	20 kΩ or higher

Notes (1) Remove the fan motor and measure it without power connected to it.
(2) If the measured value is below the value when the motor is normal, it means that the fan motor is faulty.

7) Inspection procedure for blown fuse on the indoor PCB



(4) Troubleshooting at the outdoor unit

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 code dispalyed on the remote control 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 source 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 source]

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 the power source to the outdoor unit.

Be sure to start repairing work, after confirming that the Red LED (or Green LED for 100-140 models) 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 control

Outdoor control PCB, Inverter PCB, Temperature thermistor (of outdoor heat exchanger, discharge pipe, outdoor air, IPM and suction pipe), Fuses (for power source 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.

Models FDC100VNX, 125VNX, 140VNX,100VN, 125VN, 140VN
FDC100VSX, 125VSX, 140VSX, 100VS, 125VS, 140VS

PCA012D043 C

1) Replace the PCB **after elapsing 3 minutes from power OFF**.
(**Be sure to measure voltage (DC)** on both capacitor terminals located in control back, and **check that the voltage is discharged sufficiently**.)
2) Disconnect the connectors from the control PCB.
3) Disconnect the white wiring passing through CT1 on the PCB before replacing the PCB.
4) Match the setting switches (SW3-5, JSW) with the former PCB.
5) Tighten up a screw after passing white wiring through CT1 of the changed.
6) Connect the connectors with the control PCB referring to the parts arrangement of Fig.1.
(Confirm the **connectors are not half inserted**.)

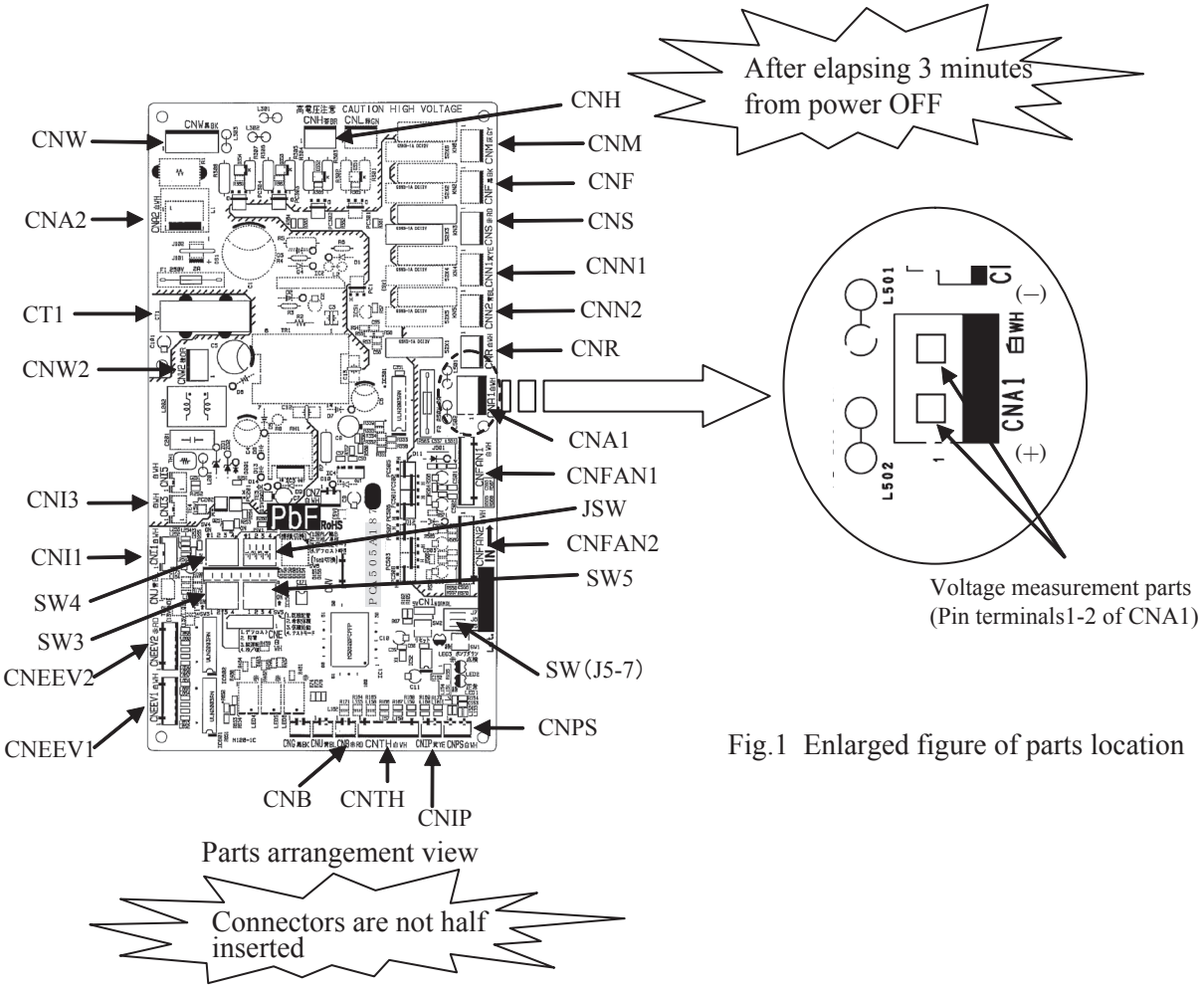


Fig.1 Enlarged figure of parts location

(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

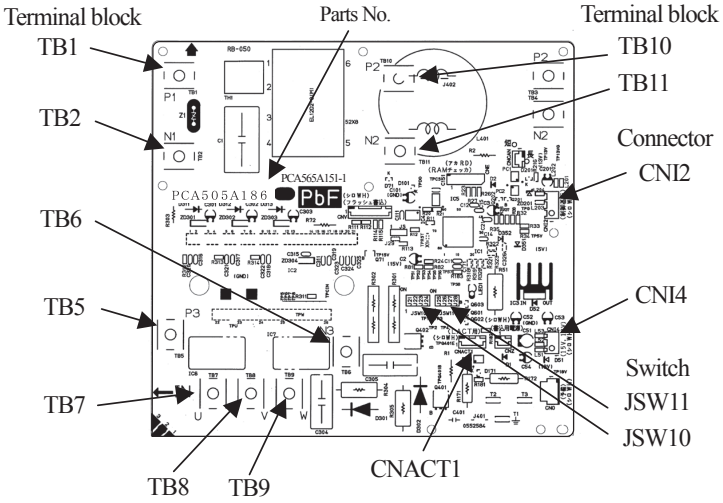
- Band the wiring so as not to tense because it will cause an electric shock.

Replace the inverter PCB according to the following procedure.

(i) Models FDC100VNX, 125VNX, 140VNX
100VN, 125VN, 140VN

PCA012D025D

1) Replace the PCB **after elapsing 3 minutes from power OFF**.
(**Be sure to measure voltage (DC)** on both capacitor terminals located in control back, and **check that the voltage is discharged sufficiently**.(Refer to Fig.1))
2) 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 control's radiation heat fins.
3) Match the setting switches (JSW10,11) of new PCB with the former PCB.
4) 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.
5) 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 slack. Power transistor can be damage if not properly tighten.(Recommended power transistor tightening torque:0.98-1.47N·m)



Parts arrangement view

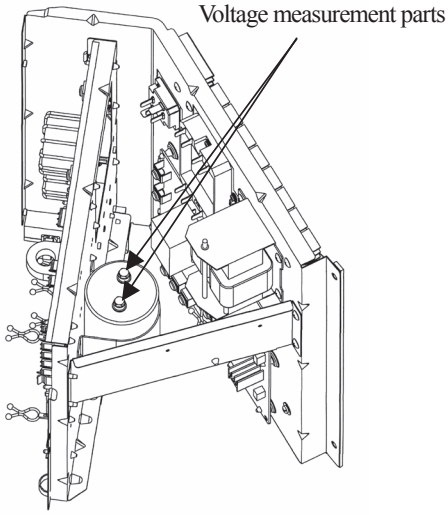


Fig.1 Position of capacitor

Table. 1 Switch setting

Models FDC100VNX, 125VNX, 140VNX

JSW10	-1	OFF	JSW11	-1	OFF
	-2	OFF		-2	OFF
	-3	OFF		-3	ON
	-4	OFF		-4	ON

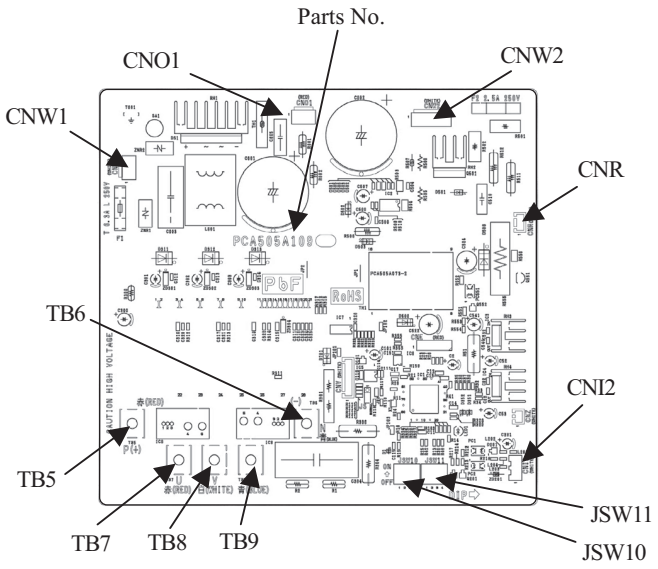
Models FDC100VN, 125VN, 140VN

JSW10	-1	OFF	JSW11	-1	ON
	-2	ON		-2	OFF
	-3	OFF		-3	OFF
	-4	OFF		-4	OFF

(ii) Models FDC100VSX, 125VSX, 140VSX
100VS, 125VS, 140VS

PCA012D025F

1) Replace the PCB **after elapsing 3 minutes from power OFF**.
(**Be sure to measure voltage (DC)** on both capacitor terminals located in control back, and **check that the voltage is discharged sufficiently**.(Refer to Fig.1))
2) 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 control's radiation heat fins.
3) Match the setting switches (JSW10,11) of new PCB with the former PCB.
4) 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.
5) 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 slack. Power transistor can be damage if not properly tighten.(Recommended power transistor tightening torque:0.98-1.47N·m)



Parts arrangement view

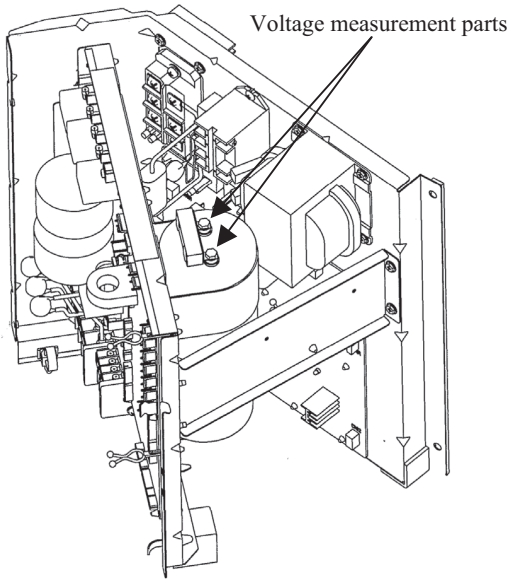


Fig.1 Position of capacitor

Table. 1 Switch setting

Models FDC100VSX, 125VSX, 140VSX

JSW10	-1	OFF	JSW11	-1	ON
	-2	OFF		-2	OFF
	-3	OFF		-3	ON
	-4	OFF		-4	ON

Models FDC100VS, 125VS, 140VS

JSW10	-1	OFF	JSW11	-1	OFF
	-2	ON		-2	OFF
	-3	OFF		-3	ON
	-4	OFF		-4	OFF

●DIP switch setting list (Outdoor unit)

Models FDC100, 125, 140VNX, 100, 125, 140VSX

(1) Control PCB

Models FDC100,125,140VNX,100,125,140VSX

Switches	Description		Default setting		Remarks
SW1	Pump down operation	Normal*/Pump down	OFF	Normal	
JSW1-1 JSW1-2 JSW1-3 JSW1-4	Model selection		As per model		See table 1
SW3-1	Defrost condition	Normal*/Cold region	OFF	Normal	
SW3-2	Snow protection control	Normal*/Snow protection	OFF	Normal	
SW3-3	Test run SW	Normal*/Test run	OFF	Normal	
SW3-4	Test run mode	Cooling*/Heating	OFF	Cooling	
SW4-1	Model selection	Domestic/Overseas*	ON	Overseas	See table 1
SW4-2	Model selection	3-phase/Single phase	As per model		See table 1
SW4-3	Reserved		OFF		Keep OFF
SW4-4	Reserved		ON		Keep ON
SW5-1	Reserved		OFF		Keep OFF
SW5-2	Reserved		OFF		Keep OFF
SW5-3	Reserved		OFF		Keep OFF
SW5-4	Reserved		OFF		Keep OFF

* Default setting

Table 1: Outdoor unit model selection with JSW1-1-JSW1-4 and SW4-1-SW4-2

Switches	FDC100VNX	FDC100VSX	FDC125VNX	FDC125VSX	FDC140VNX	FDC140VSX
JSW1-1	OFF	OFF	ON	ON	OFF	OFF
JSW1-2	OFF	OFF	OFF	OFF	ON	ON
JSW1-3	OFF	OFF	OFF	OFF	OFF	OFF
JSW1-4	OFF	OFF	OFF	OFF	OFF	OFF
SW4-1	ON	ON	ON	ON	ON	ON
SW4-2*	ON	OFF	ON	OFF	ON	OFF

* 3-phase: OFF/Single phase: ON

(2) Inverter PCB

Switches	FDC100, 125, 140VNX	FDC100, 125, 140VSX
	Single phase models	3-phase models
JSW10-1	OFF	OFF
JSW10-2	OFF	OFF
JSW10-3	OFF	OFF
JSW10-4	OFF ∗	OFF ∗
JSW11-1	OFF	ON
JSW11-2	OFF	OFF
JSW11-3	ON	ON
JSW11-4	ON	ON

∗ When checking inverter PCB of FDC100－140 models with inverter checker, turn JSW10-4 ON.
(Regarding the checking method of inverter PCB with inverter checker, refer to page 103 for details)

Models FDC100, 125, 140VN, 100, 125, 140VS

(1) Control PCB

Switches	Description		Default setting		Remarks
SW1	Pump down operation	Normal*/Pump down	OFF	Normal	
JSW1-1 JSW1-2 JSW1-3 JSW1-4	Model selection		As per model		See table 1
SW3-1	Defrost condition	Normal*/Cold region	OFF	Normal	
SW3-2	Snow protection control	Normal*/Snow protection	OFF	Normal	
SW3-3	Test run SW	Normal*/Test run	OFF	Normal	
SW3-4	Test run mode	Cooling*/Heating	OFF	Cooling	
SW4-1	Model selection	Domestic/Overseas*	ON	Overseas	See table 1
SW4-2	Model selection	3-phase/Single phase	As per model		See table 1
SW4-3	Reserved		OFF		Keep OFF
SW4-4	Reserved		OFF		Keep OFF
SW5-1	Reserved		OFF		Keep OFF
SW5-2	Reserved		OFF		Keep OFF
SW5-3	Reserved		OFF		Keep OFF
SW5-4	Reserved		OFF		Keep OFF

* Default setting

Table 1: Outdoor unit model selection with JSW1-1-JSW1-4 and SW4-1-SW4-2

Switches	FDC100VN	FDC100VS	FDC125VN	FDC125VS	FDC140VN	FDC140VS
JSW1-1	OFF	OFF	ON	ON	OFF	OFF
JSW1-2	OFF	OFF	OFF	OFF	ON	ON
JSW1-3	OFF	OFF	OFF	OFF	OFF	OFF
JSW1-4	OFF	OFF	OFF	OFF	OFF	OFF
SW4-1	ON	ON	ON	ON	ON	ON
SW4-2*	ON	OFF	ON	OFF	ON	OFF

* 3-phase: OFF/Single phase: ON

(2) Inverter PCB

Switches	FDC100, 125, 140VN	FDC100, 125, 140VS
	Single phase models	3-phase models
JSW10-1	OFF	OFF
JSW10-2	ON	ON
JSW10-3	OFF	OFF
JSW10-4	OFF ✻	OFF ✻
JSW11-1	ON	OFF
JSW11-2	OFF	OFF
JSW11-3	OFF	ON
JSW11-4	OFF	OFF

✻ When checking inverter PCB of FDC100-140 models with inverter checker, turn JSW10-4 ON.
(Regarding the checking method of inverter PCB with inverter checker, refer to page 103 for details)

(5) Check of anomalous operation data with the remote control

(a) In case of RC-EX3 remote control

[Operating procedure]

① On the TOP screen, touch the buttons in the order of "Menu" → "Service setting" → "Service & Maintenance" → "Service password" → "Set" → "Error display" → "Error history".

② When only one indoor unit is connected to the remote control, followings will be displayed.

1. When there is any anomaly: "Loading. Wait a while" is displayed, followed by the operation data at the occurrence of anomaly

Contents of display

- Error code
- Number and data item

2. When there is no anomaly: "No anomaly" is displayed, and this mode is terminated.

③ When two or more indoor units are connected to the remote control, followings will be displayed.

1. When there is any anomaly: If the unit having anomaly is selected on the "Select IU" screen, "Loading. Wait a while" is displayed, followed by the operation data at the occurrence of anomaly.

Contents of display

- Indoor unit No.
- Error code
- Number and data item

2. When there is no anomaly: "No anomaly" is displayed, ant this mode is terminated.

Note (1) When the number of connected units cannot be shown in a page, select "Next".

④ If you press [RUN/STOP] button, the display returns to the TOP screen.

◎ **If you touch "Back" button on the way of setting, the display returns to the last precious screen.**

Note (1) When two remote controls are used to control indoor units, the check of anomaly operation data can be made on the master remote control only. (It cannot be operated from the slave remote control.)

■ Anomaly operation data (Corresponding data may not be provided depending on models. Such items will not be displayed.)

Number		Data Item
01	❋	(Operation Mode)
02	SET TEMP ___℃	(Set Temperature)
03	RETURN AIR__℃	(Return Air Temperature)
04	🖃SENSOR___℃	(Remote Control Thermistor Tempeature)
05	THI-R1__℃	(Indoor Heat Exchanger Thermistor / U Bend)
06	THI-R2__℃	(Indoor Heat Exchanger Thermistor /Capillary)
07	THI-R3__℃	(Indoor 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)
13	SUPPLY AIR__℃	(Supply Air Temperature)
21	OUTDOOR___℃	(Outdoor Air Temperature)
22	THO-R1___℃	(Outdoor Heat Exchanger Thermistor)
23	THO-R2___℃	(Outdoor 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)

●Details of Compressor protection status No. 33
Models FDC100, 125, 140VNX, 100,125,140VSX

No.	Contents of display	Reference page
"0"	Normal	
"1"	Discharge pipe temperature protection control	P.78, (6).(a).(i)
"2"	Discharge pipe temperature anomaly	P.78, (6).(a).(ii)
"3"	Current safe control of inverter primary current	P.80, (6).(g)
"4"	High pressure protection control	P.78, (6).(b).(i), P.79, (6).(c).(i)
"5"	High pressure anomaly	P.78, (6).(b).(ii)
"6"	Low pressure protection control	P.79, (6).(e).(i)
"7"	Low pressure anomaly	P.79, (6).(e).(ii)
"8"	Anti-frost prevention control	P.80, (6).(k)
"9"	Current cut	P.80, (6).(g)
"10"	Power transistor protection control	P.80, (6).(h)
"11"	Power transistor anomaly (Overheat)	P.80, (6).(i)
"12"	Compression ratio control	P.79, (6).(f)
"13"	Spare	
"14"	Dewing prevention control	P.81, (6).(l)
"15"	Current safe control of inverter secondary current	P.80, (6).(g)
"16"	Stop by compressor rotor lock	
"17"	Stop by compressor startup failure	P.81, (6).(p)
"18"	Active filter anomaly	

Note(1) Operation data display on the remote control.
- Data is dispalyed until canceling the protection control.
- In case of multiple protections controlled, only the younger No. is displayed.

Note(2) Common item.
① In heating mode.
During protection control by the command signal for reducing compressor frequency from indoor unit, No. "4" is displayed.
② In cooling and dehumidifying mode.
During protection control by the command signal for reducing compressor frequency from indoor unit, No. "8" is displayed.

#

Models FDC100, 125, 140VN, 100, 125, 140VS

No.	Contents of display	Reference Page
"0"	Normal	
"1"	Discharge pipe temperature protection control	P.78, (6).(a).(i)
"2"	Discharge pipe temperature anomaly	P.78, (6).(a).(ii)
"3"	Current safe control of inverter primary current	P.80, (6).(g)
"4"	High pressure protection control	P.78, (6).(b).(i), P.79, (c).(i)
"5"	High pressure anomaly	P.78, (6).(b).(ii)
"6"	Low pressure protection control	P.79, (6).(e).(i)
"7"	Low pressure anomaly	P.79, (6).(e).(ii)
"8"	Anti-frost prevention control	P.80, (6).(k)
"9"	Current cut	P.80, (6).(g)
"10"	Power transistor protection control	P.80, (6).(h)
"11"	Power transistor anomaly (Overheat)	P.80, (6).(i)
"12"	Compression ratio control	P.79, (6).(f)
"13"	Spare	
"14"	Dewing prevention control	P.81, (6).(l)
"15"	Current safe control of inverter secondary current	P.80, (6).(g)
"16"	Stop by compressor rotor lock	
"17"	Stop by compressor startup failure	P.81, (6).(p)
"18"	Active filter anomaly	

Note(1) Operation data display on the remote control.
- Data is dispalyed until canceling the protection control.
- In case of multiple protections controlled, only the younger No. is displayed.

Note(2) Common item.
① In heating mode.
During protection control by the command signal for reducing compressor frequency from indoor unit, No. "4" is displayed.
② In cooling and dehumidifying mode.
During protection control by the command signal for reducing compressor frequency from indoor unit, No. "8" is displayed.

(b) In case of RC-E5 remote control

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 control, " 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 Control Thermistor Tempeature)
05	THI-R1___℃	(Indoor Heat Exchanger Thermistor / U Bend)
06	THI-R2___℃	(Indoor Heat Exchanger Thermistor /Capillary)
07	THI-R3___℃	(Indoor 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 Heat Exchanger Thermistor)
23	THO-R2___℃	(Outdoor 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.

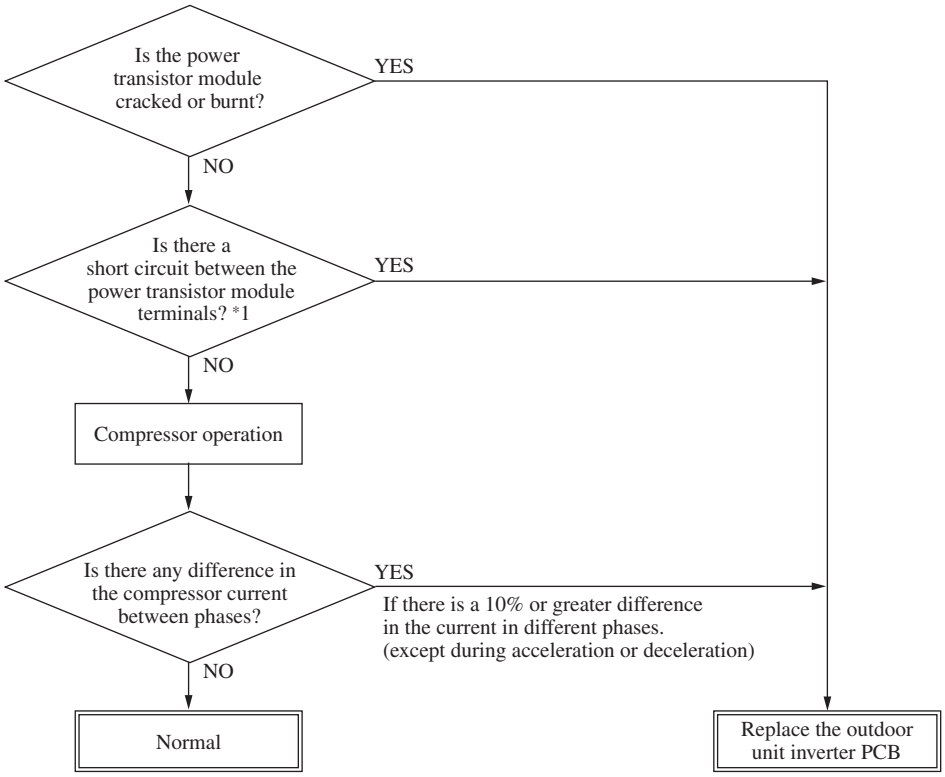
⊙If two (2) remote controls are connected to one (1) inside unit, only the master control is available for trial operation and confirmation of operation data. (The slave remote control is not available.)

●Details of Compressor protection status No. 33

Refer to page 100 and 101.

#

(6) Power transistor module (including the driver PCB) inspection procedure



*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 control incorporated.

Models FDC100-140VNX, 100-140VSX
100-140VN, 100-140VS

Tester		Normal values (Ω)
Terminal (+)	Terminal (-)	Model FDC100-140
P	N	Approx. 1 M
N	P	Approx. 300-400
P	U	0
P	V	
P	W	
N	U	Approx. 1.2 M
N	V	
N	W	
U	P	Approx. 1.3 M
V	P	
W	P	
U	N	0
V	N	
W	N	

If the measured values range from 0 - several kW, there is a possibility that the elements are damaged, so replace the power transistor parts.

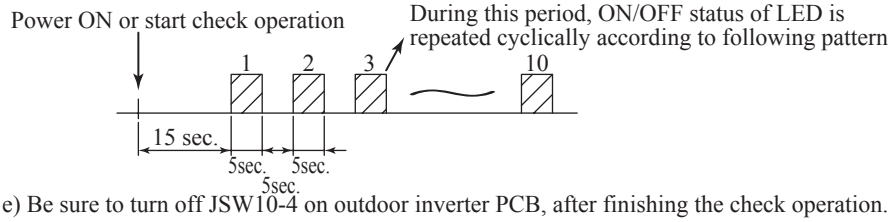
(7) Inverter checker for diagnosis of inverter output
Models FDC100, 125, 140VNX,100, 125, 140VSX
FDC100, 125, 140VN, 100, 125, 140VS

●Checking method

Model: FDC100-140

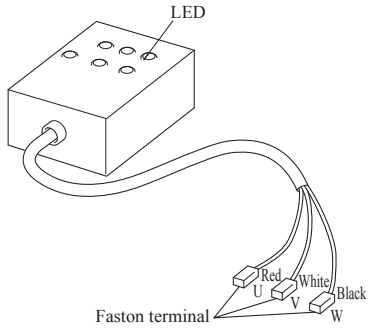
1) Setup procedure of checker.
   a) Power OFF (Turn off the breaker).
   b) Remove the terminal cover of compressor and disconnect the wires (U, V, W) from compressor.
   c) Connect the wires U (Red) , V (White) and W (Black) of checker to the terminal of disconnected wires (U, V, W) from compressor respectively.
2) Operation for judgment.
   a) Power ON after JSW10-4 on outdoor inverter PCB was turned ON.
   b) After 15 seconds since power has turned ON, LED start ON/OFF for 5 seconds cyclically and it repeats 10 times.
   c) Check ON/OFF status of 6 LED's on the checker.
   d) Judge the PCB by ON/OFF status of 6 LED's on the checker.

ON/OFF status of LED	If all of LED are ON/OFF according to following pattern	If all of LED stay OFF or some of LED are ON/OFF
Inverter PCB	Normal	Anomalous



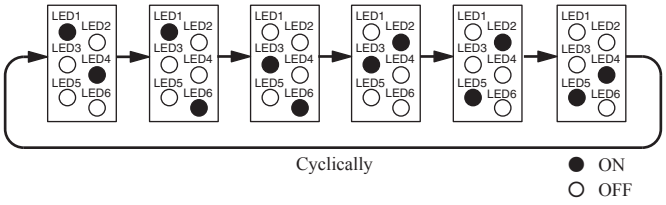
   e) Be sure to turn off JSW10-4 on outdoor inverter PCB, after finishing the check operation.

〈**Inverter checker**〉

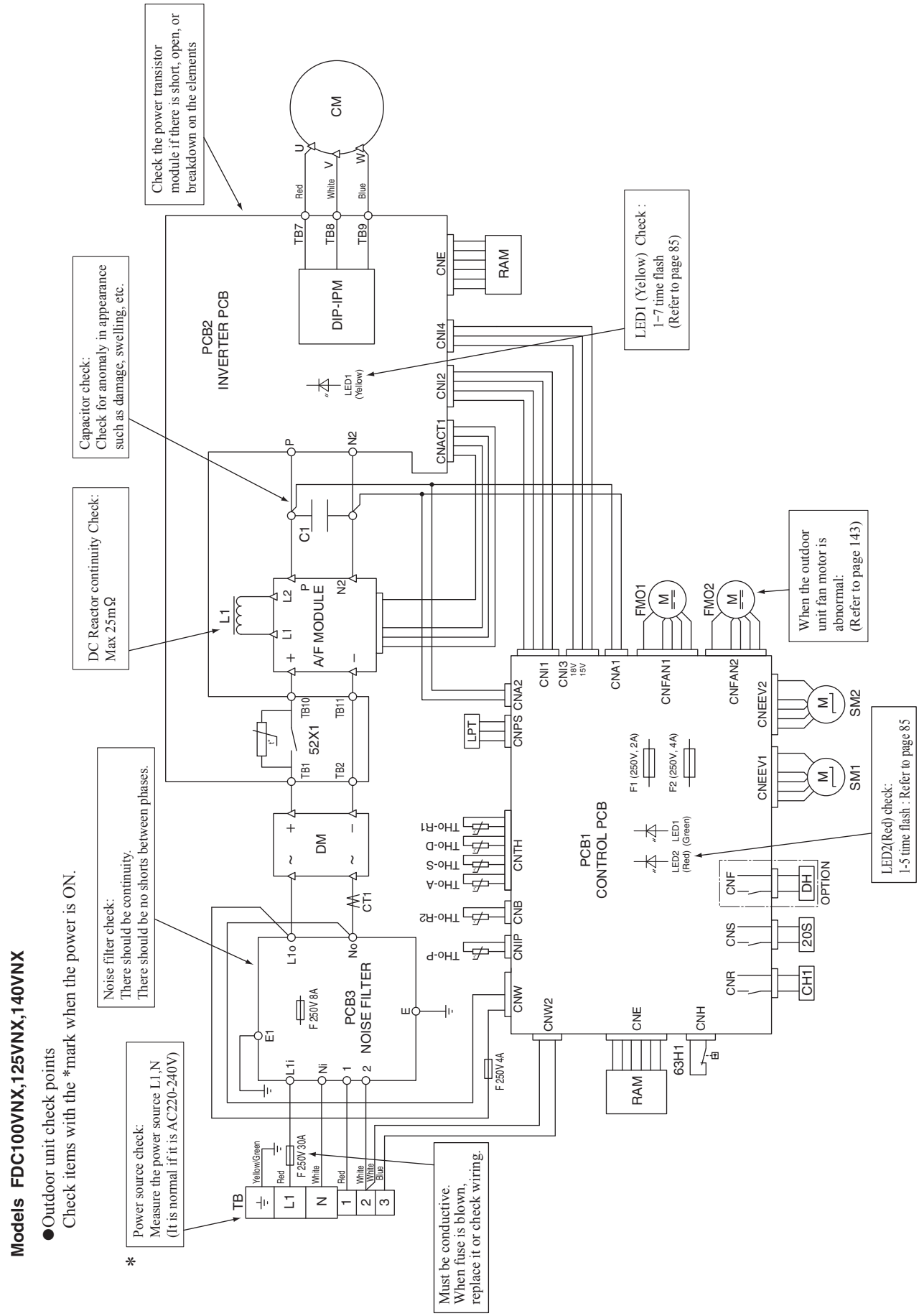


Connect to the terminal of the wires which are disconnected from compressor.

LED ON/OFF pattern

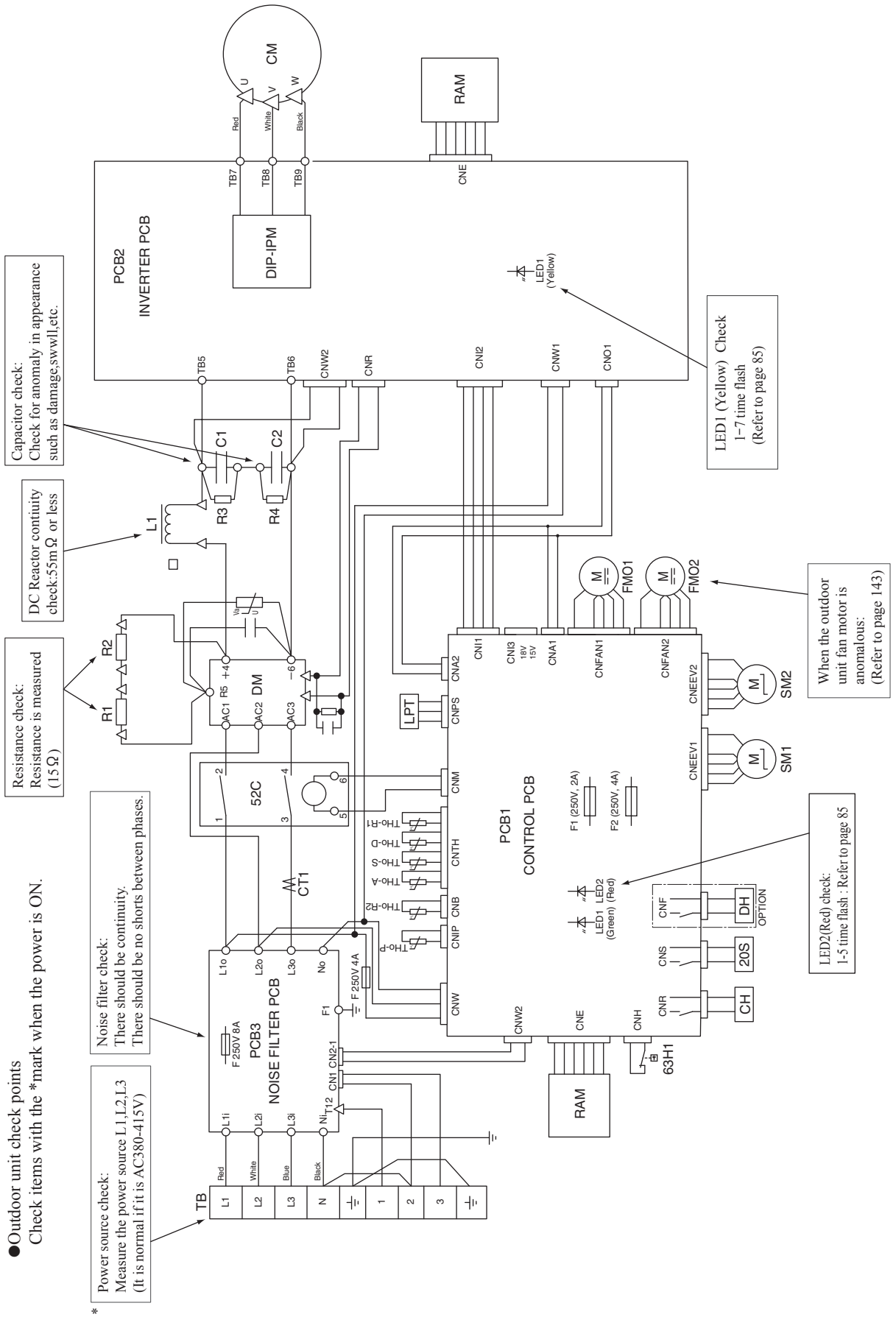


(8) Outdoor unit control failure diagnosis circuit diagram



Models FDC100VSX,125VSX,140VSX

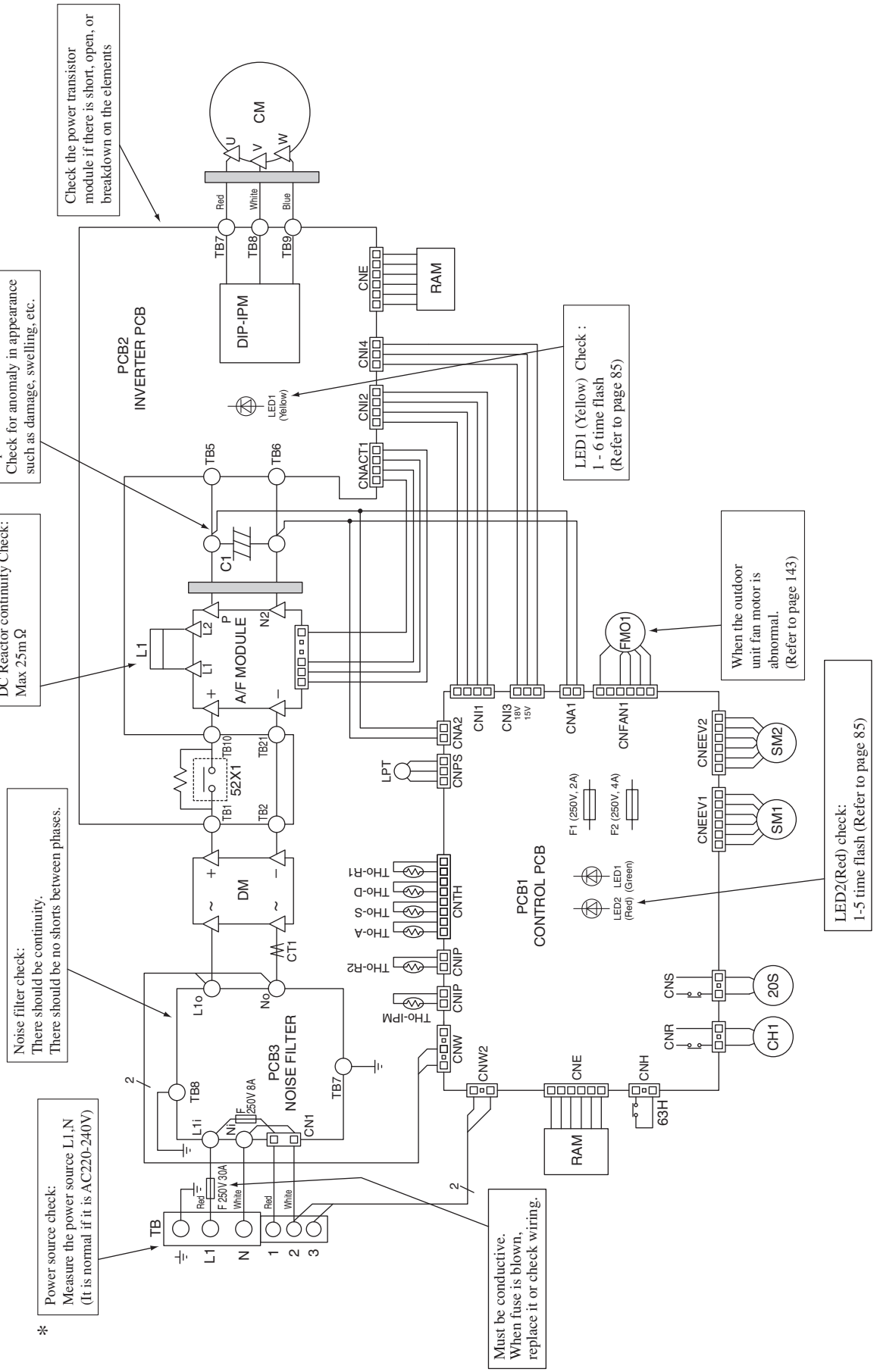
●Outdoor unit check points
Check items with the *mark when the power is ON.



Models FDC100VN,125VN,140VN

●Outdoor unit check points

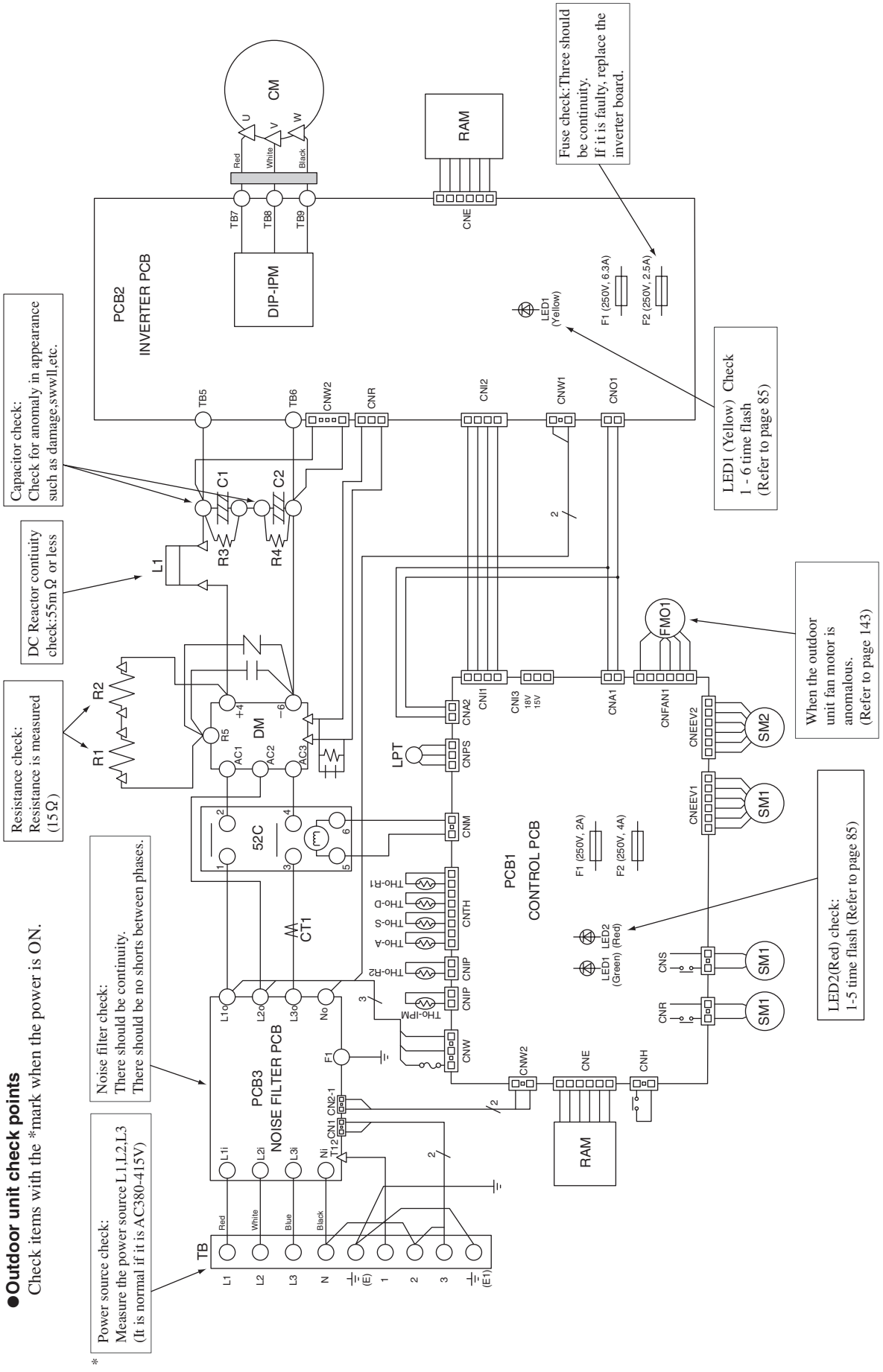
Check items with the *mark when the power is ON.



Models FDC100VS,125VS,140VS

●Outdoor unit check points

Check items with the *mark when the power is ON.



1.10.2 Troubleshooting flow

(1) List of troubles

Remote control display	Description of trouble	Reference page
None	Operates but does not cool.	109
None	Operates but does not heat.	110
None	Earth leakage breaker activated	111
None	Excessive noise/vibration (1/3)	112
None	Excessive noise/vibration (2/3)	113
None	Excessive noise/vibration (3/3)	114
None	Louver motor failure	115
None	Power source system error (Power source to indoor control PCB)	116
None	Power source system error (Power source to remote control)	117
None	Limit switch anomaly	118
INSPECT I/U	INSPECT I/U (When 1 or 2 remote controls are connected)	119
INSPECT I/U	INSPECT I/U (Connection of 3 units or more remote controls)	120
✋WAIT✋	Communication error at initial operation	121‑123
None	No display	124
E1	Remote control communication circuit error	125
E5	Communication error during operation	126
E6	Indoor heat exchanger temperature sensor anomaly	127
None	Room temperature sensor anomaly	128
E10	Excessive number of connected indoor units (more than 17 units) by controlling with one remote control	129
E14	Communication error between master and slave indoor units	130
E16	Indoor fan motor anomaly	131
E28	Remote control temperature thermistor anomaly	132
E35	Cooling overload operation	133
E36	Discharge pipe temperature error	134
E37	Outdoor heat exchanger temperature thermistor anomaly	135
E38	Outdoor air temperature thermistor anomaly	136
E39	Discharge pipe temperature thermistor anomaly	137
E40	High pressure error (63H1 activated)	138
E41	Power transistor overheat	139
E42	Current cut	140 · 141
E45	Communication error between inverter PCB and outdoor control PCB	142
E48	Outdoor fan motor anomaly	143
E49	Low pressure error or low pressure sensor anomaly	144 · 145
E51	Inverter and fan motor anomaly	146
E53	Suction pipe temperature thermistor anomaly	147
E54	Low pressure sensor anomaly	148
E57	Insufficient refrigerant amount or detection of service valve closure	149
E59	Compressor startup failure	150 · 151

(2) Trouble shooting

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	Operates but does not cool
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	Stays OFF	

1. Applicable model

All models

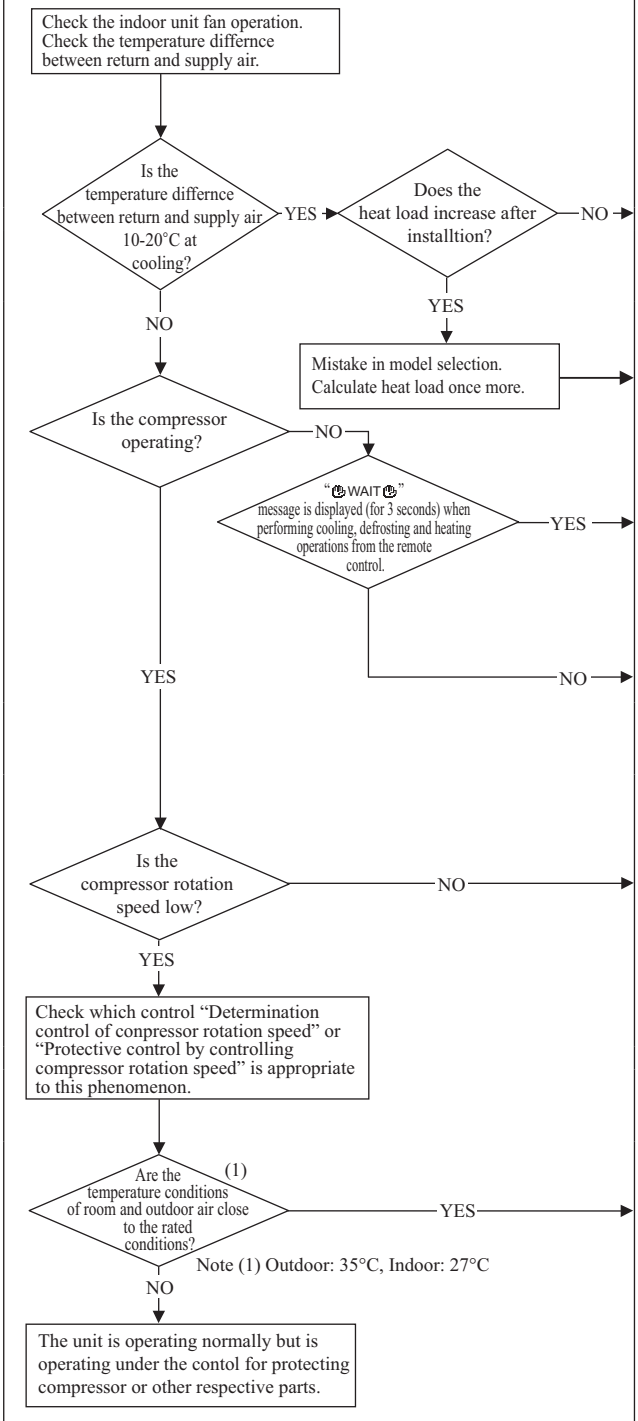
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Poor compression of compressor
- Faulty expansion valve operation

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	Operates but does not heat
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	Stays OFF	

1. Applicable model

All models

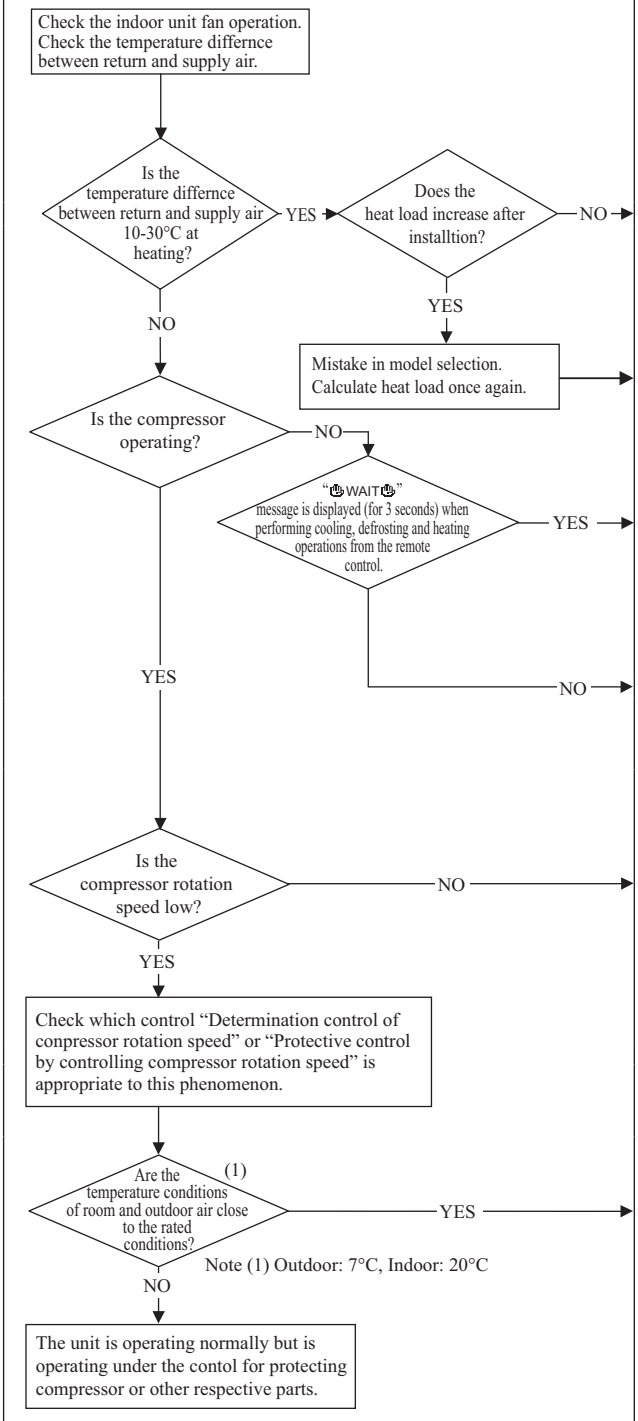
2. Error detection method

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	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	Earth leakage breaker activated
	Outdoor unit control PCB	Green LED	Red LED	
		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	Countermeasure
Are OK the insulation resistance and coil resistance of compressor? — NO	Replace compressor.*
Is insulation of respective harnesses OK? Is any harness bitten between pannel and casing or etc? — NO	Secure insulation resistance.

YES

YES

Check the outdoor unit grounding wire/earth leakage breaker.

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 source, 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.

Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	Excessive noise/vibration (1/3)
	Outdoor unit control PCB	Green LED	Red LED	
		–	–	

1. Applicable model

All models

2. Error detection method

3. Condition of error displayed

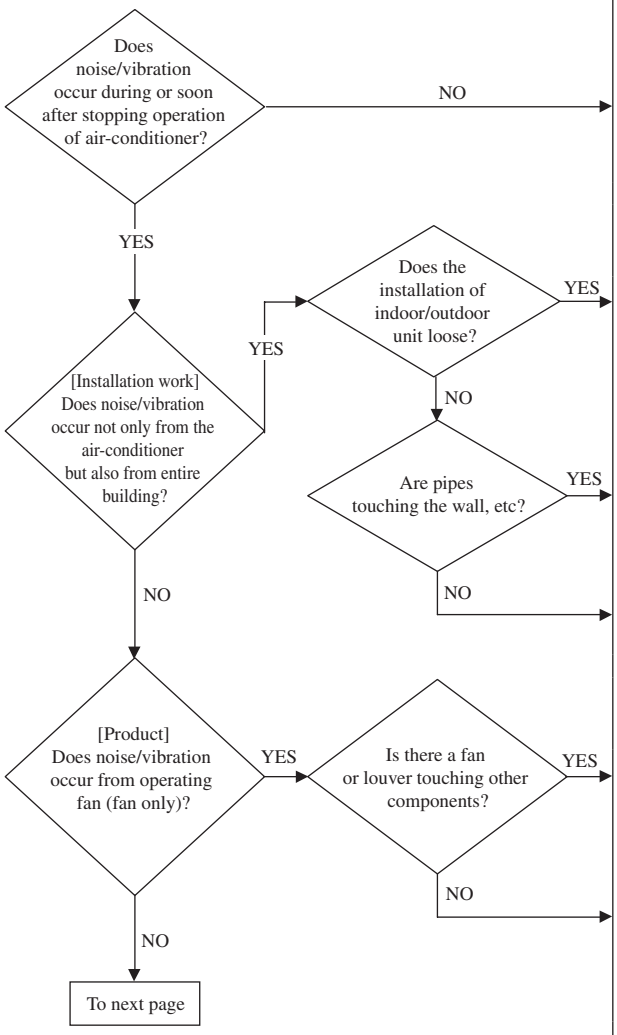
4. Presumable cause

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	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	Excessive noise/vibration (2/3)
	Outdoor unit control PCB	Green LED	Red LED	
		–	–	

1. Applicable model

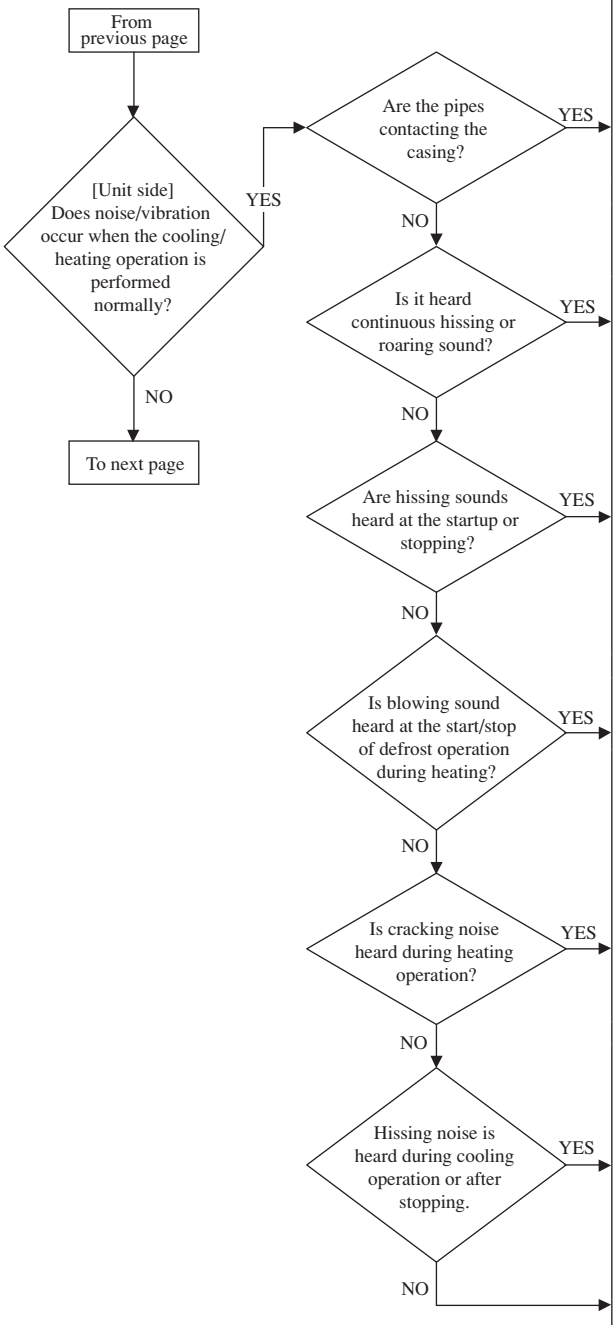
All models

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 defrost operation 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 defrost operation during heating? YES	When the defrost operation 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 defrost operation, 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	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	Excessive noise/vibration (3/3)
	Outdoor unit control PCB	Green LED	Red LED	
		–	–	

1.Applicable model

All models

2.Error detection method

3. Condition of error displayed

4.Presumable cause

5.Troubleshooting

Diagnosis	Countermeasure
From previous page ↓ Adjustment during commissioning Does noise/vibration occur when the cooling/heating operation is in anomalous condition? YES →	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 control such as compressor rotation speed, heat exchanger temperature, EEV opening degree, etc. • Tone (If available, record the noise) • Any other anomalies

Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	Louver motor failure
	Outdoor unit control PCB	Green LED	Red LED	
		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
- Faulty indoor unit control PCB

5.Troubleshooting

Diagnosis	Countermeasure
▲ Check at the indoor unit side.	
Operate after waiting for more than 1 minute.	
Does the louver operate at the power on? NO → Is LM wiring broken? YES	Repair wiring.
Is LM wiring broken? NO → Is LM locked? NO	Defective indoor unit control PCB → Replace.
Is LM locked? YES	Replace LM.
Does the louver operate at the power on? YES → Is the louver operable with the remote control? YES	Normal
Is the louver operable with the remote control? NO	Adjust LM lever and then check again.

LM: louver motor

Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	Power source system error (Power source to indoor unit control PCB)
	Outdoor unit control PCB	Green LED	Red LED	
		Stays OFF	2-time 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 indoor unit control PCB
- Broken harness
- Faulty outdoor unit control PCB (Noise filter)

5. Troubleshooting

Diagnosis	Countermeasure
Is AC220/240V detected between 1 and 2 on the terminal block of indoor unit? → NO → Is AC380/415V for 3-phase unit detected between 1, 2 and 3 on the teminal block of outdoor unit or is AC220/240V for 1-phase unit detected between 1 and 2 on the terminal block of outdoor unit? → NO	Defective outdoor unit control PCB (Noise filter)
Is AC220/240V detected between 1 and 2 on the terminal block of indoor unit? → NO → Is AC380/415V for 3-phase unit detected between 1, 2 and 3 on the teminal block of outdoor unit or is AC220/240V for 1-phase unit detected between 1 and 2 on the terminal block of outdoor unit? → YES	Misconnection or breakage of connecting wires
Is AC220/240V detected between 1 and 2 on the terminal block of indoor unit? → YES → Are fuse OK (250V 3.15A)? → NO	Replace fuse.
Is AC220/240V detected between 1 and 2 on the terminal block of indoor unit? → YES → Are fuse OK (250V 3.15A)? → YES	Defective indoor unit control PCB → Replace.

Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	Power source system error (Power source to remote control)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	Stays OFF	

1. Applicable model

All models

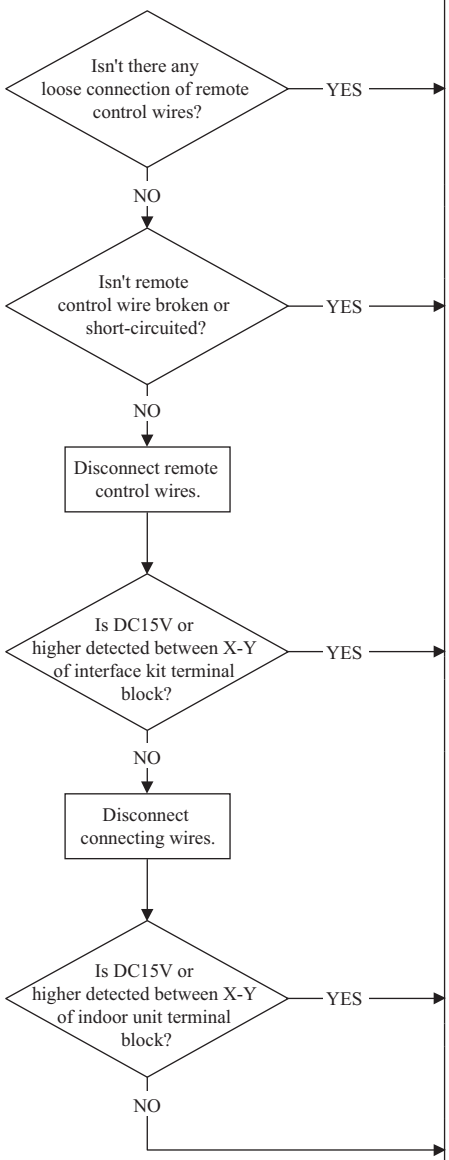
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Remote control wire breakage/short-circuit
- Defective remote control
- Malfunction by noise
- Broken harness
- Faulty indoor unit control PCB
- Faulty interface kit

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: None		Stays OFF	Keeps flashing	Limit switch anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	Stays OFF	

1. Applicable model

All models

2. Error detection method

The limit switch operates when the indoor unit is stopped.

3. Condition of error displayed

Same as above

4. Presumable cause

- Defective limit switch
- Faulty indoor unit control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the inlet panel set correctly? — NO	Correction, re-set
YES → Are limit switch OK? (1) — NO	Defective limit switch → Replace.
YES	Defective indoor unit control PCB → Replace. (Defective limit switch input circuit)

Note (1) Check the operation of limit switch by checking if the error can be rest or not by pushing the limit switch by finger when the inlet panel is removed.

Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: INSPECT I/U		–	–	INSPECT I/U (When 1 or 2 remote controls are connected)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	2-time flash	

1. Applicable model

All models

2. Error detection method

Communication between indoor unit and remote control is disabled for more than 30 minutes after the power on.

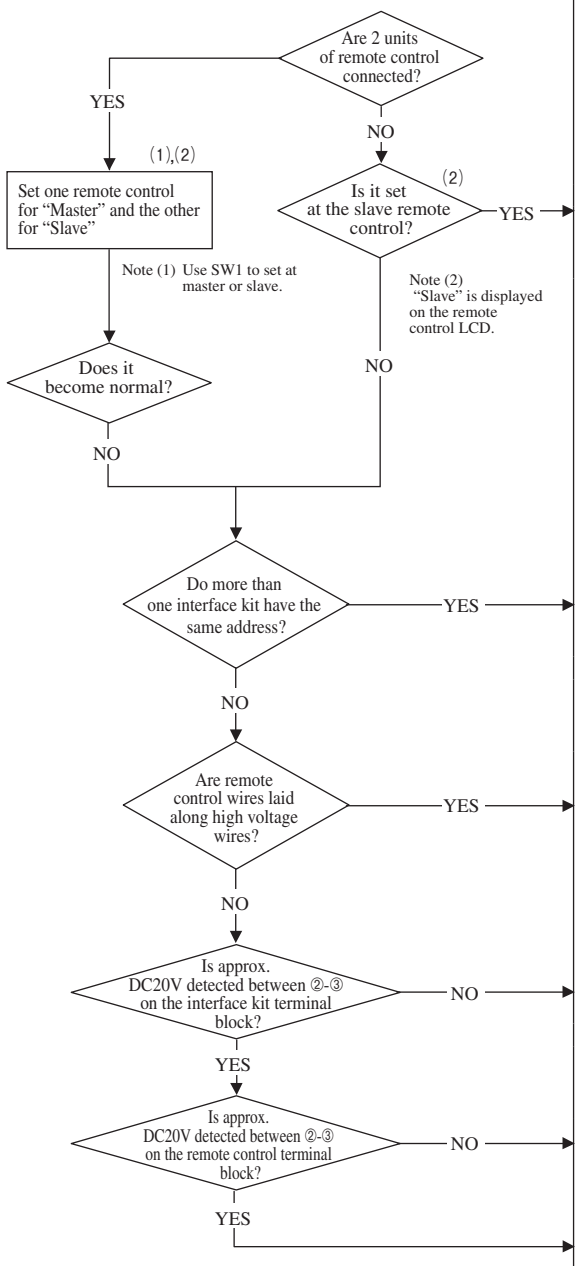
3. Condition of error displayed

Same as above

4. Presumable cause

- Improper setting
- Surrounding environment
- Defective remote control communication circuit
- Faulty interface kit PCB

5. Troubleshooting



Note: If any error is detected 30 minutes after displaying "WAIT" on the remote control, the display changes to "INSPECT I/U".

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: INSPECT I/U		–	–	INSPECT I/U (Connection of 3 units or more remote control)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	2-time 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 control.

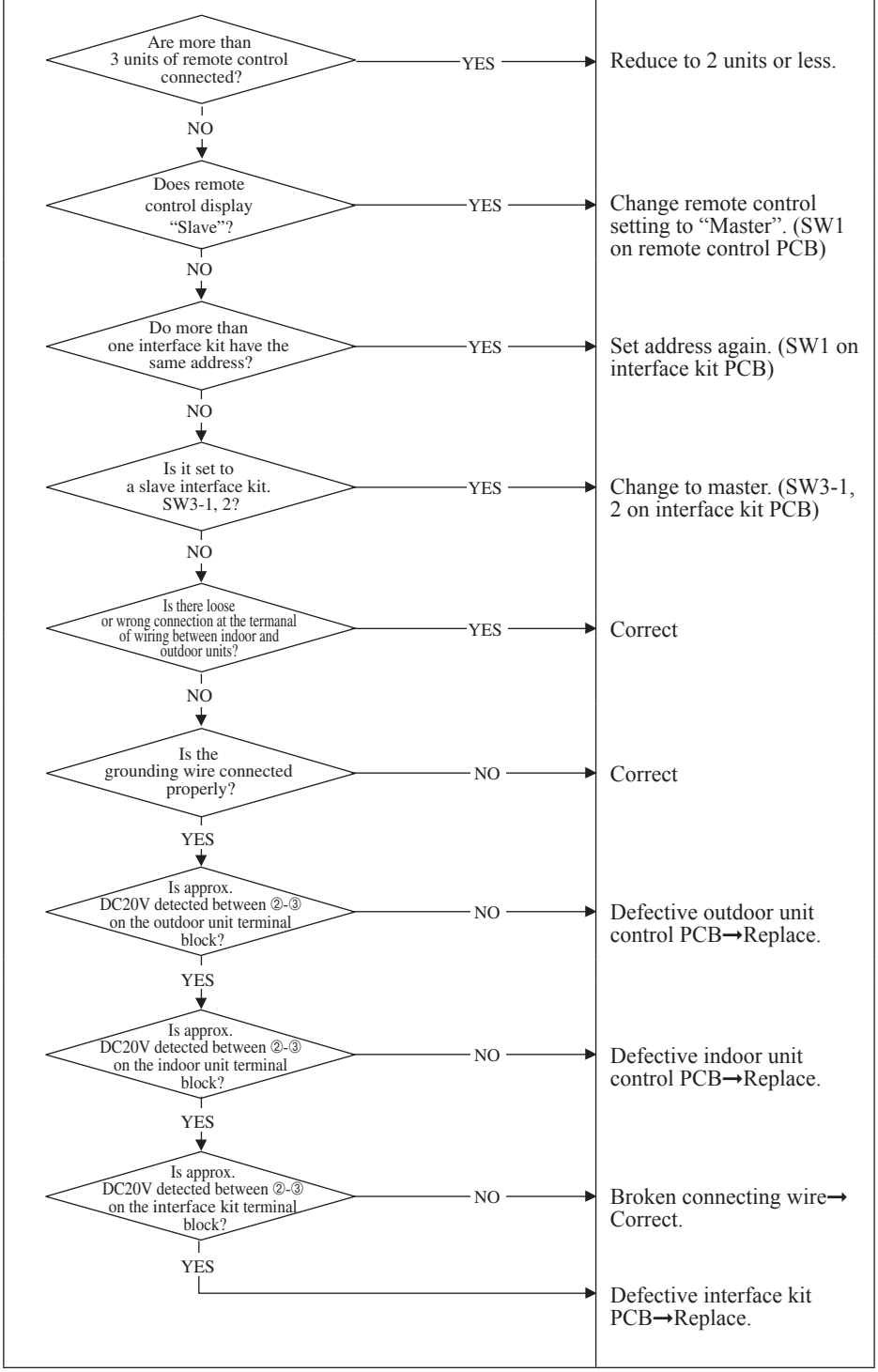
3. Condition of error displayed

Same as above

4. Presumable cause

- Improper setting
- Surrounding environment
- Defective remote control communication circuit
- Faulty indoor unit control PCB
- Faulty outdoor unit control PCB
- Faulty interface kit PCB

5. Troubleshooting



Note: If any error is detected 30 minutes after displaying "WAIT" on the remote control, the display changes to "INSPECT I/U".

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: WAIT		–	–	Communication error at initial operation (1/3)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	2-time flash	

1. Applicable model

All models

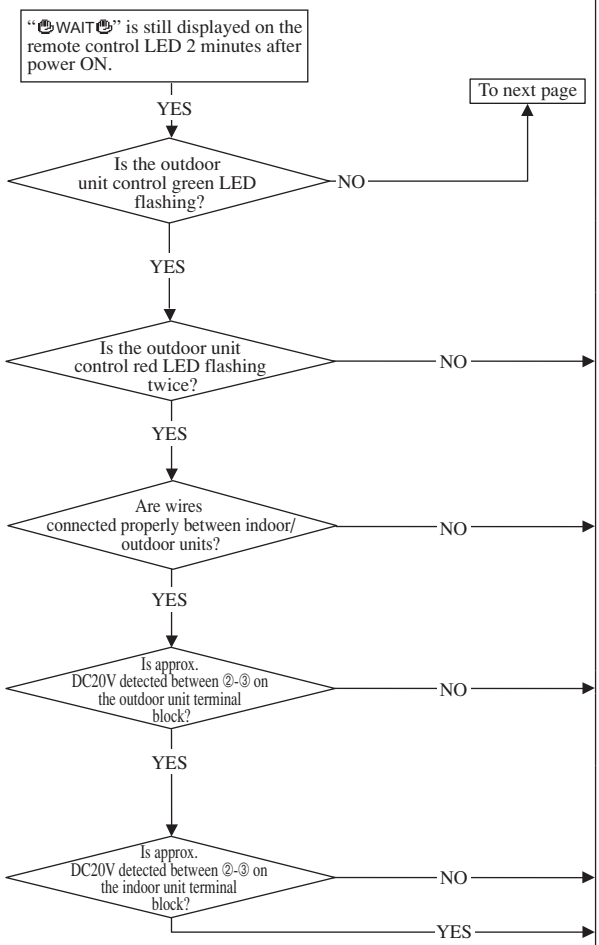
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Faulty indoor unit control PCB
- Defective remote control
- Broken remote control wire
- Faulty outdoor unit control PCB
- Broken connection wires

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: WAIT		–	–	Communication error at initial operation (2/3)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	2-time flash	

1. Applicable model

All models

2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Faulty noise filter
- Faulty indoor unit control PCB
- Faulty outdoor unit control PCB
- Faulty inverter PCB
- Faulty fan motor

5. Troubleshooting

Diagnosis	Countermeasure
Diagnosis for when the outdoor unit control PCB LED is turned off	
From previous page → Shut down the breaker and back on again the breaker 3 minutes later.	
Does it reset normally? NO	
Does it reset normally? YES	Normal (Malfunction by noise)
(1) Isn't the outdoor unit control power source fuse (30A) blown? NO (Note (1) 1-phase model only)	
To check method for inverter PCB before replacment of blown power source fuse. → To next page	
Isn't the outdoor unit control power source fuse (30A) blown? YES	
Is AC220/240V or AC380/415V detected at the noise filter secondary side? NO	Replace noise filter.
Is AC220/240V or AC380/415V detected at the noise filter secondary side? YES	
Is DC255-310V detected at CNA2? NO	Check connection of diode stack and electrolytic capacitor by refering main electrical circuit diagram
Is DC255-310V detected at CNA2? YES	
Isn't fuse〔250V, 2A〕on the outdoor unit control PCB blown? NO	Defective outdoor unit control PCB→Replace.
Isn't fuse〔250V, 2A〕on the outdoor unit control PCB blown? YES	
Is DC5V detected on the outdoor unit control PCB (Between ①-④ of CNV)? NO	Defective outdoor unit control PCB→Replace.
Is DC5V detected on the outdoor unit control PCB (Between ①-④ of CNV)? YES	
Is DC5V detected if the connector of outdoor unit fan motor is disconnected? NO	Defective outdoor unit fan motor
Is DC5V detected if the connector of outdoor unit fan motor is disconnected? YES	
Is DC5V detected if the inverter power source connector (CNI2) is disconnected? NO	Defective inverter PCB →Replace.
Is DC5V detected if the inverter power source connector (CNI2) is disconnected? YES	Defective outdoor unit control PCB→Replace.

Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: WAIT		–	–	Communication error at initial operation (3/3)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	2-time flash	

1. Applicable model

All models

2. Error detection method

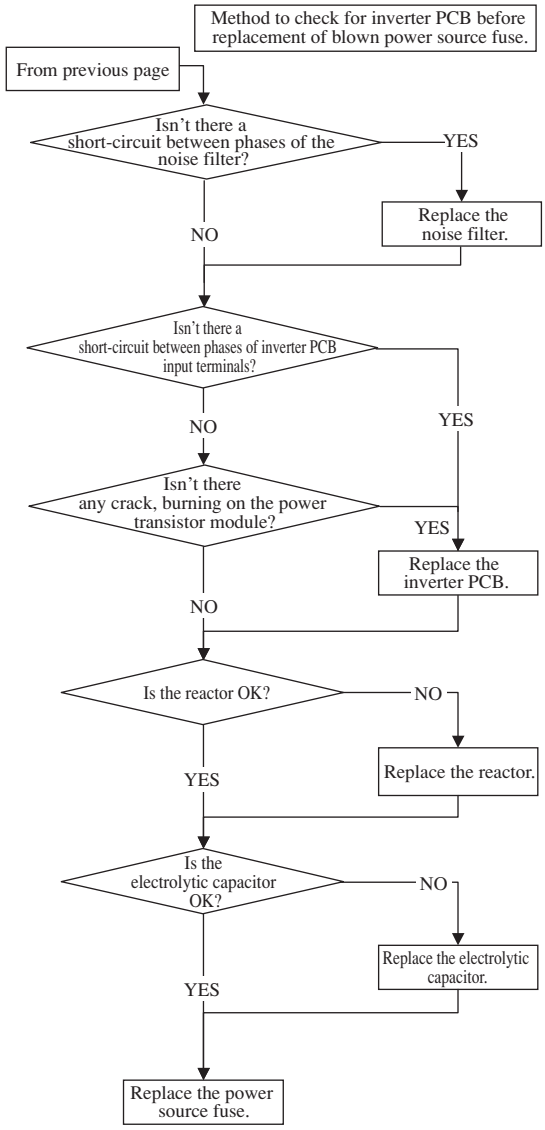
3. Condition of error displayed

4. Presumable cause

- Blown fuse
- Faulty noise filter
- Faulty inverter PCB
- Faulty reactor
- Faulty electrolytic capacitor

5. Troubleshooting

Diagnosis



Countermeasure

Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: None		–	–	No display
	Outdoor unit control PCB	Green LED	Red LED	
		Stays OFF	Stays OFF	

1. Applicable model

All models

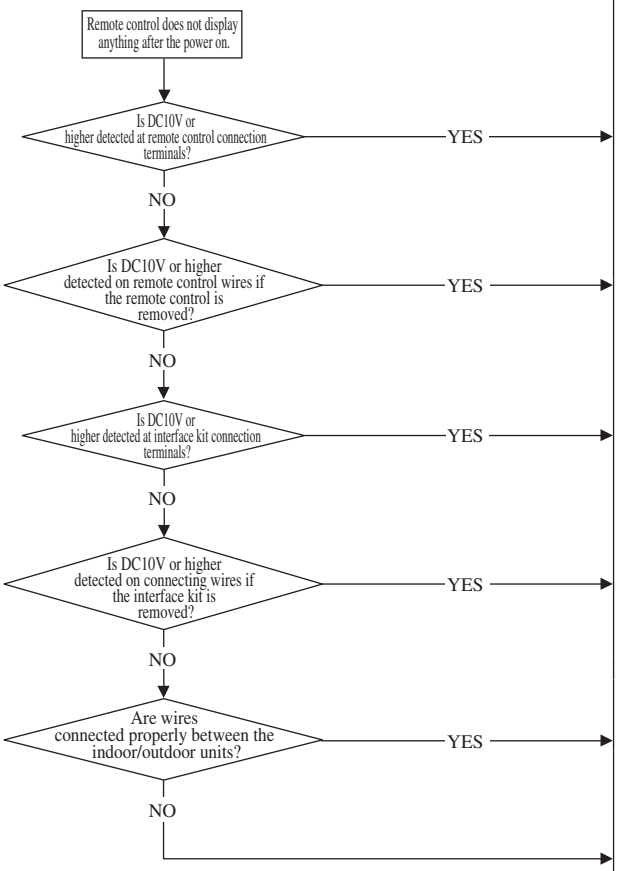
2. Error detection method

3. Condition of error displayed

4. Presumable cause

- Faulty indoor unit control PCB
- Defective remote control
- Broken remote control wire
- Defective interface kit

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E1		–	–	Remote control communication circuit error
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	Stays OFF	

1. Applicable model

All models

2. Error detection method

When normal communication between the remote control and the indoor unit is interrupted for more than 2 minutes. (Detectable only with the remote control)

3. Condition of error displayed

Same as above

4. Presumable cause

- Defective communication circuit between remote control-indoor unit
- Noise
- Defective remote control
- Faulty indoor unit control PCB
- Defective interface kit

5. Troubleshooting

Diagnosis	Countermeasure
Is it possible to reset normally by the power reset? YES	Malfunction by noise Check peripheral environment.
NO → Is DC10V or higher detected at remote control connection terminals? YES	Defective remote control
NO → Is DC10V or higher detected on remote control wires if the remote control is removed? YES	Defective remote control
NO → Is DC10V or higher detected at interface kit connection terminals? YES	Defective interface kit
NO → Is DC10V or higher detected on connecting wires if the interface kit is removed? YES	Defective interface kit
NO → Are wires connected properly between the indoor/outdoor units? YES	Defective connecting wire. Defective remote control wire (Short-circuit, etc.)
NO	Defective indoor unit control PCB→Replace.

Note (2) Does the remote control still display "WAIT" even after 3 minutes?

Note: If the indoor unit cannot communicate normally with the remote control for 180 seconds, the indoor unit PCB starts to reset automatically.

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E5		ON	6-time flash	Communication error during operation
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	See below	

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 control wire
- Faulty remote control wire connection
- Faulty outdoor unit control PCB

5. Troubleshooting

Diagnosis	Countermeasure
In case that the outdoor unit red LED flashes 2-times	
Note (1) Inspect faulty connections (disconnection, looseness) on the outdoor unit terminal block.	
Is the connection of signal wires at the outdoor unit side OK? — NO	Repair signal wires.
YES	
Note (2) Check for faulty connection or breakage of signal wires between indoor-outdoor units.	
Is the connection of signal wires between indoor-outdoor units OK? — NO	Repair signal wires.
YES	
Power source reset	
Has the remote control LCD returned to normal state? — NO	To the diagnosis of "WAIT"
YES	Unit is normal. (Malfunction by temporary noise, etc.)
In case that the outdoor unit red LED stays OFF	
Power source reset	
NO	
Has the remote control LCD returned to normal state? — NO	Defective outdoor unit control PCB (Defective network communication circuit) → Replace.
YES	Unit is normal. (Malfunction by temporary noise, etc.)

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 control, but it is normal.

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E6		1(3)-time flash(1)	ON	Indoor heat exchanger temperature sensor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	Stays OFF	

Note(1) Value in ( ) are the $Th2_2$.

1. Applicable model

All models

2. Error detection method

Anomalously low temperature or high temperature (resistance) is detected on the indoor heat exchanger sensor ($Th2_1$, $Th2_2$).

3. Condition of error displayed

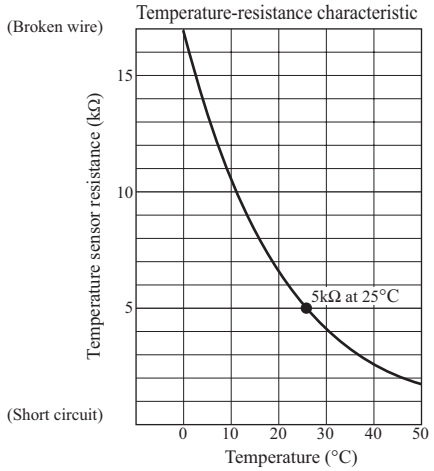
- When the temperature sensor detects -28°C or lower for 15 seconds continuously, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection.

4. Presumable cause

- Defective indoor heat exchanger sensor connector
- Indoor heat exchanger temperature sensor anomaly
- Faulty indoor unit control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the connection of indoor heat exchanger temperature sensor connector OK? — NO	Correct. → Insert connector securely.
YES → Are characteristics of indoor heat exchanger temperature sensor OK? — NO	Defective indoor heat exchanger temperature sensor → Replace.
YES	Defective indoor unit control PCB → Replace. (Defective indoor unit heat exchanger temperature sensor input circuit)



Note:

Error code	Indoor display	RUN light	TIMER light	Content	Room temperature sensor anomaly
Remote control: None		2-time flash	ON		
	Outdoor unit control PCB	Green LED	Red LED		
		Keeps flashing	Stays OFF		

1. Applicable model

All models

2. Error detection method

Anomalously low temperature or high temperature (resistance) is detected by indoor room temperature sensor (Th1)

3. Condition of error displayed

- When the temperature sensor detects -45°C or lower for 15 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.

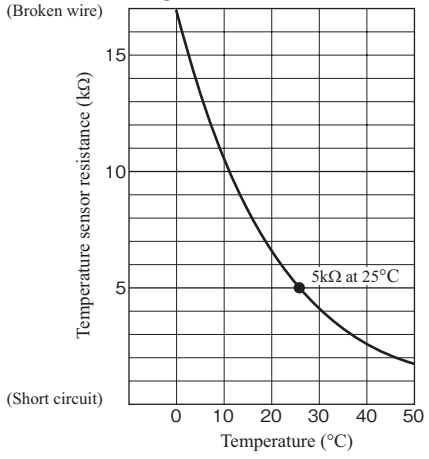
4. Presumable cause

- Defective room temperature sensor connector
- Defective room temperature sensor
- Faulty indoor unit control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is the connection of room temperature sensor connector OK? — NO	Correct. → Connect connector.
YES → Are the characteristics of room temperature sensor OK? — NO	Defective room temperature sensor → Replace.
YES	Defective indoor unit control PCB → Replace. (Defective room temperature sensor input circuit)

Temperature-resistance characteristic



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E10		–	–	Excessive number of connected indoor units (more than 17 units) by controlling with one remote control
	Outdoor unit control PCB	Green LED	Red LED	
		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 contorl

3. Condition of error displayed

Same as above

4. Presumable cause

- Excessive number of indoor units connected
- Defective remote control

5. Troubleshooting

Diagnosis	Countermeasure
Aren't more than 17 indoor units connected to one remote control?	
NO	Defective remote control → Replace.
YES	Reduce to 16 or less units.

Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E14		–	–	Communication error between master and slave indoor units
	Outdoor unit control PCB	Green LED	Red LED	
		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 control wire
- Defective remote control wire connection
- Broken interface kit wire
- Defective interface kit wire connection
- Defective indoor unit control PCB

5. Troubleshooting

Diagnosis	Countermeasure
Is it OK the unit address setting for master and slave interface kit? → NO	Correct unit address setting.
YES → Isn't the remote control wiring between interface kit defective? → YES	Correct wiring.
NO → Isn't the interface kit wiring between indoor units defective? → YES	Correct wiring.
NO → Is it restored by resetting the power source? → NO	Defective indoor unit control PCB → Replace.
YES	• Malfunction by noise • Check surrounding environment.

Note (1) Set dip switches SW3-1 and SW3-2 as shown in the following table.
(Factory default setting – "Master")

		Interface kit		
		Master	Slave1	Slave2
Dip switch	SW3-1	OFF	OFF	ON
	SW3-2	OFF	ON	OFF

Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E16		6-time flash	ON	Indoor fan motor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	Stays OFF	

1. Applicable model

All models

2. Error detection method

Detected by rotation speed of indoor fan motor

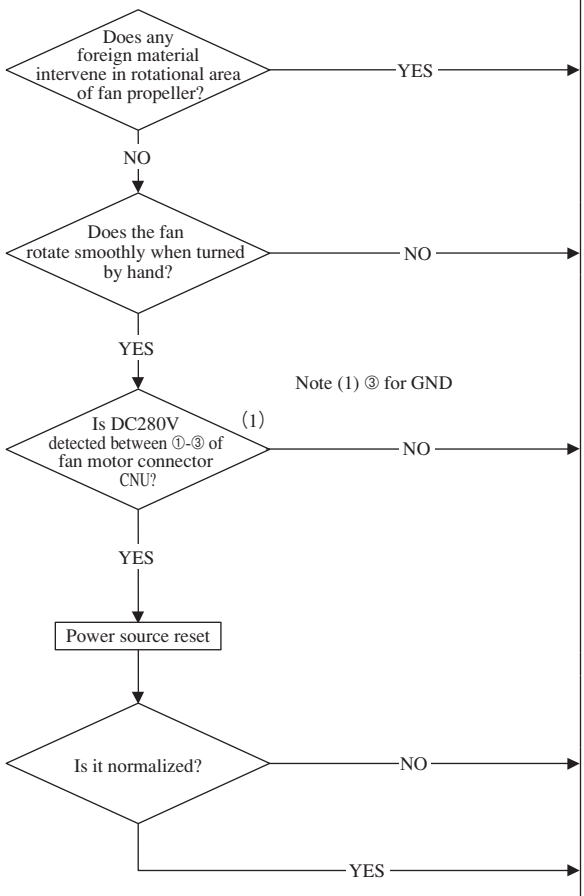
3. Condition of error displayed

- When actual rotation speed of indoor fan motor drops to lower than 300min^{-1} for 30 seconds continuously, the compressor and the indoor fan motor stop.

4. Presumable cause

- Defective indoor unit control PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on indoor unit control PCB
- External noise, surge

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E28		–	–	Remote control temperature thermistor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	Stays OFF	

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) of remote control temperature thermistor (Thc)

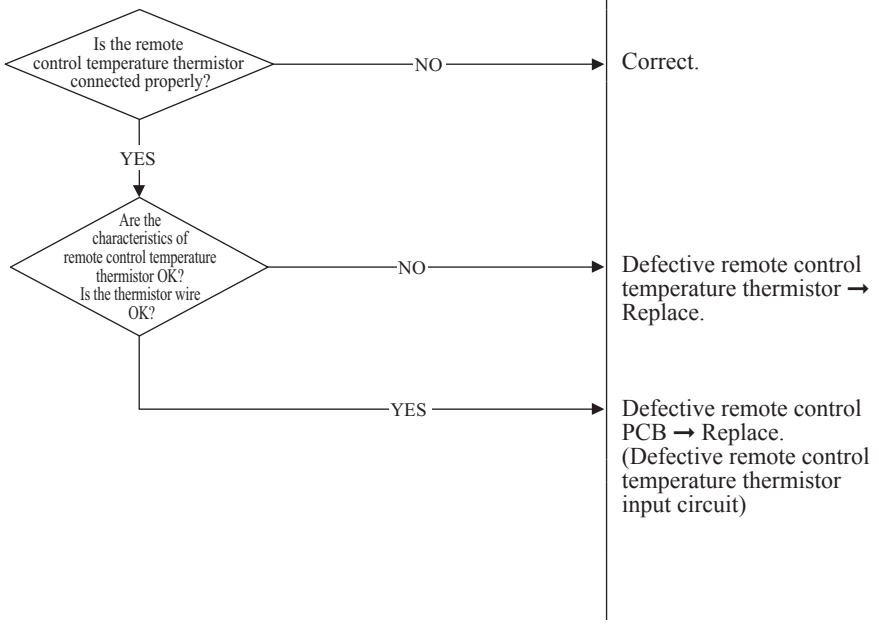
3. Condition of error displayed

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 control temperature thermistor
- Defective remote control temperature thermistor
- Defective remote control PCB

5. Troubleshooting



Resistance-temperature characteristics of remote control temperature thermistor (Thc)

Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)
0	65	30	16
1	62	32	15
2	59	34	14
4	53	36	13
6	48	38	12
8	44	40	11
10	40	42	9.9
12	36	44	9.2
14	33	46	8.5
16	30	48	7.8
18	27	50	7.3
20	25	52	6.7
22	23	54	6.3
24	21	56	5.8
26	19	58	5.4
28	18	60	5.0

Note: After 10 seconds has passed since remote control 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 control thermistor to indoor return air temperature thermistor. Even though the remote control thermistor is set to be Effective, the return air temperature displayed on remote control for checking still shows the value detected by indoor return air temperature thermistor, not by remote control temperature thermistor.

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E35		ON	Keeps flashing	Cooling overload operation
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

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 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 unit 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

Diagnosis	Countermeasure
* For the characteristics of outdoor heat exchanger temperature thermistor, refer to E37.	
Are the characteristics of outdoor 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 heat exchanger?
NO	
Is the high pressure control normal? — NO	Control operation check *
YES	
Is the temperature (measured actually) at detection of error correct? — NO	Defective outdoor unit 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	Indoor display	RUN light	TIMER light	Content
Remote control: E36		ON	5-time flash	Discharge pipe temperature error
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

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.

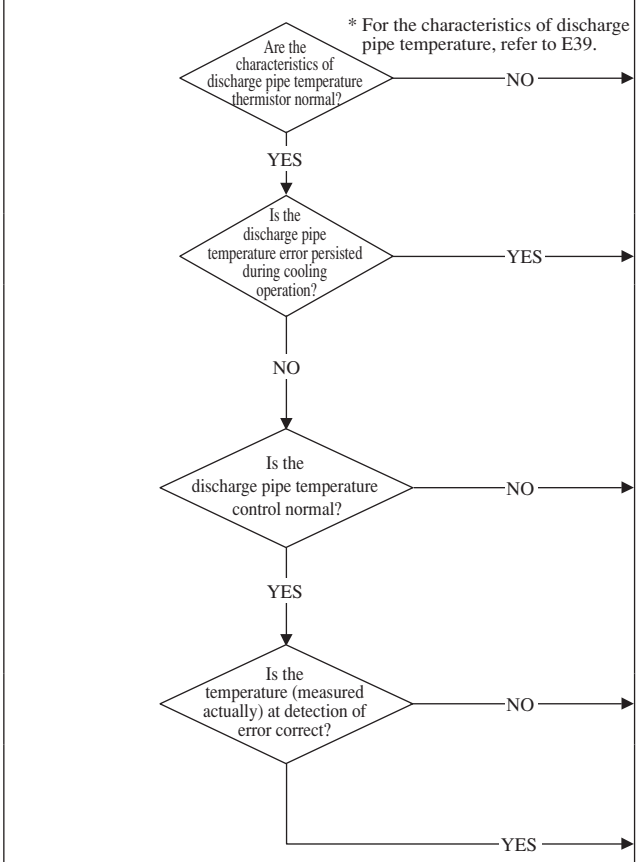
3. Condition of error displayed

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 unit 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	Indoor display	RUN light	TIMER light	Content
Remote control: E37		Keeps flashing	2-time flash	Outdoor heat exchanger temperature thermistor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

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

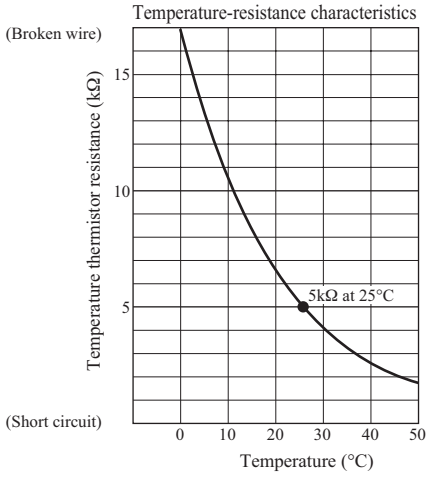
- When the temperature thermistor detects -50°C or lower for 20 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.
- When -50°C or lower is detected for 5 seconds continuously within 20 second after compressor ON.

4. Presumable cause

- Defective outdoor unit 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 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 unit control PCB→Replace. (Defective outdoor heat exchanger temperature thermistor input circuit)



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E38		Keeps flashing	1-time flash	Outdoor air temperature thermistor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

1. Applicable model

All models

2. Error detection method

Detection of anomalously low temperature (resistance) on outdoor air temperature thermistor

3. Condition of error displayed

- When the temperature thermistor detects -45°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 -45°C or lower is detected for 5 seconds continuously within 20 second after compressor ON.

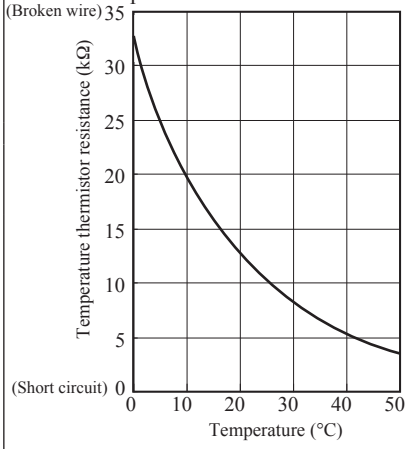
4. Presumable cause

- Defective outdoor unit control PCB
- Broken thermistor harness or temperature sensing section (Check molding.)
- Disconnected wire connection (connector)

5. Troubleshooting

Diagnosis	Countermeasure
Is the outdoor air temperature thermistor connector connected properly? → NO	Correct connector.
YES → For the characteristics of outdoor air temperature thermistor, see the following graph. Is the characteristics of the outdoor air temperature thermistor OK? → NO	Defective outdoor air temperature thermistor→ Replace.
YES	Defective outdoor unit control PCB→Replace. (Defective outdoor air temperature thermistor input circuit)

Temperature-resistance characteristics



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E39		Keeps flashing	4-time flash	Discharge pipe temperature thermistor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

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

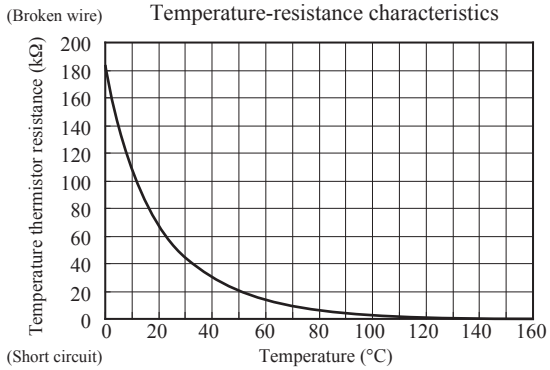
When the temperature thermistor detects -10°C or lower for 5 seconds continuously within 10 minutes to 10 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.

4. Presumable cause

- Defective outdoor unit 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 unit control PCB→Replace. (Defective temperature thermistor input circuit)



Note:

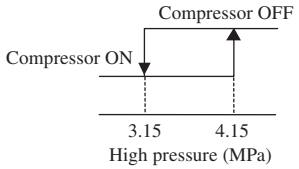
Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E40		–	–	High pressure error (63H1 activated)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

1. Applicable model

All models

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 outdoor heat exchanger/Breakdown of fan motor
- Defective outdoor unit control PCB
- Defective 63H1 connector
- Defective electronic expansion valve connector
- Closed service valve
- Mixing of non-condensing gas (nitrogen, etc.)

5. Troubleshooting

Diagnosis

If the power source breaker is turned OFF and ON too quickly, E40 may be displayed. (This is normal.)

Is the service valve fully opened?
- NO → Open service valve.
- YES ↓

Has 63H1 activated?
- NO ↓
- On operation of 63H1 YES ↓

1. During cooling
   - Is the outdoor fan motor running?
   - Isn't any short-circuit of air on the outdoor unit?
   - Are sufficient return air/supply air space secured?
2. During heating
   - Isn't the indoor heat exchanger temperature thermistor disconnected from the thermistor casing?
   - Isn't the filter clogged?

* Under the condition of overcharging refirgerant, 63H1 may activate due to delay of starting the preventive control by compressor speed control, because detected heat exhanger temperature, which conducts compressor speed control, becomes lower than normal condition due to excess sub-cooling degree.

Is 63H1 connector connected properly?
- NO → Correct 63H1 connector.
- YES ↓

Is the electronic expansion valve connector connection OK?
- NO → Correct electronic expansion valve connector.
- If any anomaly exists on the electronic expansion valve connector connection, the power source must be reset.
- YES → Defective outdoor unit control PCB→Replace. (Defective 63H1 input circuit)

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	Indoor display	RUN light	TIMER light	Content
Remote control: E41		–	–	Power transistor overheat
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		6-time flash		

1. Applicable model

All models

2. Error detection method

When less than DC14V of the output voltage is detected between ② and ③ on CNI3, E41 is displayed. (See "Note" mentioned below)

3. Condition of error displayed

Same as above.

4. Presumable cause

- Defective inverter PCB
- Defective outdoor fan motor
- Defective outdoor unit control PCB
- Delective noise filter PCB

5. Troubleshooting

Diagnosis	Countermeasure
• Single phase models	
(1) (2) Is DC15V detected between ② and ③ on CNI3? — YES	Replace inverter PCB
NO — Note(1) Under anomalous conditions, the voltage becomes less than DC14V.	
(1) Is DC15V detected after disconnecting outdoor fan motor? — YES	Replace outdoor fan motor
NO	Replace outdoor unit control PCB If not solved, replace inverter PCB as well
Note(2) How to check the voltage between ② and ③ of CNI3? ⇒See E51	
• 3-phase models E41⇒Replace inverter PCB	

Note: The "Single phase models" of inverter PAC have no function to output the signal for the power transistor overheat. However since the power source for the power transistor and the outdoor fan motor is in the same line, when the anomaly of the outdoor fan motor occurs, E41 is displayed.

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E42		ON	1-time flash	Current cut (1/2)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		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.

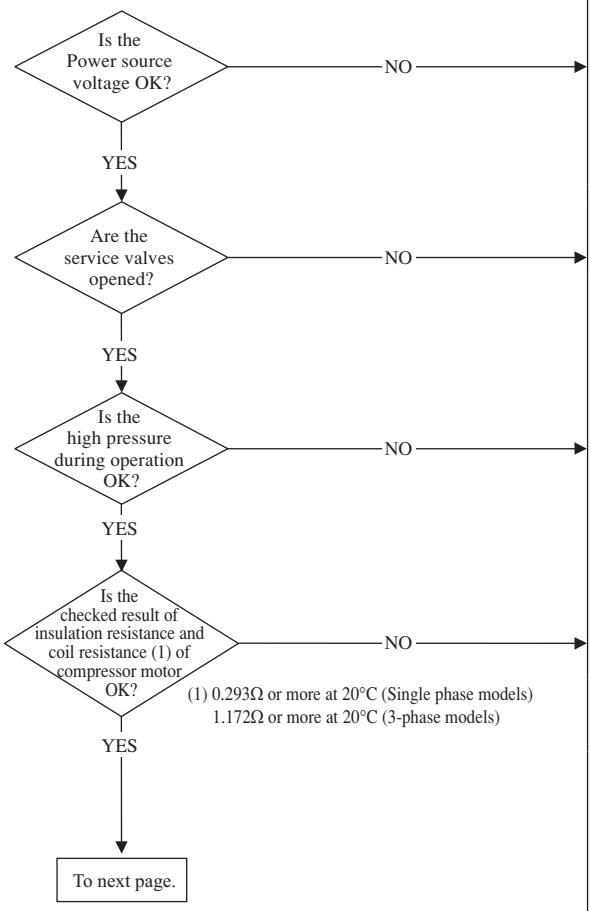
3. Condition of error displayed

- 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 source
- Insufficient refrigerant amount
- Faulty compressor
- Faulty power transistor module

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E42		ON	1-time flash	Current cut (2/2)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		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.

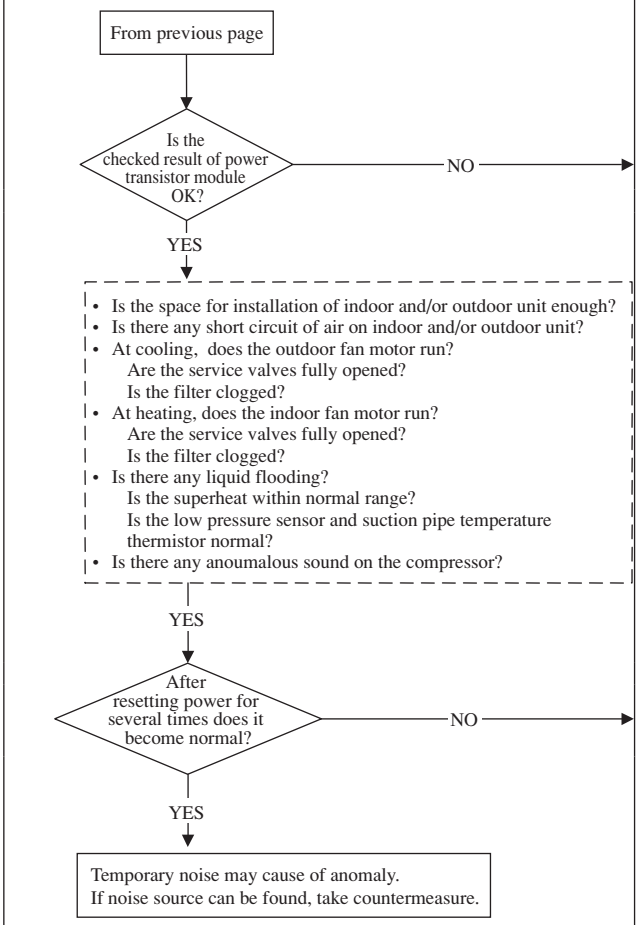
3. Condition of error displayed

- 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

- Defective inverter PCB
- Faulty power source
- Insufficient refrigerant amount
- Faulty compressor
- Faulty power transistor module

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E45		–	–	Communication error between inverter PCB and outdoor unit control PCB
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

1. Applicable model

All models

2. Error detection method

When the communication between inverter PCB and outdoor unit control PCB is not established.

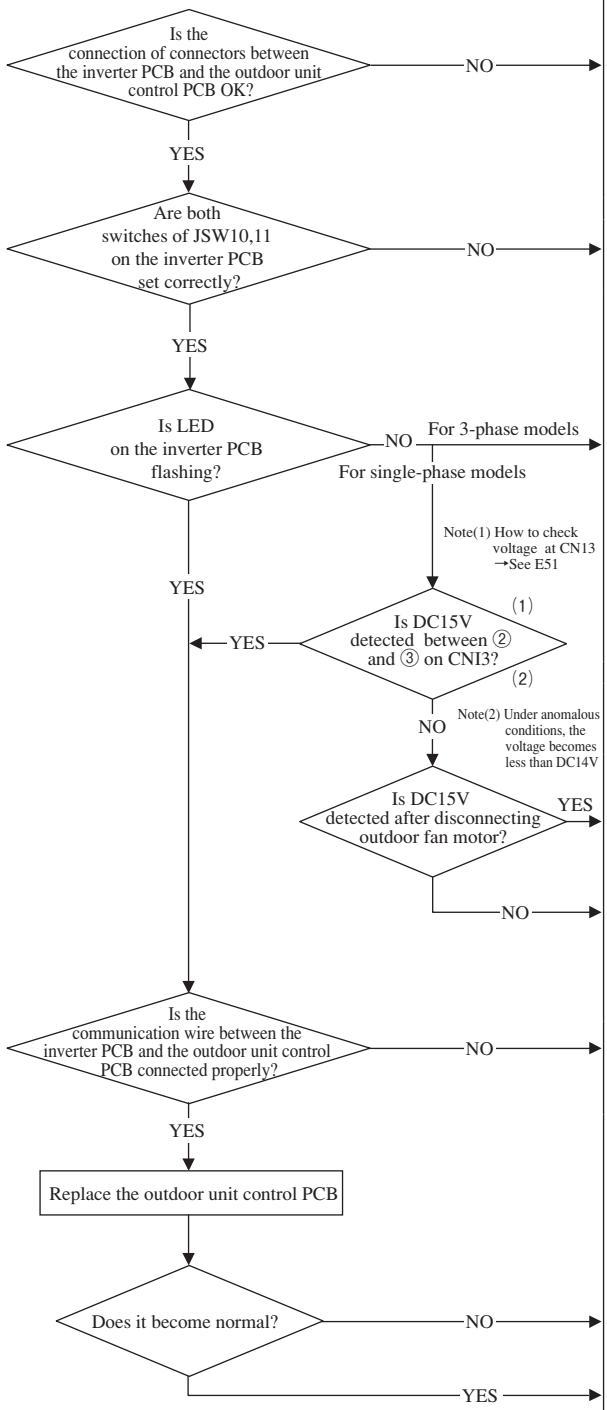
3. Condition of error displayed

Same as above.

4. Presumable cause

- Defective inverter PCB
- Defective connector between the outdoor unit control PCB and inverter PCB
- Defective outdoor unit control PCB
- Defective outdoor fan motor

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E48		ON	7-time flash	Outdoor fan motor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

1. Applicable model

All models

2. Error detection method

Detected by rotation speed of outdoor fan motor

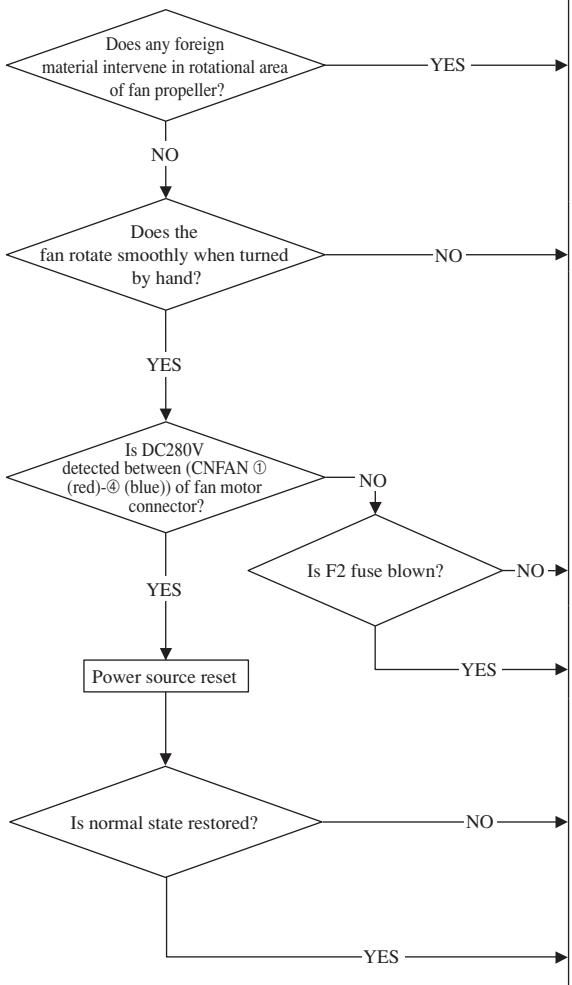
3. Condition of error displayed

When actual rotation speed of outdoor fan motor (FMo1) 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 unit control PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on outdoor unit control PCB
- Blow fuse
- External noise, surge

5. Troubleshooting



Note: When E48 error occurs, in almost cases F2 fuse (4A) on the outdoor unit 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 unit 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 unit control PCB, inverter communication error (E45) and etc.

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E49		–	–	Low pressure error or low pressure sensor anomaly (1/2)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

1. Applicable model

All models

2. Error detection method

Detected by low pressure drop and suction superheat

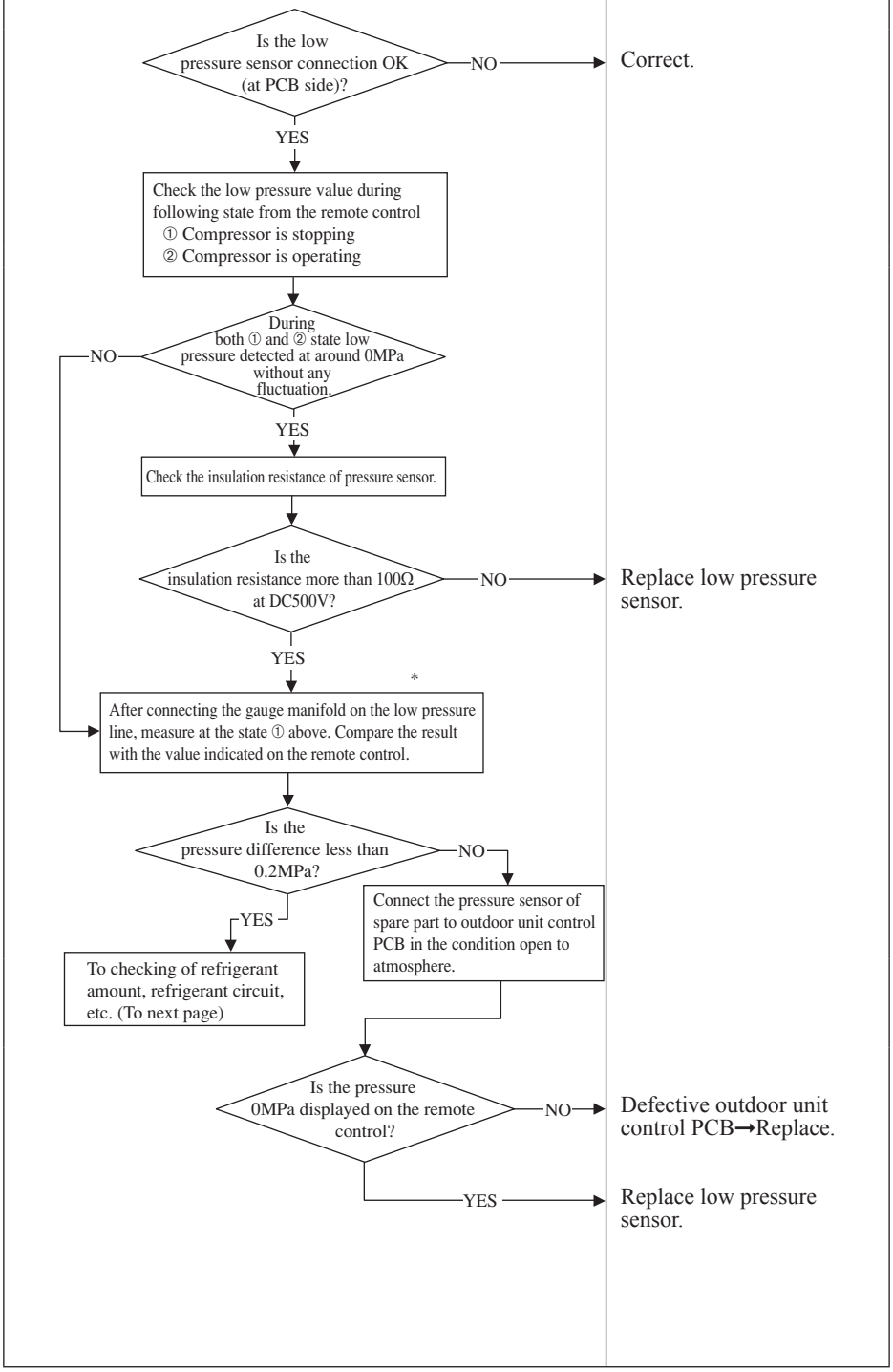
3. Condition of error displayed

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 unit 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	Indoor display	RUN light	TIMER light	Content
Remote control: E49		–	–	Low pressure error or low pressure sensor anomaly (2/2)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

1. Applicable model

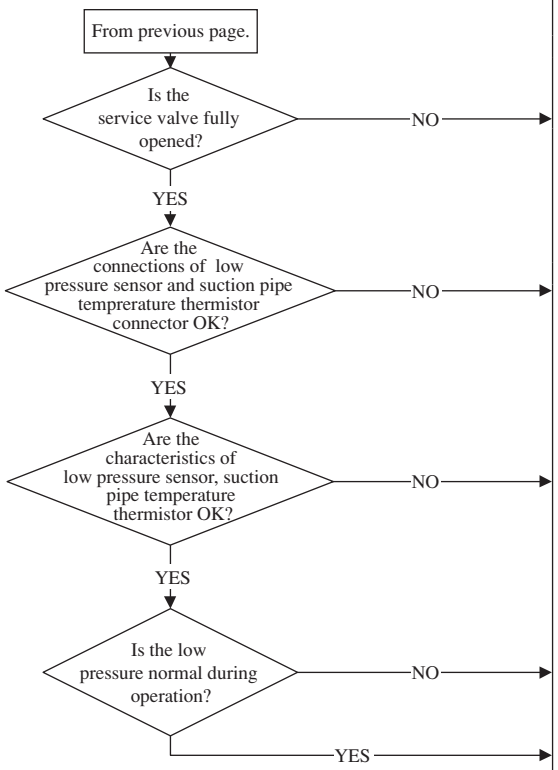
All models

2. Error detection method

3. Condition of error displayed

4. Presumable cause

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E51		ON	4-time flash	Inverter and fan motor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		6-time flash		

1. Applicable model

All models

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 PCB
- Defective outdoor unit control PCB

5. Troubleshooting

Diagnosis

• Model FDC100-140VNX

(1) (2) Is DC15V detected between ② and ③ on CNI3?

YES → Replace inverter PCB
If not solved, replace Noise filter PCB as well.

NO

Note(1) Under anomalous conditions, the voltage becomes less than DC14V.

(1) Is DC15V detected after disconnecting outdoor fan motor?

YES → Replace outdoor fan motor.

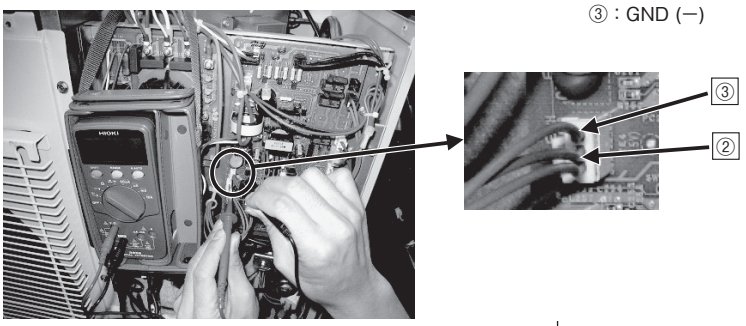
NO → Replace outdoor unit control PCB
If not solved, replace inverter PCB as well.

• Model FDC100-140VSX

Replace immediately the inverter PCB and the power transistor.

Note(2) How to check the voltage between ② and ③ of CNI3?

② : 15V (+)
③ : GND (−)



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E53		Keeps flashing	5-time flash	Suction pipe temperature thermistor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

1. Applicable model

All models

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.

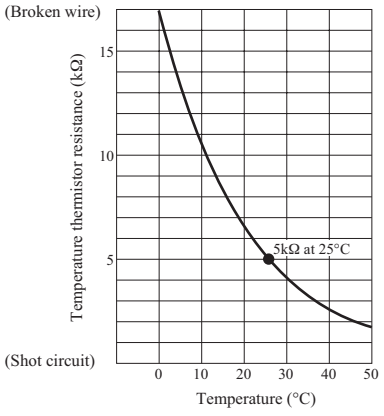
4. Presumable cause

- Defective suction pipe temperature thermistor connection
- Defective suction pipe temperature thermistor
- Defective outdoor unit 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	Defective outdoor unit control PCB→Replace. (Defective suction pipe temperature thermistor input circuit)

Temperature-resistance characteristics



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E54		–	–	Low pressure sensor anomaly
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

1. Applicable model

All models

2. Error detection method

When anomalous voltage (pressure) is detected

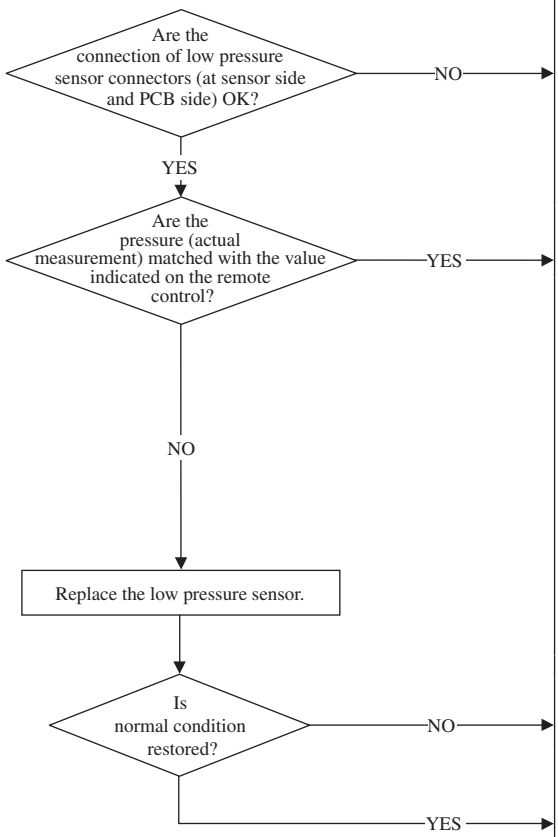
3. Condition of error displayed

If the pressure sensor detects 0V or lower and 4.0V 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 unit control PCB
- Improper amount of refrigerant
- Anomalous refrigeration circuit

5. Troubleshooting



Note:

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E57		7-time flash	ON	Insufficient refrigerant amount or detection of service valve closure
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	1-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Keeps flashing		

1. Applicable model

All models

2. Error detection method

- Judge insufficient refrigerant amount by detecting the temperature differnce between indoor heat exchanger (Th2) and indoor room (Th1).
- It detects at initial startup in cooling or dehumidifying mode after power ON.

3. Condition of error displayed

Anomalous stop at initial detection

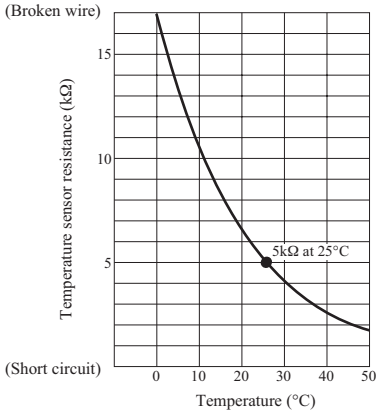
4. Presumable cause

- Defective indoor heat exchanger temperature sensor
- Defective indoor room temperature sensor
- Defective indoor unit 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 room temperature sensor connectors OK? NO	Correct indoor heat exchanger, room temperature sensor connector connections.
YES → Are the characteristics of indoor heat exchanger and/or room temperature sensor OK? NO	Defective indoor heat exchanger, room temperature sensor → Replace.
YES → Is the low pressure during operation normal? NO	Charge refrigerant.
YES	Defective indoor control PCB→Replace. (Defective indoor heat exchanger, room temperature sensor input circuits)

Indoor heat exchanger, room temperature sensor
Temperature-resistance characteristics



Note: Insufficient refrigerant amount preventive control makes compressor stopped, if it judges insufficient refrigerant amount by detecting the temperature difference between indoor heat exchanger (Th2) and room temperature (Th1) for 1 minute after compressor ON in cooling or dehumidifying mode and for 9 minutes after compressor ON in heating mode. [in cooling mode: (Th1)-(Th2)>4degC, in heating mode: (Th2)-(Th1)<4degC]

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E59		–	–	Compressor startup failure (1/2)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	5-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Stays OFF		

1. Applicable model

All models

2. Error detection method

When it fails to change over to the operation for rotor position detection of compressor motor (If the compressor speed cannot increase 11Hz or higher)

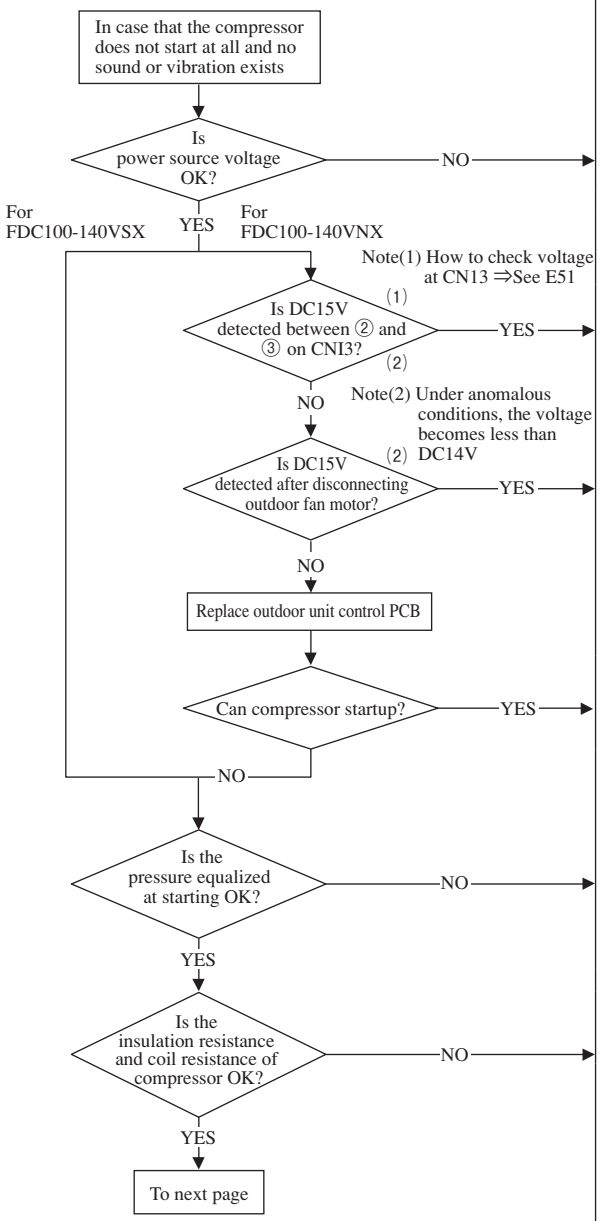
3. Condition of error displayed

If the compressor fails to startup for 20 times (10 patterns x2 times) continuously.

4. Presumable cause

- Faulty outdoor fan motor
- Faulty outdoor unit control PCB
- Faulty inverter PCB
- Anomalous power source voltage
- Insufficient or Excessive refrigerant amount
- Faulty component for refrigerant circuit
- Compressor anomaly (Motor or bearing)

5. Troubleshooting



Note: Insulation resistance
- The unit is left for long period without power source or soon after installation, insulation resistance may decrease to several MΩ or lower due to the liquid refrigerant migrated in the refrigerant oil in compressor. If the electric leakage breaker is activated due to low insulation resistance, check followings.
  ① Check whether the insulation resistance can recover or not, after 6 hours has passed since power ON.
  (By energize the crankcase heater, liquid refrigerant migrated in the refrigerant oil in compressor can be evaporated)
  ② Check whether the electric leakage breaker conforms to high-harmonic specifications
  (As INVERTR PAC units has inverter, in order to prevent from improper operation, be sure to use the breaker of high-harmonic type)

Error code	Indoor display	RUN light	TIMER light	Content
Remote control: E59		–	–	Compressor startup failure (2/2)
	Outdoor unit control PCB	Green LED	Red LED	
		Keeps flashing	5-time flash	
	Outdoor unit inverter PCB	Yellow LED		
		Stays OFF		

1. Applicable model

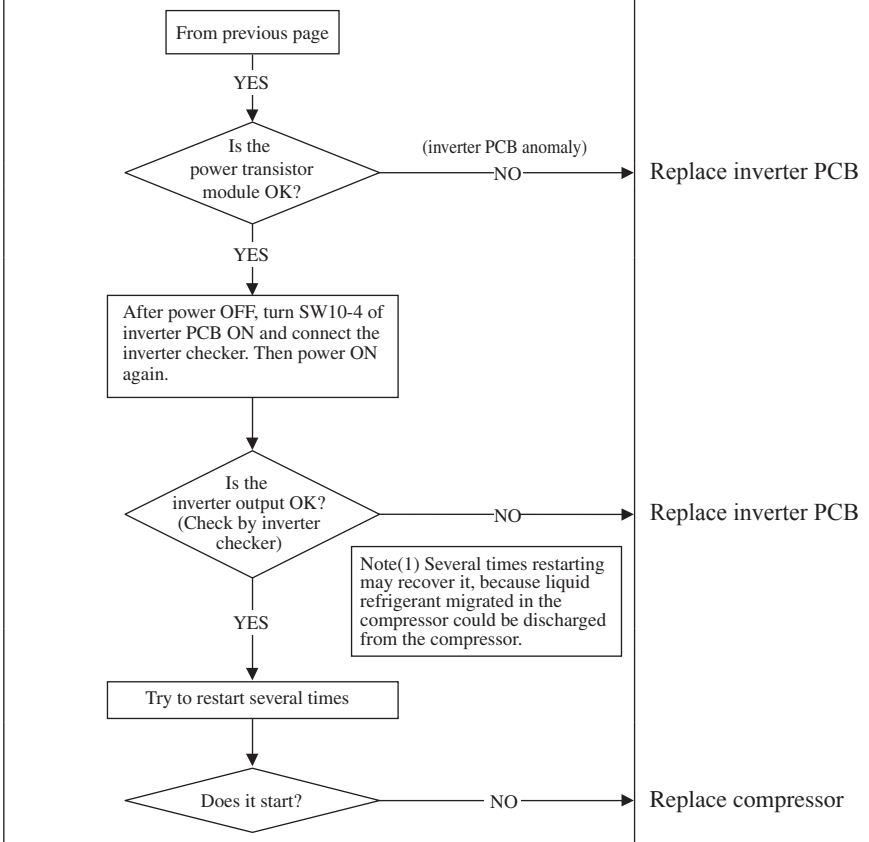
All models

2. Error detection method

3. Condition of error displayed

4. Presumable cause

5. Troubleshooting



Note:

1.11 TECHNICAL INFOMATION

Model SRK100VNXPZSX

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK50ZSX-S x2**
Outdoor unit model name	**FDC100VNX**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**10**	kW
heating / Average	Pdesignh	**10.4**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW
Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**10.4**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW
Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**10.00**	kW
Tj=30℃	Pdc	**7.30**	kW
Tj=25℃	Pdc	**5.80**	kW
Tj=20℃	Pdc	**5.80**	kW
Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**9.20**	kW
Tj=2℃	Pdh	**5.60**	kW
Tj=7℃	Pdh	**3.90**	kW
Tj=12℃	Pdh	**4.70**	kW
Tj=bivalent temperature	Pdh	**10.40**	kW
Tj=operating limit	Pdh	**7.80**	kW
Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	**-**	kW
Bivalent temperature			
heating / Average	Tbiv	**-10**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃
Cycling interval capacity			
for cooling	Pcycc	**-**	kW
for heating	Pcych	**-**	kW
Degradation coefficient			
cooling	Cdc	**0.25**	-
Electric power input in power modes other than 'active mode'			
off mode	Poff	**12**	W
standby mode	Psb	**12**	W
thermostat-off mode	Pto	**18**	W
crankcase heater mode	Pck	**25**	W
Capacity control(indicate one of three options)			
fixed		**No**	
staged		**No**	
variable		**Yes**	

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**6.11**	A++
heating / Average	SCOP/A	**4.16**	A+
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-
			unit
Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	elbu	**0**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW
Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**3.76**	-
Tj=30℃	EERd	**5.62**	-
Tj=25℃	EERd	**9.06**	-
Tj=20℃	EERd	**11.90**	-
Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.91**	-
Tj=2℃	COPd	**3.80**	-
Tj=7℃	COPd	**5.80**	-
Tj=12℃	COPd	**7.10**	-
Tj=bivalent temperature	COPd	**2.60**	-
Tj=operating limit	COPd	**2.30**	-
Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	**-**	-
Operating limit temperature			
heating / Average	Tol	**-20**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃
Cycling interval efficiency			
for cooling	EERcyc	**-**	-
for heating	COPcyc	**-**	-
Degradation coefficient			
heating	Cdh	**0.25**	-
Annual electricity consumption			
cooling	Qce	**574**	kWh/a
heating / Average	Qhe	**3503**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a
Other items			
Sound power level(indoor)	Lwa	**59**	dB(A)
Sound power level(outdoor)	Lwa	**70**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**858**	m3/h
Rated air flow(outdoor)	-	**6000**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 7 Roundwood Avenue, Stockley Park, Uxbridge, Middlesex, UB11 1AX, United Kingdom

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Model SRK100VSXPZSX

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK50ZSX-S x2**
Outdoor unit model name	**FDC100VSX**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**10**	kW
heating / Average	Pdesignh	**10.4**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW
Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**10.4**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW
Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**10.00**	kW
Tj=30℃	Pdc	**7.30**	kW
Tj=25℃	Pdc	**5.80**	kW
Tj=20℃	Pdc	**5.80**	kW
Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**9.20**	kW
Tj=2℃	Pdh	**5.60**	kW
Tj=7℃	Pdh	**3.90**	kW
Tj=12℃	Pdh	**4.70**	kW
Tj=bivalent temperature	Pdh	**10.40**	kW
Tj=operating limit	Pdh	**7.80**	kW
Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	**-**	kW
Bivalent temperature			
heating / Average	Tbiv	**-10**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃
Cycling interval capacity			
for cooling	Pcycc	**-**	kW
for heating	Pcych	**-**	kW
Degradation coefficient			
cooling	Cdc	**0.25**	-
Electric power input in power modes other than 'active mode'			
off mode	Poff	**12**	W
standby mode	Psb	**12**	W
thermostat-off mode	Pto	**18**	W
crankcase heater mode	Pck	**25**	W

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**6.11**	A++
heating / Average	SCOP/A	**4.16**	A+
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Item	symbol	value	unit
Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	elbu	**0**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW
Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**3.76**	-
Tj=30℃	EERd	**5.62**	-
Tj=25℃	EERd	**9.06**	-
Tj=20℃	EERd	**11.90**	-
Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.91**	-
Tj=2℃	COPd	**3.80**	-
Tj=7℃	COPd	**5.80**	-
Tj=12℃	COPd	**7.10**	-
Tj=bivalent temperature	COPd	**2.60**	-
Tj=operating limit	COPd	**2.30**	-
Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	**-**	-
Operating limit temperature			
heating / Average	Tol	**-20**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃
Cycling interval efficiency			
for cooling	EERcyc	**-**	-
for heating	COPcyc	**-**	-
Degradation coefficient			
heating	Cdh	**0.25**	-
Annual electricity consumption			
cooling	Qce	**574**	kWh/a
heating / Average	Qhe	**3503**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**59**	dB(A)
Sound power level(outdoor)	Lwa	**70**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**858**	m3/h
Rated air flow(outdoor)	-	**6000**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative.
	Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 7 Roundwood Avenue, Stockley Park, Uxbridge, Middlesex, UB11 1AX, United Kingdom

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2. MICRO INVERTER PACKAGED AIR-CONDITIONERS

CONTENTS

Example: SRK 100 VN P ZSX

- ZSX — Series code
- P — P : Twin type / T : Triple type
- VN — Applicable power source...See the specification
- 100 — Product capacity
- SRK — Model name (SRK : Wall mounted type / FDC : Outdoor unit)

2.1 SPECIFICATIONS

Wall mounted type (SRK)

Item			Model	SRK100VNPZSX	
				Indoor unit **SRK50ZSX-S (2 units)**	Outdoor unit **FDC100VN**
Power source				1 Phase 220-240V 50Hz / 220V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	10.0 [4.0(Min.)-11.2(Max.)]	
	Nominal heating capacity (range)		kW	11.2 [4.0(Min.)-12.5(Max.)]	
	Power consumption	Cooling	kW	2.84	
		Heating		2.86	
	Max power consumption			4.00	
	Running current	Cooling	A	12.5 / 13.0	
		Heating		12.6 / 13.1	
	Inrush current, max current			5 , 24	
	Power factor	Cooling	%	99	
		Heating		99	
	EER	Cooling		3.52	
	COP	Heating		3.92	
	Sound power level	Cooling	dB(A)	59	70
		Heating		62	
	Sound pressure level	Cooling		Hi : 44 Me : 39 Lo : 31 ULo : 22	49
		Heating		Hi : 46 Me : 41 Lo : 33 ULo : 23	
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	845 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell: (8.0Y 9.3 / 0.1), RAL: 9003	Stucco white (4.2Y7.5 / 1.1) near equivalent
Net weight			kg	13	81
Compressor type & Q'ty				—	RMT5126MDE2×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 3.8kg (Pre-charged up to the piping length of 30m) Outdoor unit	
Heat exchanger				Louver fins & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 1
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 14.3 Me : 12.4 Lo : 7.8 ULo : 5.4	75
		Heating		Hi : 17.3 Me : 14.3 Lo : 9.8 ULo : 6.2	73
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5 , RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U φ6.35 (1/4") ②φ9.52 (3/8")x0.8 ①φ9.52 (3/8")x0.8 O/U φ9.52 (3/8")	
				Gas line: I/U φ12.7 (1/2") ②φ12.7 (1/2")x0.8 ①φ15.88 (5/8")x1.0 O/U φ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.50m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size φ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			φ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IPX4
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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Item			Model	SRK125VNPZSX	
				Indoor unit **SRK60ZSX-S (2 units)**	Outdoor unit **FDC125VN**
Power source				1 Phase 220-240V 50Hz / 220V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	12.5 [5.0(Min.)-14.0(Max.)]	
	Nominal heating capacity (range)		kW	14.0 [4.0(Min.)-16.0(Max.)]	
	Power consumption	Cooling	kW	4.25	
		Heating		4.29	
	Max power consumption			5.58	
	Running current	Cooling	A	18.7 / 19.5	
		Heating		18.8 / 19.7	
	Inrush current, max current			5 , 24	
	Power factor	Cooling	%	99	
		Heating		99	
	EER	Cooling		2.94	
	COP	Heating		3.26	
	Sound power level	Cooling	dB(A)	62	72
		Heating		63	
	Sound pressure level	Cooling		Hi : 46 Me : 41 Lo : 33 ULo : 22	50
		Heating		Hi : 46 Me : 42 Lo : 34 ULo : 23	51
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	845 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell : (8.0Y 9.3/0.1), RAL : 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight			kg	13	81
Compressor type & Q'ty				—	RMT5126MDE2×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 3.8kg (Pre-charged up to the piping length of 30m) Outdoor unit	
Heat exchanger				Louver fins & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 1
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 16.3 Me : 13.4 Lo : 8.9 ULo : 5.4	75
		Heating		Hi : 17.8 Me : 13.7 Lo : 10.9 ULo : 6.2	73
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U φ6.35 (1/4") ② φ9.52(3/8")x0.8 ① φ9.52(3/8")x0.8 O/U φ9.52 (3/8")	
				Gas line: I/U φ12.7 (1/2") ② φ12.7(1/2")x0.8 ① φ15.88(5/8")x1.0 O/U φ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.50m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size φ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			φ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IP24
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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Item			Model	SRK140VNTZSX	
				Indoor unit **SRK50ZSX-S (3 units)**	Outdoor unit **FDC140VN**
Power source				1 Phase 220-240V 50Hz / 220V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	14.0 [5.0(Min.)-14.5(Max.)]	
	Nominal heating capacity (range)		kW	16.0 [4.0(Min.)-16.5(Max.)]	
	Power consumption	Cooling	kW	4.53	
		Heating		4.05	
	Max power consumption			5.89	
	Running current	Cooling	A	19.9 / 20.8	
		Heating		17.8 / 18.6	
	Inrush current, max current			5 , 24	
	Power factor	Cooling	%	99	
		Heating		99	
	EER	Cooling		3.09	
	COP	Heating		3.95	
	Sound power level	Cooling	dB(A)	59	73
		Heating		62	
	Sound pressure level	Cooling		Hi : 44 Me : 39 Lo : 31 ULo : 22	51
		Heating		Hi : 46 Me : 41 Lo : 33 ULo : 23	
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	845 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell: (8.0Y 9.3/0.1), RAL: 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight			kg	13	81
Compressor type & Q'ty				—	RMT5126MDE2×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 3.8kg (Pre-charged up to the piping length of 30m) Outdoor unit	
Heat exchanger				Louver fins & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 1
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 14.3 Me : 12.4 Lo : 7.8 ULo : 5.4	75
		Heating		Hi : 17.3 Me : 14.3 Lo : 9.8 ULo : 6.2	73
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN : Green, TIMER : Yellow, ECO : Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U ϕ6.35 (1/4") ②ϕ9.52 (3/8")x0.8 ①ϕ9.52 (3/8")x0.8 O/U ϕ9.52 (3/8")	
				Gas line: I/U ϕ12.7 (1/2") ②ϕ12.7 (1/2")x0.8 ①ϕ15.88 (5/8")x1.0 O/U ϕ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.50m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size ϕ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			ϕ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IP24
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 230V 50Hz or 220V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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Item				Model	SRK100VSPZSX	
					Indoor unit **SRK50ZSX-S (2 units)**	Outdoor unit **FDC100VS**
Power source					3 Phase 380-415V 50Hz / 380V 60Hz	
Operation data	Nominal cooling capacity (range)			kW	10.0 [4.0(Min.)-11.2(Max.)]	
	Nominal heating capacity (range)			kW	11.2 [4.0(Min.)-12.5(Max.)]	
	Power consumption		Cooling	kW	2.84	
			Heating		2.86	
	Max power consumption				4.00	
	Running current		Cooling	A	4.2 / 4.4	
			Heating		4.2 / 4.4	
	Inrush current, max current				5 , 15	
	Power factor		Cooling	%	98	
			Heating		98	
	EER		Cooling		3.52	
	COP		Heating		3.92	
	Sound power level		Cooling	dB(A)	59	70
			Heating		62	
	Sound pressure level		Cooling		Hi : 44 Me : 39 Lo : 31 ULo : 22	49
			Heating		Hi : 46 Me : 41 Lo : 33 ULo : 23	
	Silent mode sound pressure level				—	—
Exterior dimensions (Height x Width x Depth)				mm	305 × 920 × 220	845 × 970 × 370
Exterior appearance (Munsell color)					Fine snow Munsell : (8.0Y 9.3/0.1), RAL : 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight				kg	13	83
Compressor type & Q'ty					—	RMT5126MDE2×1
Compressor motor (Starting method)				kW	—	Direct line start
Refrigerant oil (Amount, type)				ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)				kg	R410A 3.8kg (Pre-charged up to the piping length of 30m) Outdoor unit	
Heat exchanger					Louver fins & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control					Electronic expansion valve	
Fan type & Q'ty					Tangential fan x 1	Propeller fan × 1
Fan motor (Starting method)				W	42 x 1 < Direct line start >	86 < Direct line start >
Air flow			Cooling	m^3/min	Hi : 14.3 Me : 12.4 Lo : 7.8 ULo : 5.4	75
			Heating		Hi : 17.3 Me : 14.3 Lo : 9.8 ULo : 6.2	73
Available external static pressure				Pa	0	0
Outside air intake					Not possible	—
Air filter, Quality / Quantity					Polypropylene net (washable) x 2	—
Shock & vibration absorber					Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater				W	—	20 (Crank case heater)
Operation control	Remote control				(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control				Thermostat by electronics	
	Operation display				RUN: Green, TIMER: Yellow, ECO: Blue	
Safety equipments					Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)			mm	Liquid line: I/U φ6.35 (1/4") ② φ9.52(3/8")x0.8 ① φ9.52(3/8")x0.8 O/U φ9.52 (3/8")	
					Gas line: I/U φ12.7 (1/2") ② φ12.7(1/2")x0.8 ① φ15.88(5/8")x1.0 O/U φ15.88 (5/8")	
	Connecting method				Flare piping	Flare piping
	Attached length of piping			m	—	—
	Insulation for piping				Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length			m	Max.50m	
	Vertical height diff. between O.U. and I.U.			m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose				Hose connectable with VP16	Holes size φ20 x 3pcs
Drain pump, max lift height				mm	—	—
Recommended breaker size				A	—	
L.R.A. (Locked rotor ampere)				A	5.0	
Interconnecting wires	Size x Core number				φ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number					IPX0	IP24
Standard accessories					Mounting kit, Clean filter	Edging
Option parts					—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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Item			Model	SRK125VSPZSX	
				Indoor unit **SRK60ZSX-S (2 units)**	Outdoor unit **FDC125VS**
Power source				3 Phase 380-415V 50Hz / 380V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	12.5 [5.0(Min.)-14.0(Max.)]	
	Nominal heating capacity (range)		kW	14.0 [4.0(Min.)-16.0(Max.)]	
	Power consumption	Cooling	kW	4.25	
		Heating		4.29	
	Max power consumption			5.58	
	Running current	Cooling	A	6.3 / 6.6	
		Heating		6.3 / 6.7	
	Inrush current, max current			5 , 15	
	Power factor	Cooling	%	98	
		Heating		98	
	EER	Cooling		2.94	
	COP	Heating		3.26	
	Sound power level	Cooling	dB(A)	62	72
		Heating		63	
	Sound pressure level	Cooling		Hi : 46 Me : 41 Lo : 33 ULo : 22	50
		Heating		Hi : 46 Me : 42 Lo : 34 ULo : 23	51
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	845 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell : (8.0Y 9.3/0.1), RAL : 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight			kg	13	83
Compressor type & Q'ty				—	RMT5126MDE3×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 3.8kg (Pre-charged up to the piping length of 30m) Outdoor unit	
Heat exchanger				Louver fins & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 1
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 16.3 Me : 13.4 Lo : 8.9 ULo : 5.4	75
		Heating		Hi : 17.8 Me : 13.7 Lo : 10.9 ULo : 6.2	73
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U φ6.35 (1/4") ② φ9.52(3/8")x0.8 ① φ9.52(3/8")x0.8 O/U φ9.52 (3/8")	
				Gas line: I/U φ12.7 (1/2") ② φ12.7(1/2")x0.8 ① φ15.88(5/8")x1.0 O/U φ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.50m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size φ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			φ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IP24
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-WA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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Item			Model	SRK140VSTZSX	
				Indoor unit **SRK50ZSX-S (3 units)**	Outdoor unit **FDC140VS**
Power source				3 Phase 380-415V 50Hz / 380V 60Hz	
Operation data	Nominal cooling capacity (range)		kW	14.0 [5.0(Min.)-14.5(Max.)]	
	Nominal heating capacity (range)		kW	16.0 [4.0(Min.)-16.5(Max.)]	
	Power consumption	Cooling	kW	4.53	
		Heating		4.05	
	Max power consumption			5.89	
	Running current	Cooling	A	6.7 / 7.0	
		Heating		6.0 / 6.3	
	Inrush current, max current			5 , 15	
	Power factor	Cooling	%	98	
		Heating		98	
	EER	Cooling		3.09	
	COP	Heating		3.95	
	Sound power level	Cooling	dB(A)	59	73
		Heating		62	
	Sound pressure level	Cooling		Hi : 44 Me : 39 Lo : 31 ULo : 22	51
		Heating		Hi : 46 Me : 41 Lo : 33 ULo : 23	
	Silent mode sound pressure level			—	—
Exterior dimensions (Height x Width x Depth)			mm	305 × 920 × 220	845 × 970 × 370
Exterior appearance (Munsell color)				Fine snow Munsell : (8.0Y 9.3/0.1), RAL : 9003	Stucco white (4.2Y7.5/1.1) near equivalent
Net weight			kg	13	83
Compressor type & Q'ty				—	RMT5126MDE3×1
Compressor motor (Starting method)			kW	—	Direct line start
Refrigerant oil (Amount, type)			ℓ	—	0.9 (M-MA68)
Refrigerant (Type, amount, pre-charge length)			kg	R410A 3.8kg (Pre-charged up to the piping length of 30m) Outdoor unit	
Heat exchanger				Louver fins & inner grooved tubing	Straight fin & inner grooved tubing
Refrigerant control				Electronic expansion valve	
Fan type & Q'ty				Tangential fan x 1	Propeller fan × 1
Fan motor (Starting method)			W	42 x 1 < Direct line start >	86 < Direct line start >
Air flow		Cooling	m^3/min	Hi : 14.3 Me : 12.4 Lo : 7.8 ULo : 5.4	75
		Heating		Hi : 17.3 Me : 14.3 Lo : 9.8 ULo : 6.2	73
Available external static pressure			Pa	0	0
Outside air intake				Not possible	—
Air filter, Quality / Quantity				Polypropylene net (washable) x 2	—
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)
Electric heater			W	—	20 (Crank case heater)
Operation control	Remote control			(option) wired : RC-EX3, RC-E5, RCH-E3 Interface kit : SC-BIKN-E	
	Room temperature control			Thermostat by electronics	
	Operation display			RUN: Green, TIMER: Yellow, ECO: Blue	
Safety equipments				Internal thermostat for fan motor Frost protection thermostat Abnormal discharge temperature protection.	
Installation data	Refrigerant piping size (O.D.)		mm	Liquid line: I/U φ6.35 (1/4") ② φ9.52(3/8")x0.8 ① φ9.52(3/8")x0.8 O/U φ9.52 (3/8")	
				Gas line: I/U φ12.7 (1/2") ② φ12.7(1/2")x0.8 ① φ15.88(5/8")x1.0 O/U φ15.88 (5/8")	
	Connecting method			Flare piping	Flare piping
	Attached length of piping		m	—	—
	Insulation for piping			Necessary (both Liquid & Gas lines)	
	Refrigerant line (one way) length		m	Max.50m	
	Vertical height diff. between O.U. and I.U.		m	Max.30m (Outdoor unit is higher)	Max.15m (Outdoor unit is lower)
	Drain hose			Hose connectable with VP16	Holes size φ20 x 3pcs
Drain pump, max lift height			mm	—	—
Recommended breaker size			A	—	
L.R.A. (Locked rotor ampere)			A	5.0	
Interconnecting wires	Size x Core number			φ1.6mm×3 cores (including earth cable) / Termainal block (Screw fixing type)	
IP number				IPX0	IP24
Standard accessories				Mounting kit, Clean filter	Edging
Option parts				—	

Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27℃	19℃	35℃	24℃	ISO5151-T1
Heating	20℃	—	7℃	6℃	

(2) This air-conditioner is manufactured and tested in conformity with the ISO.
(3) Sound level indicates the value in an anechoic chamber. During operation these values are somewhat higher due to ambient conditions.
(4) Select the breaker size according to the own national standard.
(5) The operation data indicates when the air-conditioner is operated at 400V 50Hz or 380V 60Hz.
(6) Indoor unit specifications for one unit. Capacity and operation data is two indoor units are combined and run together.
(7) Branching pipe set "DIS-TA1"×1(option). ① : Pipe of O/U~Branch. ② : Pipe of Branch~I/U

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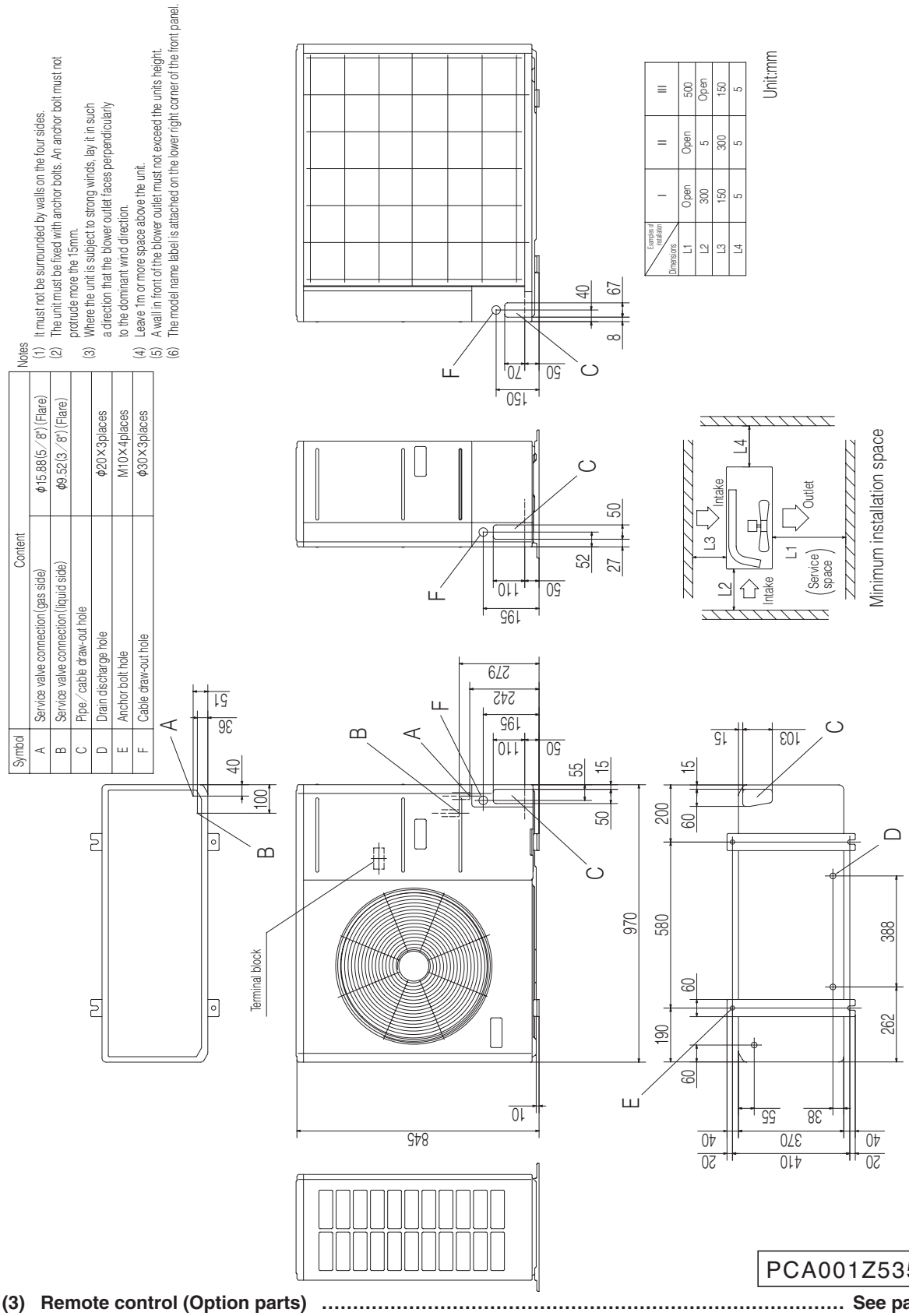
2.2 EXTERIOR DIMENSIONS

(1) Indoor units ..... See page 10.

(2) Outdoor units

Models FDC100VN, 125VN, 140VN
FDC100VS, 125VS, 140VS



Symbol	Content	
A	Service valve connection (gas side)	φ15.88 (5/8") (Flare)
B	Service valve connection (liquid side)	φ9.52 (3/8") (Flare)
C	Pipe/cable draw-out hole	φ20×3places
D	Drain discharge hole	φ20×3places
E	Anchor bolt hole	M10×4places
F	Cable draw-out hole	φ30×3places

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 panel.

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(3) Remote control (Option parts) ..... See page 12.

2.3 ELECTRICAL WIRING

(1) Indoor units ..... See page 15.

(2) Outdoor units

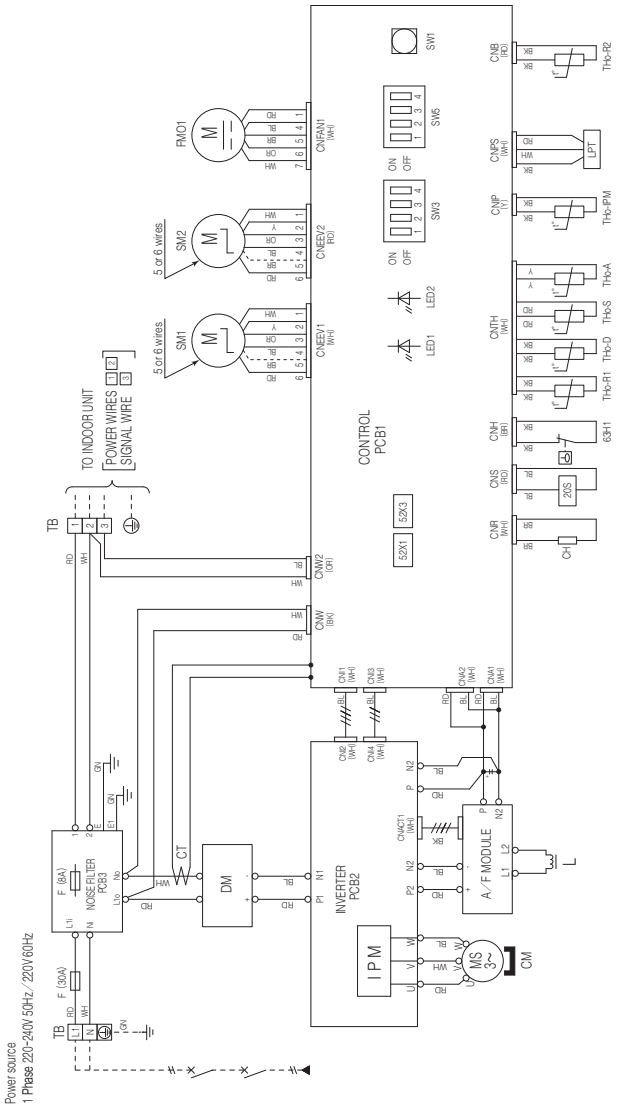
Models FDC100VN, 125VN, 140VN

Meaning of marks

Item	Description
CnA-Z	Connector
CH	Crankcase heater
CM	Compressor motor
CT	Current sensor
DM	Diode module
F	Fuse
FM01	Fan motor
IPM	Intelligent power module
L	Reactor
LED1	Indication lamp (GREEN)
LED2	Indication lamp (RED)
LPT	Low pressure sensor
SM1	Expansion valve for cooling
SM2	Expansion valve for heating
SW1	Pump down switch
SW3,5	Local setting switch
TB	Terminal block
THo-A	Thermistor (Outdoor air temp.)
THo-D	Thermistor (Discharge pipe temp.)
THo-IPM	Thermistor (IPM)
THo-R1,2	Thermistor (Heat exchanger pipe temp.)
THo-S	Thermistor (Suction pipe temp.)
20S	Solenoid valve for 4 way valve
52X1	Auxiliary relay (for CH)
52X3	Auxiliary relay (for 20S)
63H1	High pressure switch

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



Local setting switch SW3 (Set up at shipment OFF)

SW3-1	Defrost control change	The defrosting operation interval becomes shorter by turning ON this switch. This switch should be turned ON in the area where outside temperature becomes below the freezing point.
SW3-2	Snow guard fan control	When this switch is turned ON, the outdoor unit fan will run for 30 seconds in every 10 minutes, when outdoor temperature falls to 3°C or lower and the compressor is not runnning when the unit is used in a very snowy country, set this switch to ON.
SW3-3,4	Trial operation	Method of trial operation ①Trial operation can be performed by using SW3-3,4. ②Compressor will be in the operation when SW3-3 is ON. ③Cooling trial operation will be performed when SW3-4 is OFF, and heating trial operation when SW3-4 is ON. ④Be sure to turn OFF SW3-3 after the trial operation is finished.

Power cable, indoor-outdoor connecting wires

Model	MAX over current (A)	Power cable size (mm^2)	Power cable length (m)	Indoor-outdoor wire size x number	Earth wire size (mm)
FDC100	24	5.5	25	ϕ1.6mm x 3	ϕ1.6
FDC125					
FDC140					

- 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.
- Switchgear of circuit breaker capacity which is calculated from MAX. over current should be chosen along the regulations in each country.
- 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.

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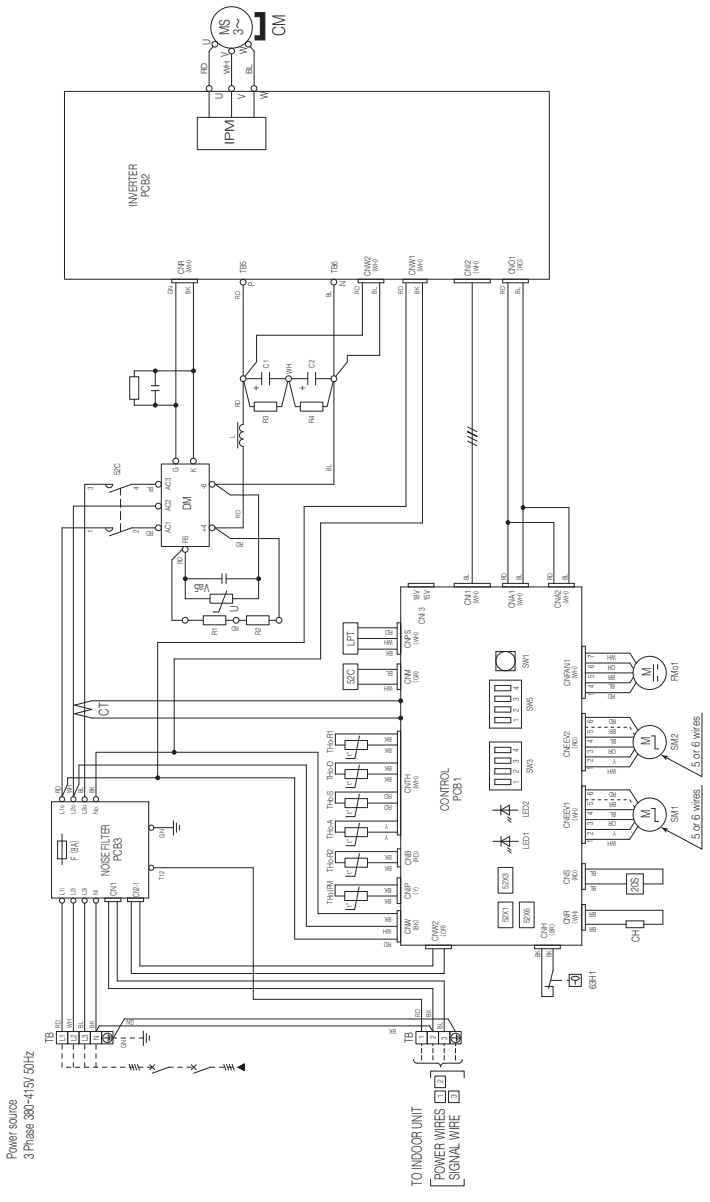
Models FDC100VS, 125VS, 140VS



Meaning of marks

Item	Description
CnA-Z	Connector
CH	Crankcase heater
CM	Compressor motor
CT	Current sensor
DM	Diode module
F	Fuse
FM01	Fan motor
IPM	Intelligent power module
L	Reactor
LED1	Indication lamp (GREEN)
LED2	Indication lamp (RED)
LPT	Low pressure sensor
SM1	Expansion valve for cooling
SM2	Expansion valve for heating
SW1	Pump down switch
SW3,5	Local setting switch
TB	Terminal block
THo-A	Thermistor (Outdoor air temp.)
THo-D	Thermistor (Discharger pipe temp.)
THo-IPM	Thermistor (IPM)
THo-R1,2	Thermistor (Heat exchanger pipe temp.)
THo-S	Thermistor (Suction pipe temp.)
20S	Solenoid valve for 4 way valve
52X1	Auxiliary relay (for CH)
52X3	Auxiliary relay (for 20S)
52X6	Auxiliary relay (for 52C)
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

Local setting switch SW3 (Set up at shipment OFF)

SW3-1	Defrost control change	The defrosting operation interval becomes shorter by turning ON this switch. This switch should be turned ON in the area where outside temperature becomes below the freezing point.
SW3-2	Snow guard fan control	When this switch is turned ON, the outdoor unit fan will run for 30 seconds in every 10 minutes, when outdoor temperature falls to 3℃ or lower and the compressor is not running when the unit is used in a very snowy country, set this switch to ON.
SW3-3,4	Trial operation	Method of trial operation ①Trial operation can be performed by using SW3-3,4. SW3-3 is ON. ②Compressor will be in the operation when SW3-3 is ON. ③Cooling trial operation will be performed when SW3-4 is OFF, and heating trial operation when SW3-4 is ON. ④Be sure to turn OFF SW3-3 after the trial operation is finished.

Power cable, indoor-outdoor connecting wires

Model	MAX over current (A)	Power cable size (mm^2)	Power cable length (m)	Indoor-outdoor wire size x number	Earth wire size (mm)
FDC100	15	3.5	27	ϕ1.6mm x 3	ϕ1.6
FDC125					
FDC140					

- 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.
- Switchgear of circuit breaker capacity which is calculated from MAX. over current should be chosen along the regulations in each country.
- 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.

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2.4 NOISE LEVEL

Notes(1) The data are based on the following conditions.
Ambient air temperature: Indoor unit 27℃WB. Outdoor unit 35℃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.

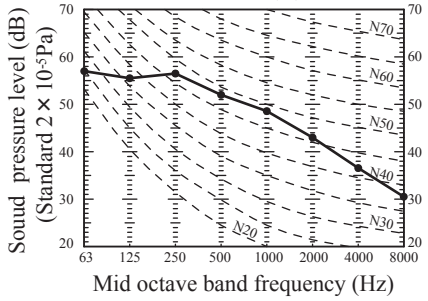
(1) Indoor units ..... **See page 18.**

(2) Outdoor units

Measured based on ISO-T1, JIS B 8616
Mike position: at highest noise level in position as mentined below
Distance from front side 1m

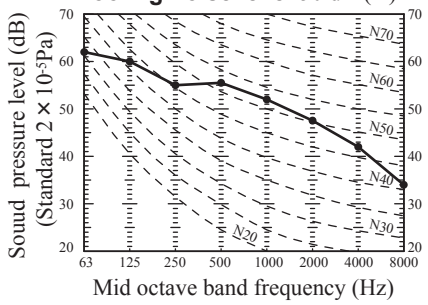
Models FDC100VN, 100VS

Noise level 49 dB (A)

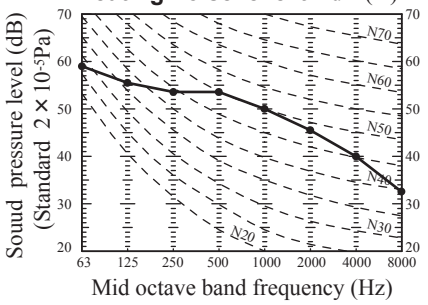


Models FDC125VN, 125VS

Cooling noise level 50 dB (A)

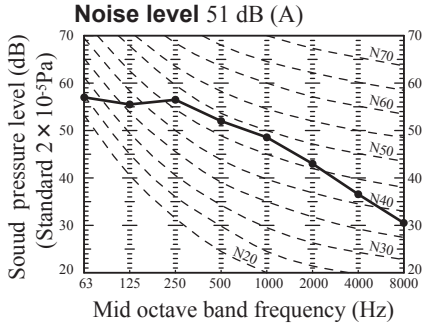


Heating noise level 51 dB (A)



Models FDC140VN, 140VS

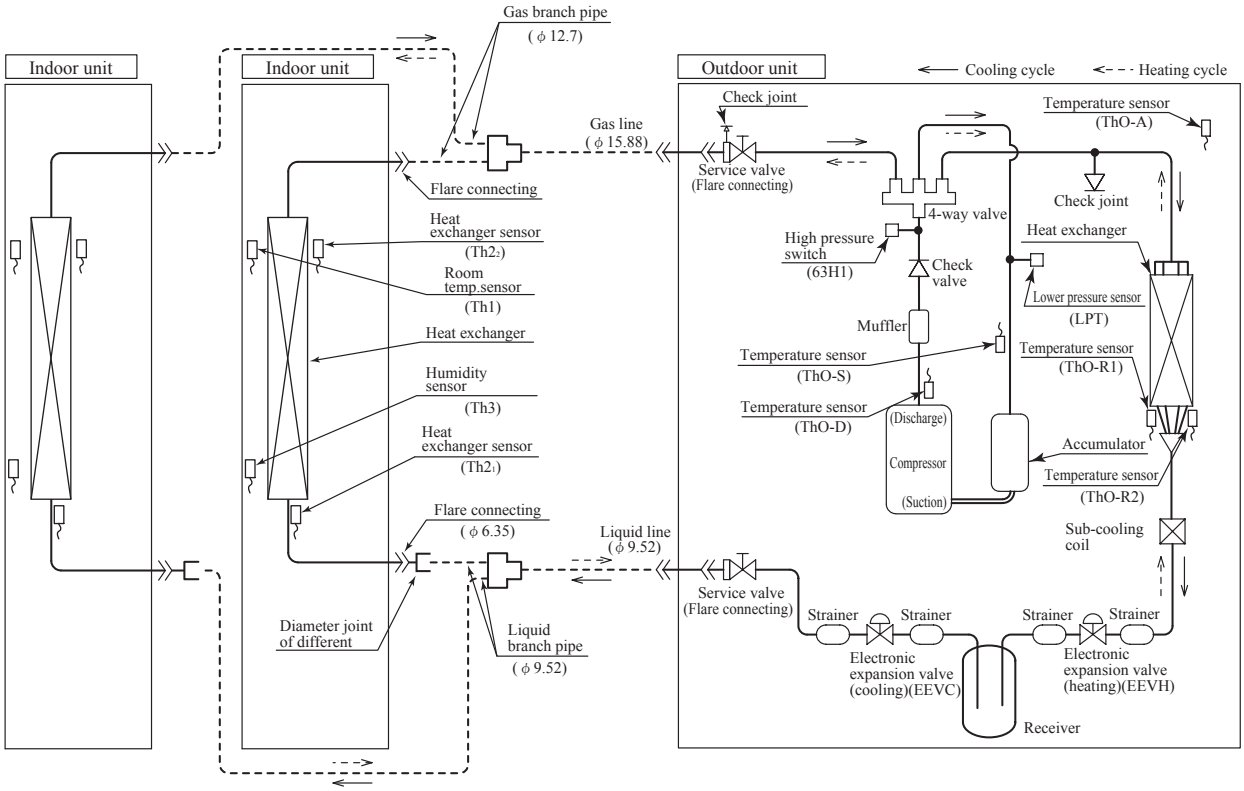
Noise level 51 dB (A)



2.5 PIPING SYSTEM

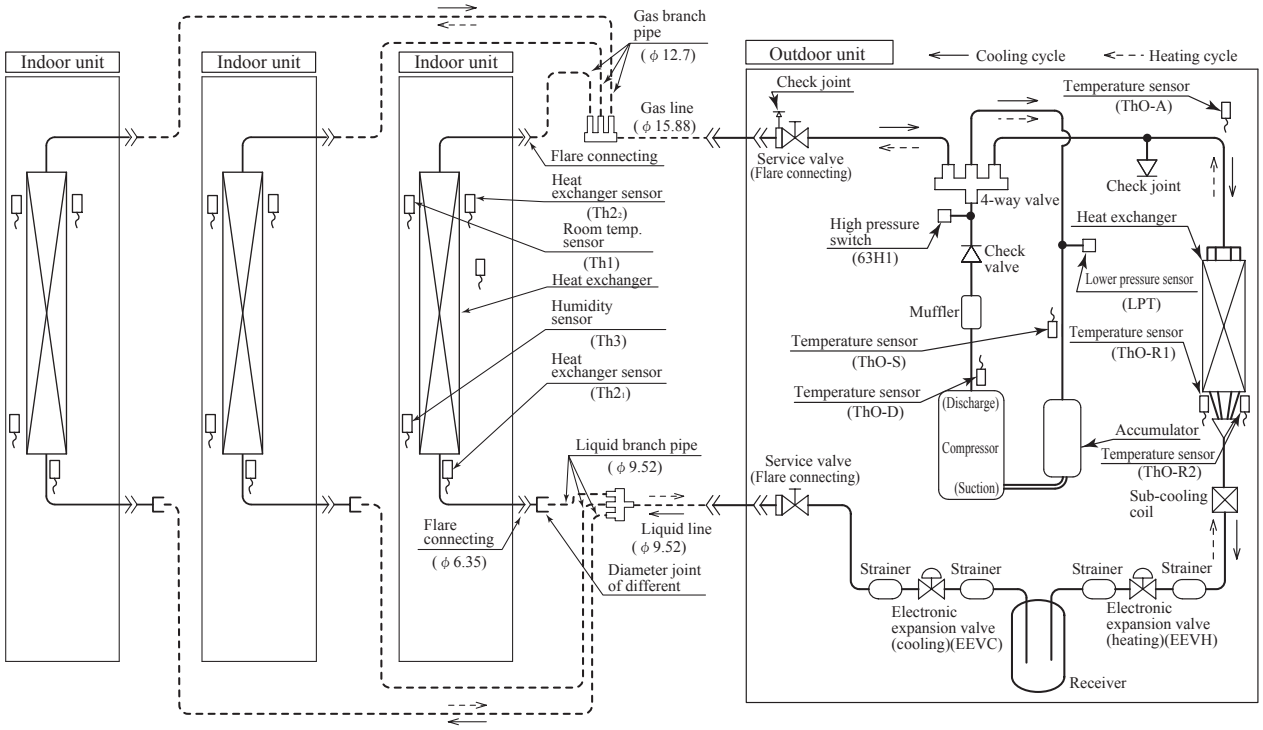
(1) Twin type

Models 100, 125



(2) Triple type

Model 140



Preset point of the protective devices

Parts name	Mark	Equipped unit	100, 125, 140 models
Temperature sensor (for protection over-loading in heating)	**Th1**	Indoor unit	OFF 16˚C ON 17˚C
Temperature sensor (for frost prevention)	**$Th2_1$**		OFF 8˚C ON 2.5˚C
Temperature sensor (for protection high pressure in cooling.)	**Tho-R**	Outdoor unit	OFF 51˚C ON 65˚C
Temperature sensor (for detecting dis-charge pipe temp.)	**Tho-D**	Outdoor unit	OFF 115˚C ON 85˚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

2.6 RANGE OF USAGE & LIMITATIONS

Operating temperature range		See next page.
		When used below -5˚C, install a snow hood
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 exterior dimensions. 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 : 23˚C or less, relative hummdity : 80% or less
Limitations on unit and piping installation		See pages 170 and 171
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 umbalance	3% or less

Note 1. Do not install the unit in places which :
1) Flammable gas may leak.
2) Carbon fiber, metal particles, powder, etc. are floating.
3) Cosmetic or special sprays are used frequently.
4) Exposed to oil splashes or steam (e.g. kitchen and machine plant).
5) Exposed to sea breeze (e.g. coastal area) or calcium chloride (e.g. snow melting agent).
6) Exposed to ammonia substance (e.g. organic fertilizer).
7) Matters affecting devices, such as sulfuric gas, chlorine gas, acid, alkali, etc. may generate or accumulate.
8) Chimney smoke is hanging.
9) Sucking the exhaust gas from heat exchanger.
10) Adjacent to equipment generating electromagnetic waves or high frequency waves.
11) There is light beams that affect the receiving device of indoor unit in case of the wireless specification.
12) Snow falls heavily.
13) At an elevation of 1000 meters or higher.
14) On mobile machine (e.g. vehicle, ship, etc.)
15) Splashed with water to indoor unit (e.g. laundry room).
16) Indoor units of twin, triple and double-twin specifications separately in a room with partition.

Note 2. If ambient temperature and humidity exceed the above conditions, add polyurethane foam insulation on the outer plate (10mm or thicker) of indoor unit.
Both gas and liquid pipes need to be coverd with 20mm or thicker heat insulation materials at the place where humidity exceeds 70%.

Note 3. When used below -5˚C, install a snow hood on site.
Regarding outline of a snow hood, refer to our technical maunal.

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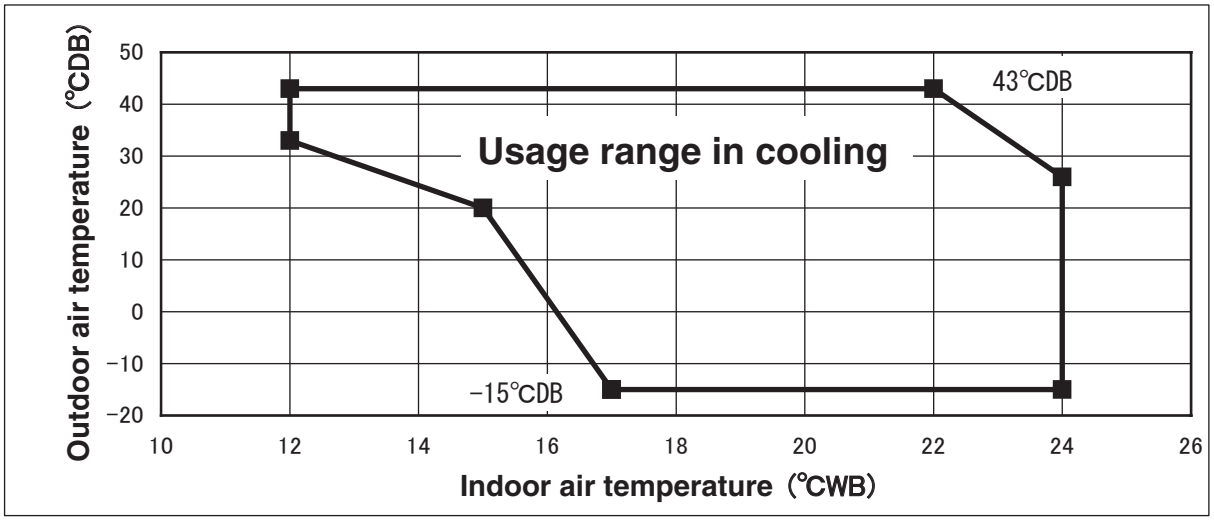
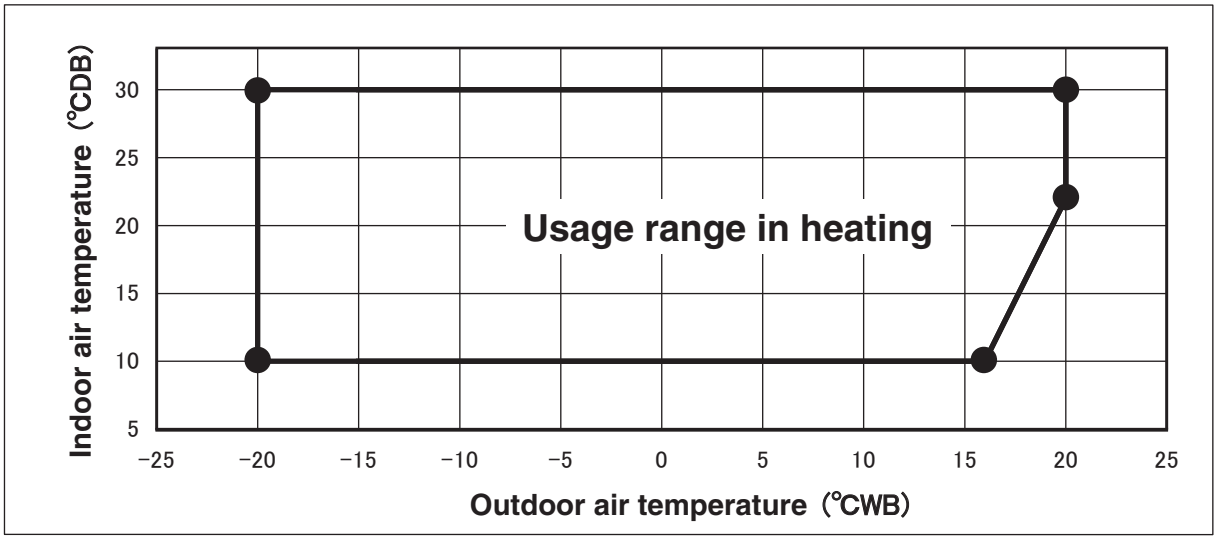
Operating temperature range

■ **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 air flow rate.

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"CAUTION" Cooling operation under low outdoor air temperature conditions

PAC models can be operated in cooling mode at low outdoor 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.

[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 option part) or like such devices onto the outdoor unit in order to divert the strong wind.

[Reason]

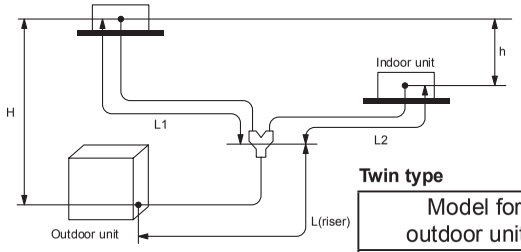
Under the low outdoor air temperature conditions of -5℃ or lower, the outdoor fan is controlled at lower or lowest speed by outdoor fan control, but if strong wind directly blow into the outdoor unit, the outdoor heat exchanger temperature will drop more.

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.

Limitation on unit and piping installation - twin.

Descriptions	Model for outdoor units		Dimensional limitations	Marks appearing in the drawing
				Twin type
One-way pipe length	FDC100・125・140		≦ 50m	L+L1+L2
Main pipe length	FDC100・125・140		≦ 50m	L
One-way pipe length after the first branching point	FDC100・125・140		≦ 30m	L1, L2
Difference of pipe length after the first branching point			≦ 10m	L1-L2 L2-L1
Total pipe length after the second branching point			≦ 15m	
Elevation difference between indoor and outdoor units	When the outdoor unit is positioned higher	FDC100 - 140	≦ 30m	H
	When the outdoor unit is positioned lower	FDC100 - 140	≦ 15m	
Elevation difference among indoor units			≦0.5m	h

Twin type



Twin type

Model for outdoor units	Branch piping set(option)
FDC100・125・140	DIS-WA1

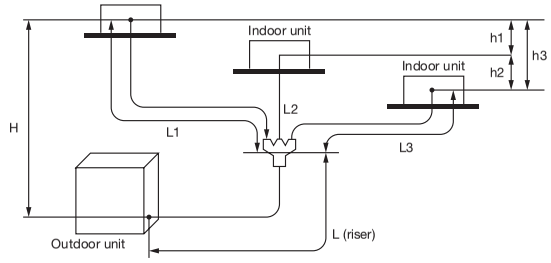
(1) A riser pipe must be part of the main.
A branching pipe set should be installed horizontally at a point as close to an indoor unit as possible.
(2) Reduce refrigerant amount by according to table below from factory charge when refrigerant piping is shorter than 3m.

Model for outdoor units	Refrigerant to be reduced
FDC100・125・140	-1.0kg

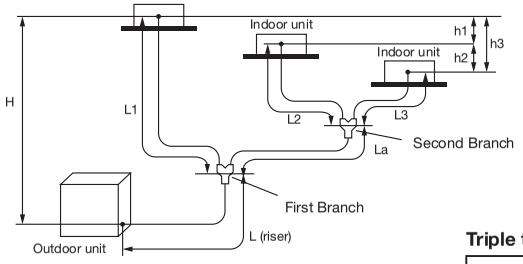
Limitation on unit and piping installation - triple.

Triple type (In case of FDC140)	One-way pipe length difference from the first branching point to the indoor unit		Marks appearing in the drawing	
			< 3m	≧ 3m
Descriptions	Model for outdoor units	Dimensional limitations	Triple type A	Triple type B
One-way pipe length	FDC140	≦ 50m	L+L1+L2+L3	L+La+L1+L2+L3 ※1
Main pipe length	FDC140	≦ 50m	L	L
Piping length between the first branching point and the second branching point		≦ 5m		La
One-way pipe length between the first branching point and indoor units		≦ 30m	L1, L2, L3	L1 ※1
One-way pipe length from the first branching point to indoor units through the second branching point		≦ 27m		La+L2, La+L3 ※1
Piping length difference from the first branching point to indoor unit		< 3m	L1-L2, L1-L3, L2-L3	
		3m ≦ , ≦ 10m		L1-(La+L2), L1-(La+L3) ※1
One-way pipe length difference from the second branching point to indoor unit		≦ 10m		L2-L3, L3-L2
Elevation difference between indoor and outdoor units	When the outdoor unit is positioned higher	≦ 30m	H	H
	When the outdoor unit is positioned lower	≦ 15m		
Elevation difference among indoor units		≦ 0.5m	h1, h2, h3	h1, h2, h3

Triple type A



Triple type B



※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.

(1) A riser pipe must be part of the main.
A branching pipe set should be installed horizontally at a 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.

Triple type

Model for outdoor units	Branch piping set(option)		
	Type A	Type B	
	Branch pipe	First branch	Second branch
FDC140	DIS-TA1	DIS-WA1	DIS-WA1

2.7 SELECTION CHART

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

Net capacity = Capacity shown in the capacity tables (2.7.1) × Correction factors shown in the table (2.7.2) (2.7.3) (2.7.4).

Caution: In case that the cooling operation during low outdoor air 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.

2.7.1 Capacity tables

Wall mounted type (SRK)

(1) Twin type

Model SRK100VNPZSX Indoor unit SRK50ZSX-S (2 units) Outdoor unit FDC100VN

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18 DB		21 DB		23 DB		26 DB		27 DB		28 DB		31 DB		33 DB	
	12 WB		14 WB		16 WB		18 WB		19 WB		20 WB		22 WB		24 WB	
DB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					8.12	6.78	8.59	7.32	8.82	7.26	9.07	7.21	9.56	7.61	10.06	7.47
13					8.50	6.94	9.00	7.48	9.26	7.43	9.52	7.37	10.06	7.77	10.60	7.63
15					8.88	7.11	9.42	7.65	9.69	7.59	9.98	7.54	10.56	7.94	11.14	7.80
17					9.26	7.27	9.84	7.82	10.12	7.76	10.43	7.71	11.05	8.11	11.67	7.97
19					9.46	7.36	10.05	7.90	10.34	7.85	10.65	7.79	11.29	8.19	11.92	8.04
21					9.65	7.44	10.25	7.99	10.56	7.93	10.88	7.88	11.52	8.27	12.16	8.12
23					9.65	7.44	10.28	8.00	10.59	7.94	10.91	7.89	11.56	8.29	12.21	8.14
25			8.93	7.55	9.64	7.44	10.31	8.01	10.62	7.96	10.95	7.90	11.61	8.30	12.27	8.16
27			8.86	7.52	9.64	7.44	10.34	8.02	10.65	7.97	10.96	7.91	11.57	8.29		
29			8.80	7.49	9.50	7.38	10.17	7.95	10.49	7.91	10.81	7.85	11.45	8.25		
31			8.73	7.46	9.35	7.31	9.99	7.88	10.32	7.84	10.66	7.79	11.32	8.20		
33	8.22	6.98	8.58	7.39	9.21	7.25	9.82	7.81	10.16	7.78	10.51	7.74	11.19	8.16		
35	8.05	6.89	8.44	7.32	9.06	7.18	9.64	7.74	10.00	7.71	10.36	7.68	11.07	8.12		
37	7.92	6.83	8.30	7.26	8.91	7.12	9.46	7.67	9.79	7.63	10.13	7.60	10.80	8.02		
39	7.78	6.76	8.16	7.19	8.75	7.05	9.28	7.59	9.59	7.56	9.90	7.51	10.53	7.93		
41	7.64	6.69	8.02	7.13	8.60	6.99	9.09	7.52	9.38	7.48	9.68	7.43	10.26	7.84		
43	7.50	6.62	7.88	7.07	8.45	6.92	8.91	7.45	9.18	7.40	9.45	7.35	9.99	7.75		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature DB				
DB	WB	16	18	20	22	24
-19.8	-20	5.64	5.62	5.60	5.58	5.56
-17.7	-18	5.97	5.95	5.92	5.90	5.87
-15.7	-16	6.30	6.27	6.25	6.22	6.19
-13.5	-14	6.66	6.63	6.60	6.57	6.54
-11.5	-12	7.03	6.99	6.96	6.93	6.90
-9.5	-10	7.39	7.36	7.32	7.29	7.25
-7.5	-8	7.75	7.72	7.68	7.64	7.60
-5.5	-6	7.92	7.88	7.85	7.80	7.76
-3.0	-4	8.10	8.05	8.01	7.97	7.92
-1.0	-2	8.27	8.22	8.18	8.13	8.08
1.0	0	8.44	8.39	8.34	8.29	8.24
2.0	1	8.52	8.47	8.42	8.37	8.32
3.0	2	9.08	9.03	8.98	8.94	8.90
5.0	4	10.21	10.15	10.09	10.08	10.07
7.0	6	11.33	11.27	11.20	11.22	11.23
9.0	8	11.78	11.71	11.64	11.62	11.59
11.5	10	12.23	12.16	12.09	12.02	11.94
13.5	12	12.91	12.83	12.75	12.65	12.60
15.5	14	13.59	13.50	13.42	13.29	13.26
16.5	16	13.93	13.84	13.75	13.61	13.59

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Model SRK100VSPZSX Indoor unit SRK50ZSX-S (2 units) Outdoor unit FDC100VS

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18 DB		21 DB		23 DB		26 DB		27 DB		28 DB		31 DB		33 DB	
	12 WB		14 WB		16 WB		18 WB		19 WB		20 WB		22 WB		24 WB	
DB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					8.12	6.78	8.59	7.32	8.82	7.26	9.07	7.21	9.56	7.61	10.06	7.47
13					8.50	6.94	9.00	7.48	9.26	7.43	9.52	7.37	10.06	7.77	10.60	7.63
15					8.88	7.11	9.42	7.65	9.69	7.59	9.98	7.54	10.56	7.94	11.14	7.80
17					9.26	7.27	9.84	7.82	10.12	7.76	10.43	7.71	11.05	8.11	11.67	7.97
19					9.46	7.36	10.05	7.90	10.34	7.85	10.65	7.79	11.29	8.19	11.92	8.04
21					9.65	7.44	10.25	7.99	10.56	7.93	10.88	7.88	11.52	8.27	12.16	8.12
23					9.65	7.44	10.28	8.00	10.59	7.94	10.91	7.89	11.56	8.29	12.21	8.14
25			8.93	7.55	9.64	7.44	10.31	8.01	10.62	7.96	10.95	7.90	11.61	8.30	12.27	8.16
27			8.86	7.52	9.64	7.44	10.34	8.02	10.65	7.97	10.96	7.91	11.57	8.29		
29			8.80	7.49	9.50	7.38	10.17	7.95	10.49	7.91	10.81	7.85	11.45	8.25		
31			8.73	7.46	9.35	7.31	9.99	7.88	10.32	7.84	10.66	7.79	11.32	8.20		
33	8.22	6.98	8.58	7.39	9.21	7.25	9.82	7.81	10.16	7.78	10.51	7.74	11.19	8.16		
35	8.05	6.89	8.44	7.32	9.06	7.18	9.64	7.74	10.00	7.71	10.36	7.68	11.07	8.12		
37	7.92	6.83	8.30	7.26	8.91	7.12	9.46	7.67	9.79	7.63	10.13	7.60	10.80	8.02		
39	7.78	6.76	8.16	7.19	8.75	7.05	9.28	7.59	9.59	7.56	9.90	7.51	10.53	7.93		
41	7.64	6.69	8.02	7.13	8.60	6.99	9.09	7.52	9.38	7.48	9.68	7.43	10.26	7.84		
43	7.50	6.62	7.88	7.07	8.45	6.92	8.91	7.45	9.18	7.40	9.45	7.35	9.99	7.75		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature DB				
DB	WB	16	18	20	22	24
-19.8	-20	5.64	5.62	5.60	5.58	5.56
-17.7	-18	5.97	5.95	5.92	5.90	5.87
-15.7	-16	6.30	6.27	6.25	6.22	6.19
-13.5	-14	6.66	6.63	6.60	6.57	6.54
-11.5	-12	7.03	6.99	6.96	6.93	6.90
-9.5	-10	7.39	7.36	7.32	7.29	7.25
-7.5	-8	7.75	7.72	7.68	7.64	7.60
-5.5	-6	7.92	7.88	7.85	7.80	7.76
-3.0	-4	8.10	8.05	8.01	7.97	7.92
-1.0	-2	8.27	8.22	8.18	8.13	8.08
1.0	0	8.44	8.39	8.34	8.29	8.24
2.0	1	8.52	8.47	8.42	8.37	8.32
3.0	2	9.08	9.03	8.98	8.94	8.90
5.0	4	10.21	10.15	10.09	10.08	10.07
7.0	6	11.33	11.27	11.20	11.22	11.23
9.0	8	11.78	11.71	11.64	11.62	11.59
11.5	10	12.23	12.16	12.09	12.02	11.94
13.5	12	12.91	12.83	12.75	12.65	12.60
15.5	14	13.59	13.50	13.42	13.29	13.26
16.5	16	13.93	13.84	13.75	13.61	13.59

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Notes (1) These data show average statuses.
Depending on the system control, there may be ranges where the operation is not conducted continuously.
These data show the case where the operation frequency of a compressor is fixed.
(2) Capacities are based on the following conditions.
Corresponding refrigerant piping length :7.5m
Level difference of Zero.
(3) Symbols are as follows.
TC : Total cooling capacity (kW)
SHC : Sensible heat capacity (kW)
HC : Heating capacity (kW)

Model SRK125VNPZSX Indoor unit SRK60ZSX-S (2 units) Outdoor unit FDC125VN

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18 DB		21 DB		23 DB		26 DB		27 DB		28 DB		31 DB		33 DB	
	12 WB		14 WB		16 WB		18 WB		19 WB		20 WB		22 WB		24 WB	
DB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					10.15	7.69	10.74	8.24	11.03	8.16	11.34	8.08	11.96	8.46	12.57	8.26
13					10.63	7.90	11.26	8.44	11.57	8.36	11.91	8.28	12.58	8.66	13.25	8.46
15					11.10	8.10	11.78	8.65	12.11	8.57	12.47	8.49	13.20	8.87	13.92	8.66
17					11.58	8.31	12.29	8.86	12.65	8.78	13.04	8.70	13.82	9.08	14.59	8.87
19					11.82	8.42	12.56	8.97	12.92	8.88	13.32	8.80	14.11	9.18	14.90	8.97
21					12.06	8.53	12.82	9.08	13.19	8.99	13.60	8.91	14.40	9.28	15.20	9.06
23					12.06	8.53	12.85	9.09	13.23	9.01	13.64	8.93	14.45	9.30	15.27	9.08
25			11.16	8.66	12.06	8.53	12.89	9.11	13.27	9.02	13.68	8.94	14.51	9.32	15.34	9.11
27			11.08	8.62	12.05	8.52	12.92	9.12	13.31	9.04	13.69	8.95	14.47	9.31		
29			11.00	8.59	11.87	8.44	12.71	9.03	13.11	8.96	13.51	8.88	14.31	9.25		
31			10.92	8.55	11.69	8.36	12.49	8.94	12.90	8.87	13.32	8.80	14.15	9.20		
33	10.27	8.06	10.72	8.45	11.51	8.28	12.27	8.85	12.70	8.80	13.13	8.73	13.99	9.14		
35	10.07	7.95	10.55	8.37	11.33	8.20	12.06	8.76	12.50	8.72	12.94	8.66	13.83	9.08		
37	9.90	7.87	10.38	8.29	11.13	8.12	11.83	8.67	12.24	8.62	12.66	8.56	13.50	8.97		
39	9.72	7.78	10.20	8.21	10.94	8.03	11.60	8.58	11.99	8.52	12.38	8.45	13.16	8.86		
41	9.55	7.69	10.02	8.13	10.75	7.95	11.37	8.49	11.73	8.42	12.09	8.35	12.82	8.74		
43	9.38	7.61	9.85	8.05	10.56	7.87	11.14	8.39	11.47	8.32	11.81	8.24	12.48	8.63		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature				
		DB				
DB	WB	16	18	20	22	24
-19.8	-20	7.06	7.03	7.00	6.97	6.95
-17.7	-18	7.46	7.43	7.41	7.37	7.34
-15.7	-16	7.87	7.84	7.81	7.77	7.74
-13.5	-14	8.33	8.29	8.26	8.22	8.18
-11.5	-12	8.78	8.74	8.70	8.66	8.62
-9.5	-10	9.24	9.19	9.15	9.11	9.06
-7.5	-8	9.69	9.65	9.60	9.55	9.50
-5.5	-6	9.91	9.86	9.81	9.75	9.70
-3.0	-4	10.12	10.07	10.01	9.96	9.90
-1.0	-2	10.33	10.28	10.22	10.16	10.10
1.0	0	10.55	10.49	10.43	10.36	10.30
2.0	1	10.65	10.59	10.53	10.47	10.40
3.0	2	11.36	11.29	11.22	11.18	11.13
5.0	4	12.76	12.69	12.61	12.60	12.58
7.0	6	14.16	14.08	14.00	14.02	14.04
9.0	8	14.72	14.64	14.56	14.52	14.49
11.5	10	15.28	15.20	15.11	15.02	14.93
13.5	12	16.13	16.04	15.94	15.82	15.75
15.5	14	16.98	16.88	16.77	16.62	16.58
16.5	16	17.41	17.30	17.19	17.02	16.99

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Model SRK125VSPZSX Indoor unit SRK60ZSX-S (2 units) Outdoor unit FDC125VS

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18 DB		21 DB		23 DB		26 DB		27 DB		28 DB		31 DB		33 DB	
	12 WB		14 WB		16 WB		18 WB		19 WB		20 WB		22 WB		24 WB	
DB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					10.15	7.69	10.74	8.24	11.03	8.16	11.34	8.08	11.96	8.46	12.57	8.26
13					10.63	7.90	11.26	8.44	11.57	8.36	11.91	8.28	12.58	8.66	13.25	8.46
15					11.10	8.10	11.78	8.65	12.11	8.57	12.47	8.49	13.20	8.87	13.92	8.66
17					11.58	8.31	12.29	8.86	12.65	8.78	13.04	8.70	13.82	9.08	14.59	8.87
19					11.82	8.42	12.56	8.97	12.92	8.88	13.32	8.80	14.11	9.18	14.90	8.97
21					12.06	8.53	12.82	9.08	13.19	8.99	13.60	8.91	14.40	9.28	15.20	9.06
23					12.06	8.53	12.85	9.09	13.23	9.01	13.64	8.93	14.45	9.30	15.27	9.08
25			11.16	8.66	12.06	8.53	12.89	9.11	13.27	9.02	13.68	8.94	14.51	9.32	15.34	9.11
27			11.08	8.62	12.05	8.52	12.92	9.12	13.31	9.04	13.69	8.95	14.47	9.31		
29			11.00	8.59	11.87	8.44	12.71	9.03	13.11	8.96	13.51	8.88	14.31	9.25		
31			10.92	8.55	11.69	8.36	12.49	8.94	12.90	8.87	13.32	8.80	14.15	9.20		
33	10.27	8.06	10.72	8.45	11.51	8.28	12.27	8.85	12.70	8.80	13.13	8.73	13.99	9.14		
35	10.07	7.95	10.55	8.37	11.33	8.20	12.06	8.76	12.50	8.72	12.94	8.66	13.83	9.08		
37	9.90	7.87	10.38	8.29	11.13	8.12	11.83	8.67	12.24	8.62	12.66	8.56	13.50	8.97		
39	9.72	7.78	10.20	8.21	10.94	8.03	11.60	8.58	11.99	8.52	12.38	8.45	13.16	8.86		
41	9.55	7.69	10.02	8.13	10.75	7.95	11.37	8.49	11.73	8.42	12.09	8.35	12.82	8.74		
43	9.38	7.61	9.85	8.05	10.56	7.87	11.14	8.39	11.47	8.32	11.81	8.24	12.48	8.63		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature				
		DB				
DB	WB	16	18	20	22	24
-19.8	-20	7.06	7.03	7.00	6.97	6.95
-17.7	-18	7.46	7.43	7.41	7.37	7.34
-15.7	-16	7.87	7.84	7.81	7.77	7.74
-13.5	-14	8.33	8.29	8.26	8.22	8.18
-11.5	-12	8.78	8.74	8.70	8.66	8.62
-9.5	-10	9.24	9.19	9.15	9.11	9.06
-7.5	-8	9.69	9.65	9.60	9.55	9.50
-5.5	-6	9.91	9.86	9.81	9.75	9.70
-3.0	-4	10.12	10.07	10.01	9.96	9.90
-1.0	-2	10.33	10.28	10.22	10.16	10.10
1.0	0	10.55	10.49	10.43	10.36	10.30
2.0	1	10.65	10.59	10.53	10.47	10.40
3.0	2	11.36	11.29	11.22	11.18	11.13
5.0	4	12.76	12.69	12.61	12.60	12.58
7.0	6	14.16	14.08	14.00	14.02	14.04
9.0	8	14.72	14.64	14.56	14.52	14.49
11.5	10	15.28	15.20	15.11	15.02	14.93
13.5	12	16.13	16.04	15.94	15.82	15.75
15.5	14	16.98	16.88	16.77	16.62	16.58
16.5	16	17.41	17.30	17.19	17.02	16.99

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Notes (1) These data show average statuses.
Depending on the system control, there may be ranges where the operation is not conducted continuously.
These data show the case where the operation frequency of a compressor is fixed.
(2) Capacities are based on the following conditions.
Corresponding refrigerant piping length :7.5m
Level difference of Zero.
(3) Symbols are as follows.
TC : Total cooling capacity (kW)
SHC : Sensible heat capacity (kW)
HC : Heating capacity (kW)

(2) Triple type

Model SRK140VNTZSX Indoor unit SRK50ZSX-S (3 units) Outdoor unit FDC140VN

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18 DB		21 DB		23 DB		26 DB		27 DB		28 DB		31 DB		33 DB	
	12 WB		14 WB		16 WB		18 WB		19 WB		20 WB		22 WB		24 WB	
DB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					11.37	9.84	12.02	10.65	12.35	10.57	12.70	10.49	13.39	11.10	14.08	10.90
13					11.90	10.06	12.61	10.88	12.96	10.80	13.33	10.72	14.09	11.33	14.84	11.13
15					12.43	10.28	13.19	11.10	13.57	11.02	13.97	10.95	14.78	11.56	15.59	11.36
17					12.96	10.51	13.77	11.33	14.17	11.25	14.61	11.18	15.48	11.79	16.34	11.59
19					13.24	10.63	14.06	11.45	14.48	11.37	14.92	11.29	15.80	11.90	16.68	11.69
21					13.51	10.74	14.36	11.57	14.78	11.49	15.23	11.41	16.12	12.01	17.02	11.80
23					13.51	10.74	14.40	11.58	14.82	11.50	15.28	11.43	16.19	12.03	17.10	11.82
25			12.50	10.91	13.50	10.74	14.43	11.59	14.86	11.52	15.33	11.44	16.25	12.05	17.18	11.85
27			12.41	10.87	13.50	10.74	14.47	11.61	14.91	11.54	15.34	11.45	16.20	12.03		
29			12.32	10.83	13.29	10.65	14.23	11.51	14.68	11.45	15.13	11.37	16.02	11.97		
31			12.23	10.79	13.09	10.56	13.99	11.42	14.45	11.36	14.92	11.29	15.85	11.92		
33	11.51	10.06	12.01	10.68	12.89	10.48	13.75	11.32	14.23	11.27	14.71	11.22	15.67	11.85		
35	11.28	9.95	11.82	10.60	12.68	10.39	13.50	11.22	14.00	11.19	14.50	11.14	15.49	11.79		
37	11.08	9.85	11.62	10.51	12.47	10.30	13.25	11.13	13.71	11.08	14.18	11.02	15.12	11.67		
39	10.89	9.76	11.43	10.42	12.26	10.21	12.99	11.02	13.43	10.97	13.86	10.91	14.74	11.54		
41	10.70	9.67	11.23	10.33	12.04	10.12	12.73	10.92	13.14	10.86	13.55	10.79	14.36	11.42		
43	10.51	9.58	11.03	10.24	11.83	10.03	12.47	10.82	12.85	10.75	13.23	10.68	13.98	11.29		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature DB				
DB	WB	16	18	20	22	24
-19.8	-20	8.06	8.03	8.00	7.97	7.94
-17.7	-18	8.53	8.50	8.46	8.43	8.39
-15.7	-16	9.00	8.96	8.92	8.88	8.85
-13.5	-14	9.52	9.48	9.43	9.39	9.35
-11.5	-12	10.04	9.99	9.95	9.90	9.85
-9.5	-10	10.56	10.51	10.46	10.41	10.36
-7.5	-8	11.08	11.02	10.97	10.91	10.86
-5.5	-6	11.32	11.26	11.21	11.15	11.09
-3.0	-4	11.56	11.50	11.44	11.38	11.31
-1.0	-2	11.81	11.75	11.68	11.61	11.54
1.0	0	12.05	11.99	11.92	11.84	11.77
2.0	1	12.18	12.11	12.04	11.96	11.89
3.0	2	12.98	12.90	12.83	12.77	12.72
5.0	4	14.58	14.50	14.41	14.40	14.38
7.0	6	16.19	16.09	16.00	16.02	16.05
9.0	8	16.83	16.73	16.63	16.59	16.55
11.5	10	17.46	17.37	17.27	17.17	17.06
13.5	12	18.44	18.33	18.22	18.08	18.00
15.5	14	19.41	19.29	19.17	18.99	18.95
16.5	16	19.90	19.77	19.64	19.45	19.42

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Model SRK140VSTZSX Indoor unit SRK50ZSX-S (3 units) Outdoor unit FDC140VS

Cooling Mode (kW)

Outdoor air temp.	Indoor air temperature															
	18 DB		21 DB		23 DB		26 DB		27 DB		28 DB		31 DB		33 DB	
	12 WB		14 WB		16 WB		18 WB		19 WB		20 WB		22 WB		24 WB	
DB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
11					11.37	9.84	12.02	10.65	12.35	10.57	12.70	10.49	13.39	11.10	14.08	10.90
13					11.90	10.06	12.61	10.88	12.96	10.80	13.33	10.72	14.09	11.33	14.84	11.13
15					12.43	10.28	13.19	11.10	13.57	11.02	13.97	10.95	14.78	11.56	15.59	11.36
17					12.96	10.51	13.77	11.33	14.17	11.25	14.61	11.18	15.48	11.79	16.34	11.59
19					13.24	10.63	14.06	11.45	14.48	11.37	14.92	11.29	15.80	11.90	16.68	11.69
21					13.51	10.74	14.36	11.57	14.78	11.49	15.23	11.41	16.12	12.01	17.02	11.80
23					13.51	10.74	14.40	11.58	14.82	11.50	15.28	11.43	16.19	12.03	17.10	11.82
25			12.50	10.91	13.50	10.74	14.43	11.59	14.86	11.52	15.33	11.44	16.25	12.05	17.18	11.85
27			12.41	10.87	13.50	10.74	14.47	11.61	14.91	11.54	15.34	11.45	16.20	12.03		
29			12.32	10.83	13.29	10.65	14.23	11.51	14.68	11.45	15.13	11.37	16.02	11.97		
31			12.23	10.79	13.09	10.56	13.99	11.42	14.45	11.36	14.92	11.29	15.85	11.92		
33	11.51	10.06	12.01	10.68	12.89	10.48	13.75	11.32	14.23	11.27	14.71	11.22	15.67	11.85		
35	11.28	9.95	11.82	10.60	12.68	10.39	13.50	11.22	14.00	11.19	14.50	11.14	15.49	11.79		
37	11.08	9.85	11.62	10.51	12.47	10.30	13.25	11.13	13.71	11.08	14.18	11.02	15.12	11.67		
39	10.89	9.76	11.43	10.42	12.26	10.21	12.99	11.02	13.43	10.97	13.86	10.91	14.74	11.54		
41	10.70	9.67	11.23	10.33	12.04	10.12	12.73	10.92	13.14	10.86	13.55	10.79	14.36	11.42		
43	10.51	9.58	11.03	10.24	11.83	10.03	12.47	10.82	12.85	10.75	13.23	10.68	13.98	11.29		

Heating Mode:HC (kW)

Outdoor air temp.		Indoor air temperature DB				
DB	WB	16	18	20	22	24
-19.8	-20	8.06	8.03	8.00	7.97	7.94
-17.7	-18	8.53	8.50	8.46	8.43	8.39
-15.7	-16	9.00	8.96	8.92	8.88	8.85
-13.5	-14	9.52	9.48	9.43	9.39	9.35
-11.5	-12	10.04	9.99	9.95	9.90	9.85
-9.5	-10	10.56	10.51	10.46	10.41	10.36
-7.5	-8	11.08	11.02	10.97	10.91	10.86
-5.5	-6	11.32	11.26	11.21	11.15	11.09
-3.0	-4	11.56	11.50	11.44	11.38	11.31
-1.0	-2	11.81	11.75	11.68	11.61	11.54
1.0	0	12.05	11.99	11.92	11.84	11.77
2.0	1	12.18	12.11	12.04	11.96	11.89
3.0	2	12.98	12.90	12.83	12.77	12.72
5.0	4	14.58	14.50	14.41	14.40	14.38
7.0	6	16.19	16.09	16.00	16.02	16.05
9.0	8	16.83	16.73	16.63	16.59	16.55
11.5	10	17.46	17.37	17.27	17.17	17.06
13.5	12	18.44	18.33	18.22	18.08	18.00
15.5	14	19.41	19.29	19.17	18.99	18.95
16.5	16	19.90	19.77	19.64	19.45	19.42

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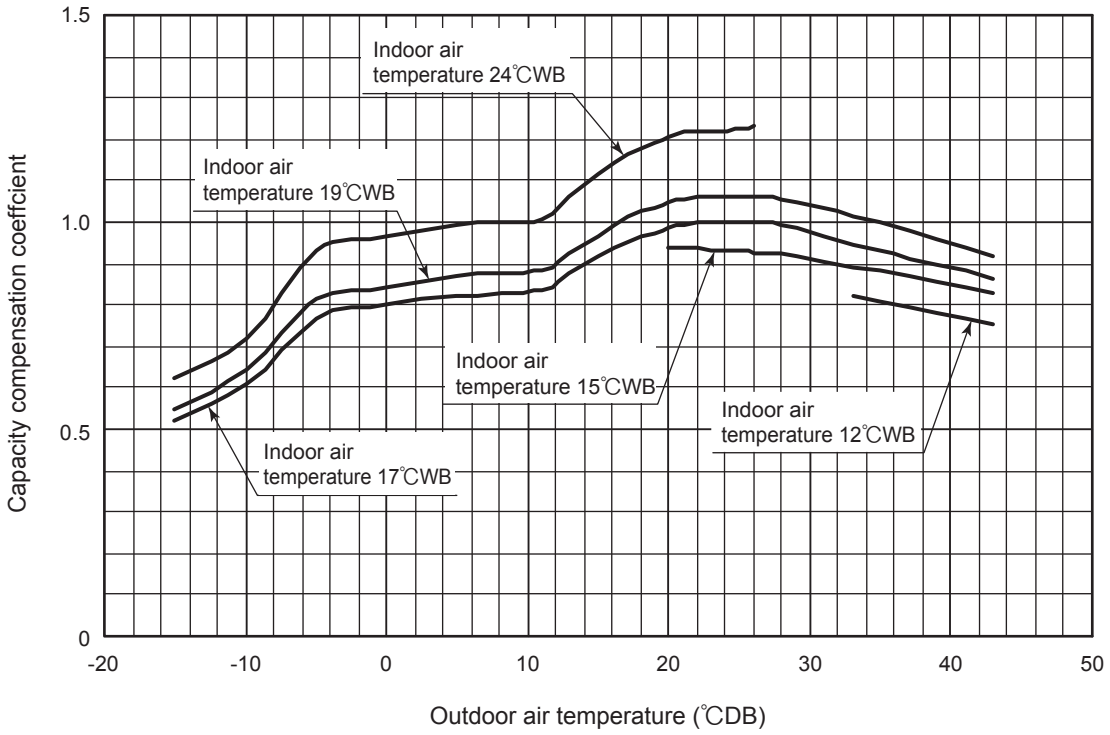
Notes (1) These data show average statuses.
Depending on the system control, there may be ranges where the operation is not conducted continuously.
These data show the case where the operation frequency of a compressor is fixed.
(2) Capacities are based on the following conditions.
Corresponding refrigerant piping length :7.5m
Level difference of Zero.
(3) Symbols are as follows.
TC : Total cooling capacity (kW)
SHC : Sensible heat capacity (kW)
HC : Heating capacity (kW)

[References data]

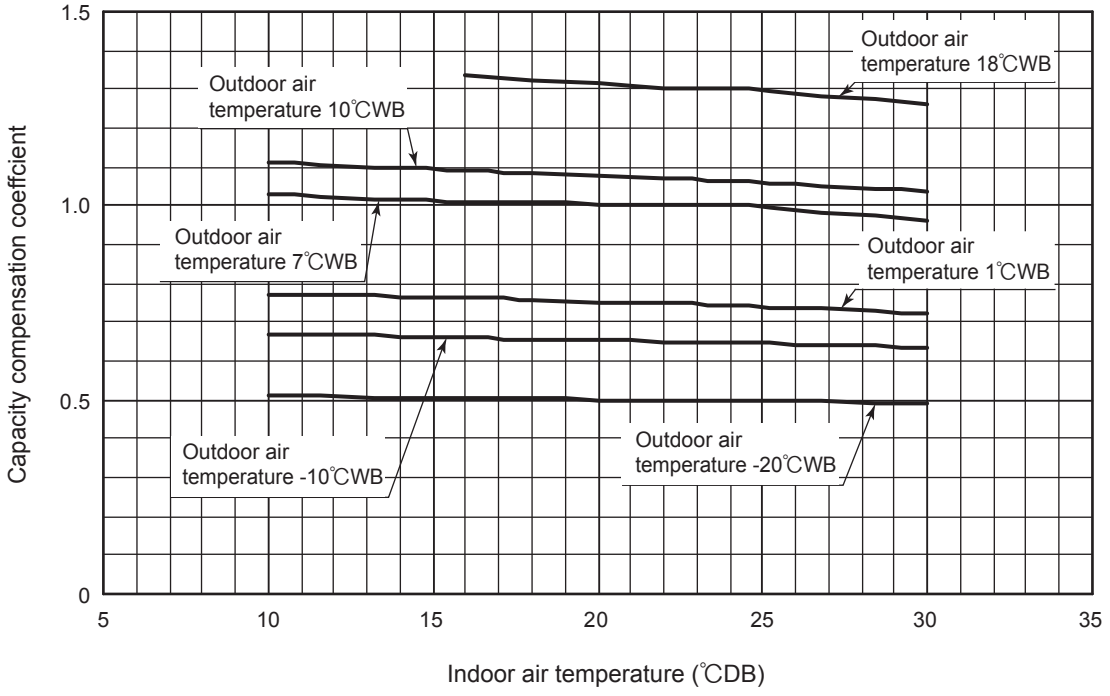
Capacity variation against outdoor and indoor temperature at rated capacity condition.

(I) Models FDC100, 125, 140VN, 100, 125, 140VS

① Cooling



② Heating



2.7.2 Correction of cooling and heating capacity in relation to air flow rate control (fan speed)

Fan speed	Hi	Me	Lo
Coefficient	1.00	0.97	0.95

2.7.3 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.

Models 100 - 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	100 model	ϕ15.88	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
	100 model	ϕ19.05	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.

• 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

2.7.4 Height difference between the indoor unit and outdoor unit

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	0.99	0.98	0.97	0.96	0.95	0.94

Piping length limitations

Item \ Model	100, 125, 140
Max. one way piping length	50m
Max. vertical height difference	Outdoor unit is higher 30m Outdoor unit is lower 15m

Note (1) Values in the table indicate the one way piping length between the indoor and outdoor units.

How to obtain the cooling and heating capacity

Example : The net cooling capacity of the model SRK100VNPZSX with the air flow "Hi", the piping length of 15m, the outdoor unit located 5m lower than the indoor unit, indoor wet-bulb temperature at 19.0℃ and outdoor dry-bulb temperature 35℃ is

Net cooling capacity = 10.0 × 1.00 × 0.978 × 0.99 ≒ 9.7kW

- 10.0: Net cooling total capacity of SRK100VNPZSX (Outdoor temp. : 35℃DB Indoor temp. : 19℃WB) shown in table 2.7.1
- 1.00: Air flow : Hi shown in table 2.7.2
- 0.978: Piping length :15m (Gas pipe size is ϕ15.88) shown in table 2.7.3
- 0.99: Height diff. :5m (Outdoor unit : below) shown in table 2.7.4

2.8 APPLICATION DATA

2.9 OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

2.9.4 Operation control function by the outdoor control

Models FDC100-140VN, 100-140VS

(1) Determination of compressor speed (Frequency)

Required frequency

(a) Cooling/dehumidifying operation

Unit: rps

Model		FDC100	FDC125	FDC140
Max. required frequency	Usual operation	90	105	105
	Silent mode, outdoor temperature ≦ 15°C	60	80	85
Min. required frequency		20	20	20

(b) Heating operation

Unit: rps

Model		FDC100	FDC125	FDC140
Max. required frequency	Usual operation	90	105	110
	Silent mode	60	80	85
Min. required frequency		20	20	20

(c) If the indoor unit fan speed becomes "Me" or "Lo", Max required frequentcy goes down accordingly depending on indoor unit model.

(d) Max. required frequency under high outdoor air temperature in cooling mode

Maximum required frequency is selected according to the outdoor air temperature (Tho-A).

Unit: rps

Model		FDC100	FDC125	FDC140
Max. required frequency	Outdoor air temperature is 40°C or higher	75	90	96
	Outdoor air temperature is 46°C or higher	75	75	75

(e) Max. required frequency under outdoor air temperature in heating mode

Maximum required frequency is selected according to the outdoor air temperature (Tho-A).

Unit: rps

Model		FDC100	FDC125	FDC140
Max. required frequency	Outdoor air temperature is 18°C or higher	60	80	85

(f) Selection of max. required frequency by heat exchanger temperature

(i) 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 (Th2) during heating mode.

(ii) When there are 3 indoor unit heat exchanger temperatures (Th2), whichever the highest applies,

Unit: rps

Model			FDC100	FDC125	FDC140
Max. required frequency	Cooling/ dehumidifying	Outdoor unit heat exchanger temperature is 56°C or higher	90	100	100
	Heating	Indoor unit heat exchanger temperature is 56°C or higher	90	100	100

(g) When any of the controls from (a) to (f) above may duplicate, whichever the smallest value among duplicated controls is taken as the maximum required frequency.

(h) During heating, it is operated with the maximum required frequency until the indoor unit heat exchanger temperature becomes 40°C or higher.

(2) Compressor start control

(a) Compressor starts upon receipt of the thermostat ON signal from the indoor unit.

(b) However, at initial start after turning the power source breaker, it may enter the standby state for maximum 30 minutes (" PREPARATION" is displayed on the remote control) in order to prevent the oil loss in the compressor.

If the cooling/dehumidifying/heating operation is selected from the remote control when the outdoor unit is in the standby state, " PREPARATION" is displayed for 3 seconds on the remote control.

(3) Compressor soft start control

(a) Compressor protection start I

[Control condition] Normally, the compressor operation frequency is raised in this start pattern.

[Control contents] (i) Starts with the compressor's target frequency at **A** rps.
However, when the ambient air temperature (Tho-A) is 35°C or higher during cooling/dehumidifying or the indoor return air temperature (Th1) is 25°C or higher during heating, it starts at **C** rps.

(ii) 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
FDC100-140	Cooling/Dehumidifying	55	55	30
	Heating	55	55	30

(b) Compressor protection start III

[Control condition] Number of compressor starts is only 1 counted after the power source breaker ON.

[Control contents] Operates by selecting one of following start patterns according to the operation mode and the outdoor air temperature (Tho-A).

(i) 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
FDC100-140	Cooling/Dehumidifying	55	55	30

(ii) Low frequency operation control during heating

[Control condition] When the conditions of compressor protection start III are established and one of following conditions ① is satisfied, the low number of revolutions operation control is performed during heating.
① At 30 minutes or more after turning the power source breaker on

[Control contents] ① Starts the compressor with its target frequency at **A** rps. However, when the indoor unit return air temperature (Th1) 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
FDC100-140	Heating	55	55	30

(4) Outdoor unit fan control

(a) Outdoor unit fan tap and fan motor speed

Unit: min^{-1}

Model	Mode	Fan motor tap						
		① speed	② speed	③ speed	④ speed	⑤ speed	⑥ speed	⑦ speed
FDC100-140	Cooling/Dehumidifying	200	350	600	740	820	870	910 (950)(1)
	Heating	200	350	600	740	820	870	910 (950)(1)

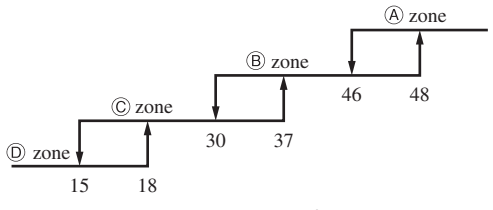
Note (1) Value in ( ) are for the model FDC125, 140.

(b) Fan tap control during Cooling/Defumidifying operation

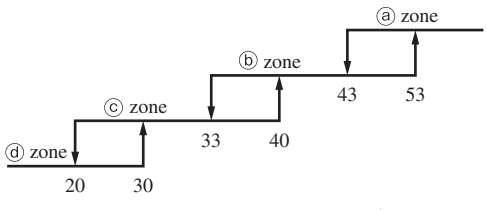
Fan taps are selected depending on the outdoor unit heat exchanger temperature (Tho-R1, R2) and the outdoor air temperature (Tho-A).
Note (1) It is detected by Tho-R1 or R2, whichever the higher.

	Ⓐ zone	Ⓑ zone	Ⓒ zone	Ⓓ zone
ⓐ zone	Tap 5	Tap 5	Tap 5	Tap 4
ⓑ zone	Tap 5	Tap 5	Tap 4(1)	Tap 3
ⓒ zone	Tap 4	Tap 4(1)	Tap 3	Tap 2
ⓓ zone	Tap 3	Tap 3	Tap 2	Tap 1

Note (1) If the "silent mode start" signal is received from the remote control, the speed changes from Tap 4 to Tap 3.



Outdoor air temp. (˚C)



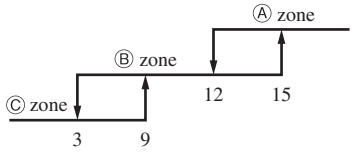
Outdoor unit heat exchanger temp. (˚C)

(c) Fan tap control during heating operation

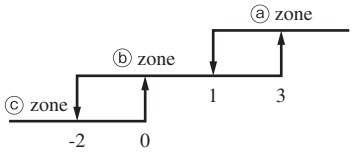
Fan taps are selected depending on the outdoor unit heat exchanger temperature (Tho-R1, R2) and the outdoor air temperature (Tho-A).
Note (1) It is detected by Tho-R1 or R2, whichever the lower.

	Ⓐ zone	Ⓑ zone	Ⓒ zone
ⓐ zone	Tap 3	Tap 3	Tap 4
ⓑ zone	Tap 3	Tap 4(1)	Tap 5
ⓒ zone	Tap 4	Tap 5	Tap 6

Note (1) If the "silent mode start" signal is received from the remote control, the speed changes from Tap 4 to Tap 3.



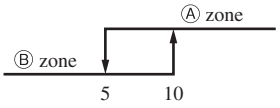
Outdoor air temp. (˚C)



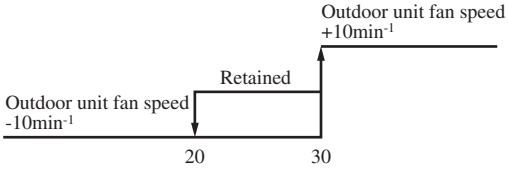
Outdoor unit heat exchanger temp. (˚C)

(d) Outdoor unit fan control at cooling low outdoor air

(i) 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.



Outdoor air temp. (˚C)



Outdoor unit heat exchanger temp. (˚C)

(ii) 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.

(iii) Rage of the outdoor unit fan speed under this control is as follows.
1) Lower limit: 130min^{-1}
2) Upper limit: 500min^{-1}

(iv) As any of the following conditions is established, this control terminates.
1) 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.
2) When the outdoor fan speed is 500min^{-1} and the outdoor unit heat exchanger temperature at 30°C or higher is established for 40 seconds or more continuously.
3) When the outdoor unit heat changer temperature at 45°C or higher is established for 40 seconds or more.

(e) 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.

(i) Cooling/dehumidifying

1) Outdoor air temperature Tho-A ≧ 33°C
2) Compressor's actual frequency ≧ **A** rps
3) Power transistor radiator fin temperature ≧ **C** °C

(ii) Heating

1) Outdoor air temperature Tho-A ≧ 16°C
2) Compressor's actual frequency ≧ **B** rps
3) Power transistor radiator fin temperature ≧ **C** °C

(iii) Control contents

1) Raises the outdoor unit fan tap by 1 tap.
2) When the sampling is for 60 minutes and the value of power transistor radiator fin temperature (Tho-P) is as follows.
   a) When the power transistor radiator fin temperature (Tho-P) ≧ **C** °C, the outdoor unit fan tap is raised by 1 speed further.
   b) When **C** °C > power transistor radiator fin temperature (Tho-P) ≧ **D** °C, present outdoor unit fan tap is maintained.
   c) When the power transistor radiator fin temperature (Tho-P) ≧ **D** °C, the outdoor unit fan tap is dropped by 1 speed.

(iv) Ending conditions

When the operation under the condition of item (iii), c) above and with the outdoor unit fan tap, which is determined by the item (c) is detected 2 times consecutively.

• Compressor's frequency and power transistor radiator fin temperature

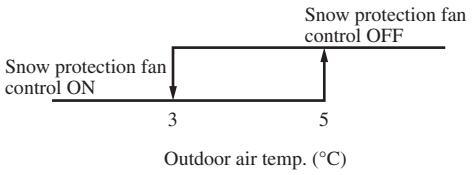
Item / Model	A	B	C	D
FDC100-140	85	85	72	68

(f) Caution at the outdoor unit fan start control (3 phase models only)

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.

(g) 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.



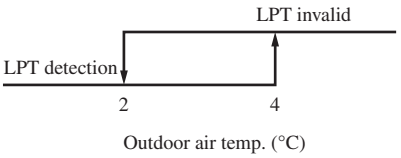
(5) Defrost operation

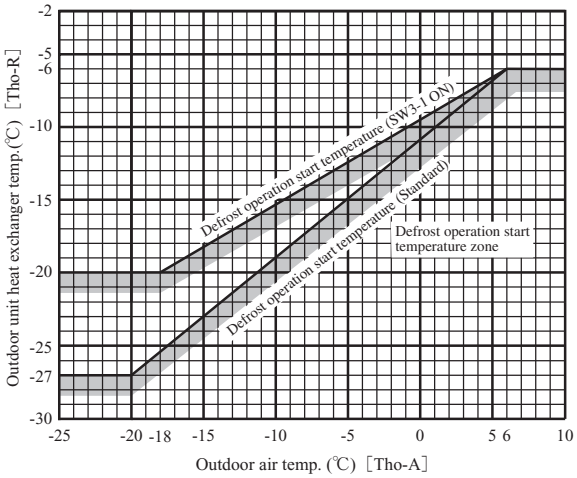
(a) Starting conditions

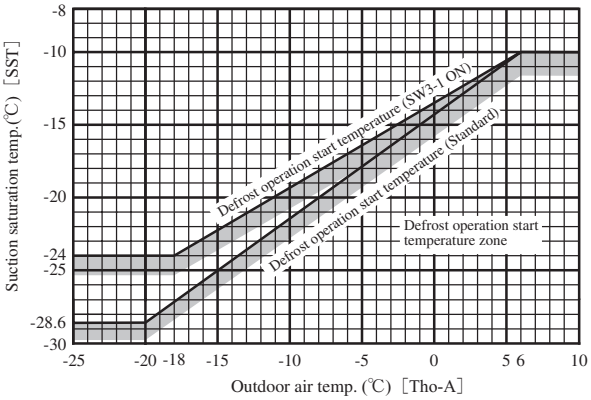
If all of the following defrost conditions A or conditions B are satisfied, the defrost operation starts.

(i) Defrost conditions A

1) Cumulative compressor operation time after the end of defrost operation has elapsed 37 minutes, and the cumulative compressor operation time after the start of heating operation (remote control ON) has elapsed 30 minutes.
2) After 5 minutes from the compressor ON
3) After 5 minutes from the start of outdoor unit fan
4) 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 defrost operation 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 defrost 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.







(ii) Defrost conditions B

1) When previous defrost ending 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 defrost operation has become 30 minutes.
2) After 5 minutes from the start of compressor
3) After 5 minutes from the start of outdoor unit fan

(b) Ending conditions

When any of the following conditions is satisfied, heating operation starts.

(i) When it has elapsed 8 minutes and 20 seconds after the start of defrost operation.

(ii) When the outdoor unit heat exchanger temperatures (Tho-R1, R2), whichever the lower, becomes 12°C or higher for 10 seconds continuously.

(c) Switching of defrost control with SW3-1

(i) If SW3-1 on the outdoor unit control PCB is turned to ON, it becomes easier to enter the defrost operation. Use this when installing a unit at snowing regions.

(ii) Control contents

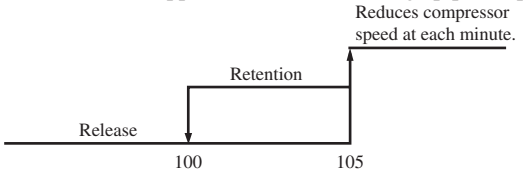
1) It allows entering the defrost operation under the defrost condition A when the cumulative heating operation time becomes 30 minutes. It is 37 minutes at SW3-1 OFF (Factory default).
2) It allows entering the defrost operation under the defrost condition B when the cumulative heating operation time becomes 25 minutes. It is 30 minutes at SW3-1 OFF (Factory default).
3) It allows the defrost operation with the outdoor unit heat exchanger temperature (Tho-R) and suction pressure saturation temperature (SST) being higher than normal.

(6) Protective control/anomalous stop control by compressor's number of revolutions

(a) Compressor discharge pipe temperature protection

(i) Protective control

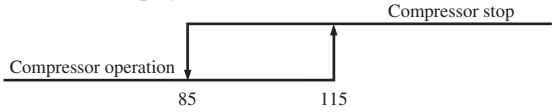
As the discharge pipe temperature (detected with Tho-D) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of discharge pipe temperature.



Discharge pipe temperature (°C)

(ii) Anomalous stop control

1) If the discharge pipe temperature (detected with Tho-D) exceeds the setting value, the compressor stops.
2) 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 control and it enters the anomalous stop mode.



Discharge pipe temperature (°C)

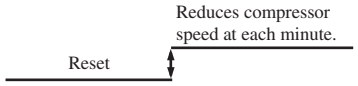
(iii) Reset of anomalous stop mode

As it drops to the reset value of 85°C or lower for 45 minutes continuously, it becomes possible to restart from the remote control.

(b) Cooling high pressure protection

(i) Protective control

1) 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.
2) Control value A is updated to an optimum value automatically according to the operating conditions.

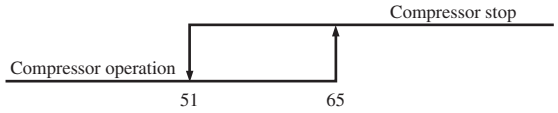


Outdoor unit heat exchanger temp. (°C)

Control value A
54-60°C

(ii) Anomalous stop control

1) As the outdoor unit heat exchanger temperature (Tho-R) exceeds the setting value, the compressor stops.
2) 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 control and it enters the anomalous stop mode.



Outdoor unit heat exchanger temp. (°C)

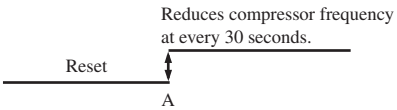
(iii) Reset of anomalous stop mode

As it reaches the reset value of 51°C or lower, it becomes possible to restart from the remote control.

(c) Heating high pressure protection

(i) Protective control

1) As the indoor unit heat exchanger temperature (Th2) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of high pressure.
2) Control value A is updated to an optimum value automatically according to the operating conditions.



Indoor unit heat exchanger temp. (°C)

Model	Existing piping adaptation switch: SW5-1	
	OFF (Shipping)	ON
	Control value A (°C)	
FDC100-140	48-54	46-52

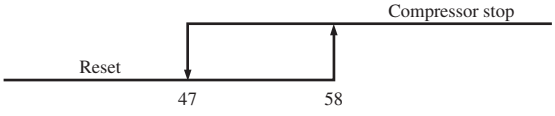
Note (1) Adaptation to existing piping is at ON.

(ii) Anomalous stop control

Operation control function by the indoor unit control.

(iii) Adaptation to existing piping, stop control

If the existing piping adaptation switch, SW5-1, is turned ON, the compressor stops to protect existing piping when the indoor unit heat exchanger temperature (Th2) exceeds the setting value.



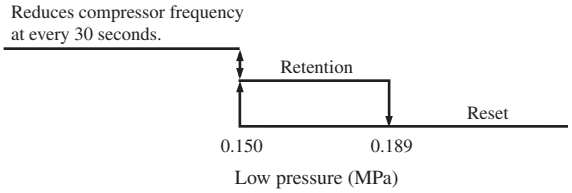
Indoor unit heat exchanger temp. (°C)

(d) 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.

(e) Low pressure control

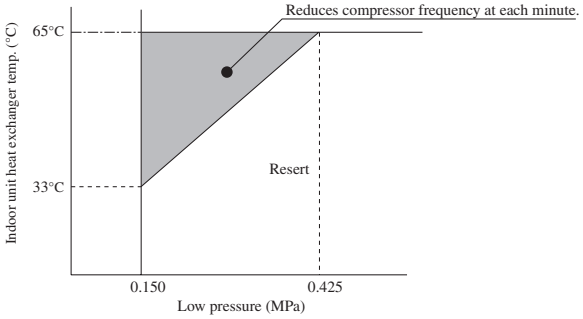
(i) Protective control
If the value detected by the low pressure sensor (LPT) exceeds the setting value, the compressor speed (frequency) is controlled to restrain the drop of pressure.



(ii) Anomalous stop control
1) When a value detected by the low pressure sensor (LPT) satisfies any of the following conditions, the compressor stops to run for its protection.
a) When the low pressure drops to 0.079MPa or under for 15 seconds continuously.
b) 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.
2) 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.
3) However, when the control condition of item 2), a) is established during the compressor protection start III, E49 is displayed at initial stop and it enters the anomalous stop mode.

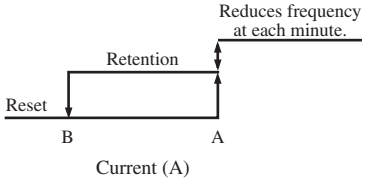
(f) Compressor pressure ratio protection control

(i) During heating operation, if the indoor unit heat exchanger temperature (Th2) and the low pressure sensor (LPT) exceed the setting values at 10 minutes after the start of compressor, the compressor speed (frequency) is controlled to protect the compressor.
(ii) This control is not performed during the outdoor fan ON and for 10 minutes from the start of outdoor unit fan.
(iii) This control is not performed during defrost operation and at 10 minutes after the reset of defrost operation.
(iv) When there are 3 indoor unit heat exchanger temperatures (Th2), the highest temperature is detected.

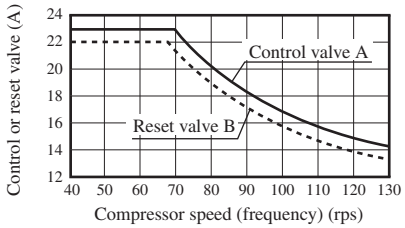


(g) Over-current protection current safe controls I, II

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.

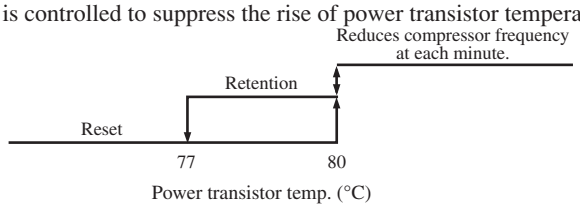


Model		Cooling		Heating	
		Control value A	Reset value B	Control value A	Reset value B
Primary current side	FDC100, 125, 140	13.5 (23.0)	12.5 (22.0)	13.5 (23.0)	12.5 (22.0)
Secandary current side	FDC100, 125, 140	13.0 (Fig.C)	12.0 (Fig.C)	13.0 (Fig.C)	12.0 (Fig.C)

Note (1) Value in ( ) are for the single phase models.

(h) Power transistor temperature protection

(i) Protective control (single phase model only)
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.



(i) Anomalous power transistor current

(i) Prevents over-current on the inverter. If the current value in the power transistor exceeds the setting value, the compressor stops.

(ii) 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 control and it enters the anomalous stop mode.

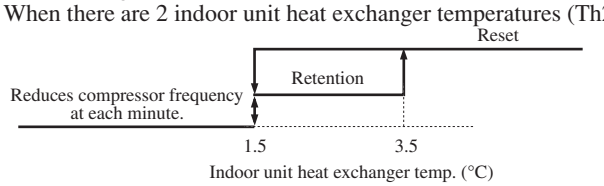
(j) Anomalous inverter PCB

If the power transistor detects any anomaly for 15 minutes, including the stop of compressor, E51 is displayed on the remote control and it enters the anomalous stop mode.

(k) Anti-frost control by the compressor frequency control

(i) If the indoor unit heat exchanger temperature (detected with Th2) exceeds the setting value at 4 minutes after the start of compressor, the compressor speed (frequency) is controlled to initiate the anti-frost control of indoor unit heat exchanger.

(ii) When there are 2 indoor unit heat exchanger temperatures (Th2), the lowest temperature is detected.



(iii) Regarding the anti-frost control by the operation stop, refer to the operation control function by the indoor unit control and the cooling, dehumidifying frost prevention of page 72.

(l) 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 60 rps or higher.

[Contents of control]

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 60 rps as its lower limit so that compressor speed is not controlled when it is less than 60 rps.

(m) 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 (Th2) and the indoor unit return air temperature (Th1).

[Control condition]

When the state that the indoor unit heat exchanger temperature (Th2) does not become lower than the indoor unit return air temperature (Th1) by 4°C or more continues for 1 minute.

[Contents of control]

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 control.

(n) Broken wire detection on temperature thermistor and low pressure sensor

(i) 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: -45 or lower
- Low pressure sensor: 0V or under or 4.0V or over

(ii) Discharge pipe temperature thermistor, suction pipe temperature thermistor
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

(o) Fan motor error

(i) If the fan speed of 100min^{-1} 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.

(ii) When the fan motor speed drops to 100min^{-1} or under 5 times within 60 minutes and the compressor stops, it enters the anomalous stop mode with E48 displayed on the remote control.

(p) Anomalous stop by the compressor start stop

(i) 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.

(ii) 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).

(7) Silent mode

(a) As "Silent mode start" signal is received from the remote control, it operates by dropping the outdoor unit fan tap and the compressor speed (frequency).

(b) For details, refer to items (1) and (4) above.

(8) Test run

(a) It is possible to operate from the outdoor unit using the dip switch on the outdoor unit control PCB.

SW3-3	ON	SW3-4	OFF	Cooling test run
			ON	Heating test run
	OFF	Normal and end of test run		

Make sure to turn SW3-3 to OFF after the end of operation.

(b) Test run control

(i) Operation is performed at the maximum compressor speed (frequency), which is determined for each model.

(ii) Each protective control and error detection control are effective.

(iii) If SW3-4 is switched during test run, the compressor is stoped for once by the stop control and the cooling/heating operation is switched.

(iv) Setting and display of remote control during test run

Item / Mode	Contents of remote control setting/display
Cooling test run	Setting temperature of cooling is 5°C.
Heating test run	Setting temperature of heating (preparation) is 30°C.

(9) Pump-down control

Turning ON the pump-down switch SW1 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 source is turned OFF.)

(a) Contents of control

(i) Close the service valve at the liquid side. (It is left open at the gas side.)
(ii) Compressor is started with the target speed (frequency) at 55 rps in the cooling mode.
(iii) Red and green lamps (LED) keeps flashing continuously on the outdoor unit control PCB.
(iv) Each of protection and error detection controls, excluding the low pressure control, anti-frost control and dewing prevention control, is effective.
(v) Outdoor unit fan is controlled as usual.
(vi) Electronic expansion valve is fully opened.

(b) Ending conditions

Stop control is initiated depending on any of the following conditions.

(i) Low pressure of 0.087MPa or lower is detected for 5 seconds continuously.
1) Red LED: Light, Green LED: Flashing, Remote control: Displays stop.
2) It is possible to restart when the low pressure is 0.087MPa or higher.
3) Electronic expansion valve (cooling/heating) is kept fully open.

(ii) Stop by the error detection control
1) Red LED: Keeps flashing, Green LED: Flashing
2) Restart is prohibited. To return to normal operation, reset the power source.
3) Electronic expansion valve (cooling/heating) is left fully open.

(iii) When the cumulative operation time of compressor under the pump-down control becomes 5 minutes.
1) Red LED: Stays OFF, Green LED: Flashing, Remote control: Stop
2) It is possible to pump-down again.
3) Electronic expansion valve (cooling/heating) is left fully open.

Note (1) After the stop of compressor, close the service valve at the gas side.

Caution: Since pressing the pump-down switch cancels communications with the indoor unit, the indoor unit and the remote control display "Transmission error – E5". This is normal.

(10) Base heater ON/OFF output control (Option)

(a) Base heater ON conditions

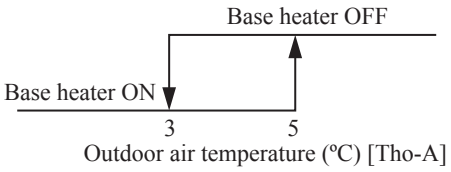
When all of following conditions are satisfied, the base heater is turned ON.

(i) Outdoor air temperature (detected with Tho-A) is 3ºC or lower.
(ii) In the heating mode
(iii) When the compressor is turned ON

(b) Base heater OFF conditions

When either one of following conditions is satisfied, the base heater is turned OFF.

(i) Outdoor air temperature (detected with Tho-A) is 5ºC or higher.
(ii) When the compressor stop has been detected for 30 minutes continuously
(iii) In the cooling or dehumidifying mode



2.10 MAINTENANCE DATA

See page 84. of 1.10 chapter.

2.11 TECHNICAL INFORMATION

Model SRK100VNPZSX

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	**SRK50ZSX-S x2**
Outdoor unit model name	**FDC100VN**

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	**Yes**
heating	**Yes**

Average(mandatory)	**Yes**
Warmer(if designated)	**No**
Colder(if designated)	**No**

Item	symbol	value	unit
Design load			
cooling	Pdesignc	**10**	kW
heating / Average	Pdesignh	**7.7**	kW
heating / Warmer	Pdesignh	**-**	kW
heating / Colder	Pdesignh	**-**	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	**5.61**	A+
heating / Average	SCOP/A	**4.00**	A+
heating / Warmer	SCOP/W	**-**	-
heating / Colder	SCOP/C	**-**	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	**7.70**	kW
heating / Warmer (2℃)	Pdh	**-**	kW
heating / Colder (-22℃)	Pdh	**-**	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	**0**	kW
heating / Warmer (2℃)	elbu	**-**	kW
heating / Colder (-22℃)	elbu	**-**	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	**10.00**	kW
Tj=30℃	Pdc	**7.30**	kW
Tj=25℃	Pdc	**4.70**	kW
Tj=20℃	Pdc	**4.70**	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	**3.52**	-
Tj=30℃	EERd	**4.30**	-
Tj=25℃	EERd	**8.50**	-
Tj=20℃	EERd	**11.10**	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**6.60**	kW
Tj=2℃	Pdh	**4.00**	kW
Tj=7℃	Pdh	**2.80**	kW
Tj=12℃	Pdh	**3.50**	kW
Tj=bivalent temperature	Pdh	**7.70**	kW
Tj=operating limit	Pdh	**6.20**	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**2.90**	-
Tj=2℃	COPd	**3.80**	-
Tj=7℃	COPd	**5.10**	-
Tj=12℃	COPd	**6.50**	-
Tj=bivalent temperature	COPd	**2.50**	-
Tj=operating limit	COPd	**2.20**	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	**-**	kW
Tj=2℃	Pdh	**-**	kW
Tj=7℃	Pdh	**-**	kW
Tj=12℃	Pdh	**-**	kW
Tj=bivalent temperature	Pdh	**-**	kW
Tj=operating limit	Pdh	**-**	kW
Tj=-15℃	Pdh	**-**	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	**-**	-
Tj=2℃	COPd	**-**	-
Tj=7℃	COPd	**-**	-
Tj=12℃	COPd	**-**	-
Tj=bivalent temperature	COPd	**-**	-
Tj=operating limit	COPd	**-**	-
Tj=-15℃	COPd	**-**	-

Bivalent temperature			
heating / Average	Tbiv	**-10**	℃
heating / Warmer	Tbiv	**-**	℃
heating / Colder	Tbiv	**-**	℃

Operating limit temperature			
heating / Average	Tol	**-20**	℃
heating / Warmer	Tol	**-**	℃
heating / Colder	Tol	**-**	℃

Cycling interval capacity			
for cooling	Pcycc	**-**	kW
for heating	Pcych	**-**	kW

Cycling interval efficiency			
for cooling	EERcyc	**-**	-
for heating	COPcyc	**-**	-

Degradation coefficient			
cooling	Cdc	**0.25**	-

Degradation coefficient			
heating	Cdh	**0.25**	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	**12**	W
standby mode	Psb	**12**	W
thermostat-off mode	Pto	**18**	W
crankcase heater mode	Pck	**25**	W

Annual electricity consumption			
cooling	Qce	**624**	kWh/a
heating / Average	Qhe	**2697**	kWh/a
heating / Warmer	Qhe	**-**	kWh/a
heating / colder	Qhe	**-**	kWh/a

Capacity control(indicate one of three options)	
fixed	**No**
staged	**No**
variable	**Yes**

Other items			
Sound power level(indoor)	Lwa	**59**	dB(A)
Sound power level(outdoor)	Lwa	**70**	dB(A)
Global warming potential	GWP	**1975**	kgCO2eq.
Rated air flow(indoor)	-	**858**	m3/h
Rated air flow(outdoor)	-	**4500**	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative. Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 7 Roundwood Avenue, Stockley Park, Uxbridge, Middlesex, UB11 1AX, United Kingdom

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Model SRK100VSPZSX

Information to identify the model(s) to which the information relates to:	
Indoor unit model name	SRK50ZSX-S x2
Outdoor unit model name	FDC100VS

If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.

Function(indicate if present)	
cooling	Yes
heating	Yes

Average(mandatory)	Yes
Warmer(if designated)	No
Colder(if designated)	No

Item	symbol	value	unit
Design load			
cooling	Pdesignc	10	kW
heating / Average	Pdesignh	7.7	kW
heating / Warmer	Pdesignh	-	kW
heating / Colder	Pdesignh	-	kW

Item	symbol	value	class
Seasonal efficiency and energy efficiency class			
cooling	SEER	5.61	A+
heating / Average	SCOP/A	4.00	A+
heating / Warmer	SCOP/W	-	-
heating / Colder	SCOP/C	-	-

Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10℃)	Pdh	7.70	kW
heating / Warmer (2℃)	Pdh	-	kW
heating / Colder (-22℃)	Pdh	-	kW

Back up heating capacity at outdoor temperature Tdesignh			unit
heating / Average (-10℃)	elbu	0	kW
heating / Warmer (2℃)	elbu	-	kW
heating / Colder (-22℃)	elbu	-	kW

Declared capacity for cooling, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	Pdc	10.00	kW
Tj=30℃	Pdc	7.30	kW
Tj=25℃	Pdc	4.70	kW
Tj=20℃	Pdc	4.70	kW

Declared energy efficiency ratio, at indoor temperature 27(19)℃ and outdoor temperature Tj			
Tj=35℃	EERd	3.52	-
Tj=30℃	EERd	4.30	-
Tj=25℃	EERd	8.50	-
Tj=20℃	EERd	11.10	-

Declared capacity for heating / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	6.60	kW
Tj=2℃	Pdh	4.00	kW
Tj=7℃	Pdh	2.80	kW
Tj=12℃	Pdh	3.50	kW
Tj=bivalent temperature	Pdh	7.70	kW
Tj=operating limit	Pdh	6.20	kW

Declared coefficient of performance / Average season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	2.90	-
Tj=2℃	COPd	3.80	-
Tj=7℃	COPd	5.10	-
Tj=12℃	COPd	6.50	-
Tj=bivalent temperature	COPd	2.50	-
Tj=operating limit	COPd	2.20	-

Declared capacity for heating / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	Pdh	-	kW
Tj=7℃	Pdh	-	kW
Tj=12℃	Pdh	-	kW
Tj=bivalent temperature	Pdh	-	kW
Tj=operating limit	Pdh	-	kW

Declared coefficient of performance / Warmer season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=2℃	COPd	-	-
Tj=7℃	COPd	-	-
Tj=12℃	COPd	-	-
Tj=bivalent temperature	COPd	-	-
Tj=operating limit	COPd	-	-

Declared capacity for heating / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	Pdh	-	kW
Tj=2℃	Pdh	-	kW
Tj=7℃	Pdh	-	kW
Tj=12℃	Pdh	-	kW
Tj=bivalent temperature	Pdh	-	kW
Tj=operating limit	Pdh	-	kW
Tj=-15℃	Pdh	-	kW

Declared coefficient of performance / Colder season, at indoor temperature 20℃ and outdoor temperature Tj			
Tj=-7℃	COPd	-	-
Tj=2℃	COPd	-	-
Tj=7℃	COPd	-	-
Tj=12℃	COPd	-	-
Tj=bivalent temperature	COPd	-	-
Tj=operating limit	COPd	-	-
Tj=-15℃	COPd	-	-

Bivalent temperature			
heating / Average	Tbiv	-10	℃
heating / Warmer	Tbiv	-	℃
heating / Colder	Tbiv	-	℃

Operating limit temperature			
heating / Average	Tol	-20	℃
heating / Warmer	Tol	-	℃
heating / Colder	Tol	-	℃

Cycling interval capacity			
for cooling	Pcycc	-	kW
for heating	Pcych	-	kW

Cycling interval efficiency			
for cooling	EERcyc	-	-
for heating	COPcyc	-	-

Degradation coefficient			
cooling	Cdc	0.25	-

Degradation coefficient			
heating	Cdh	0.25	-

Electric power input in power modes other than 'active mode'			
off mode	Poff	12	W
standby mode	Psb	12	W
thermostat-off mode	Pto	18	W
crankcase heater mode	Pck	25	W

Annual electricity consumption			
cooling	Qce	624	kWh/a
heating / Average	Qhe	2697	kWh/a
heating / Warmer	Qhe	-	kWh/a
heating / colder	Qhe	-	kWh/a

Capacity control(indicate one of three options)	
fixed	No
staged	No
variable	Yes

Other items			
Sound power level(indoor)	Lwa	59	dB(A)
Sound power level(outdoor)	Lwa	70	dB(A)
Global warming potential	GWP	1975	kgCO2eq.
Rated air flow(indoor)	-	858	m3/h
Rated air flow(outdoor)	-	4500	m3/h

Contact details for obtaining more information	Name and address of the manufacturer or of its authorised representative.
	Mitsubishi Heavy Industries Air-Conditioning Europe, Ltd. 7 Roundwood Avenue, Stockley Park, Uxbridge, Middlesex, UB11 1AX, United Kingdom

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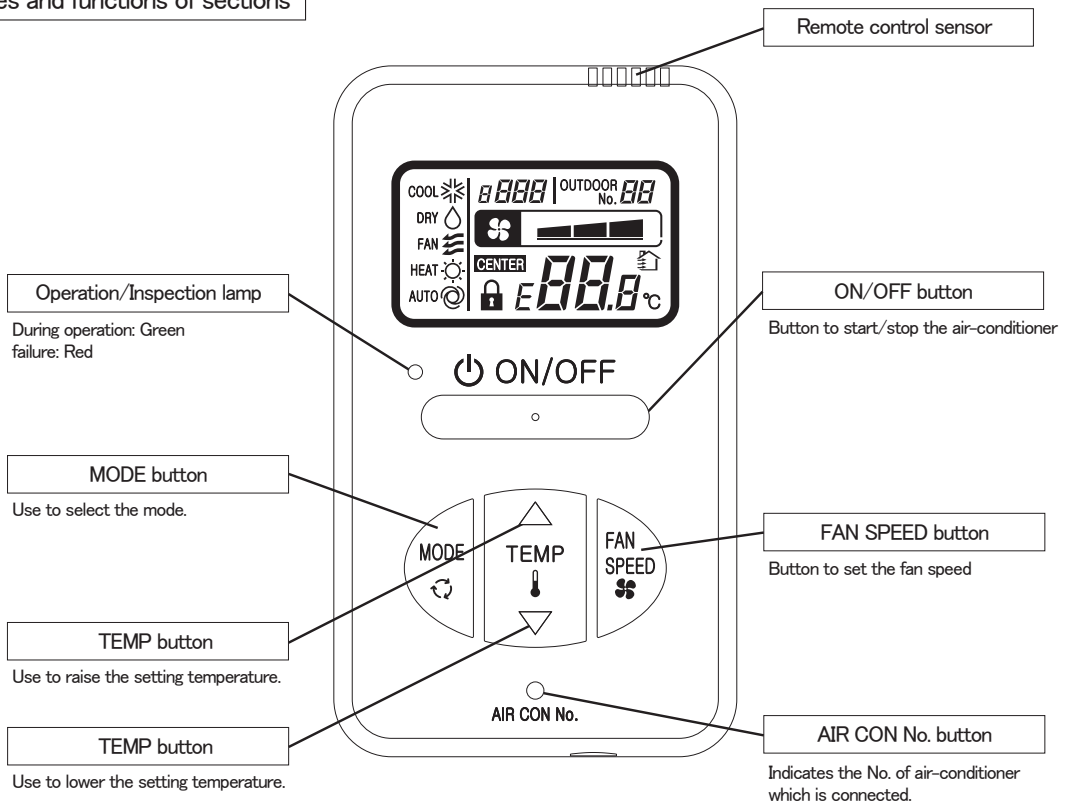
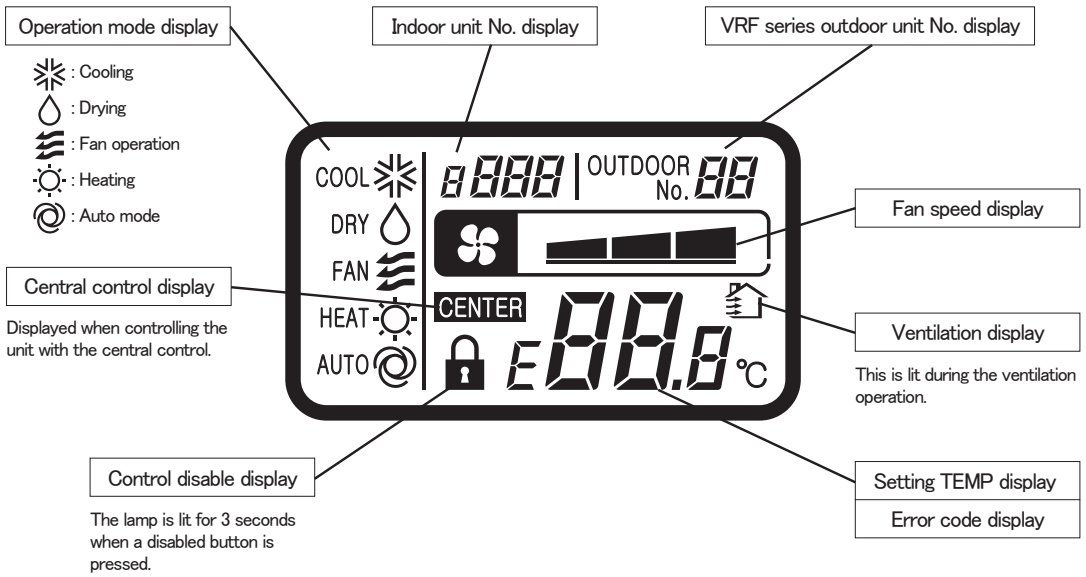
3. OPTION PARTS

CONTENTS

(1) SIMPLE WIRED REMOTE CONTROL (RCH-E3)

Names and functions of sections





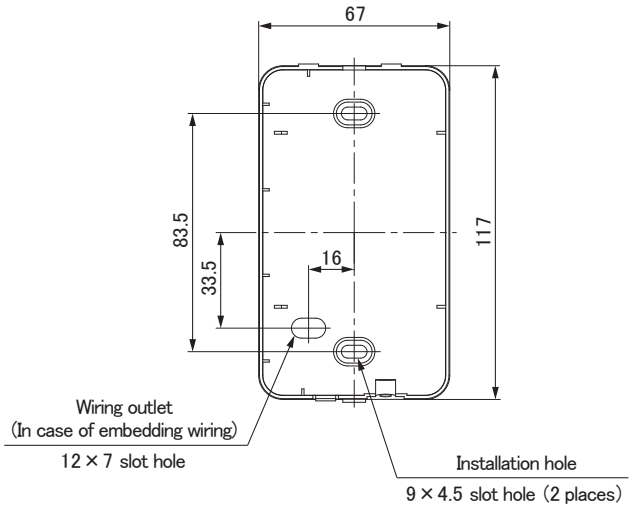
Installation of remote control

Do not install the remote control 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

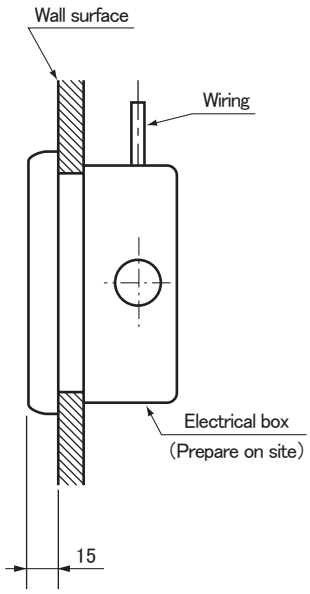
PJZ000Z272

Remote control installation dimensions

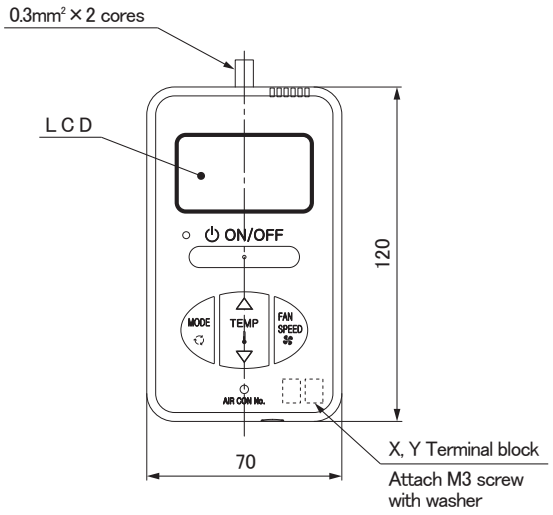


Note: Installation screw for remote control
M4 screw (2 pieces)

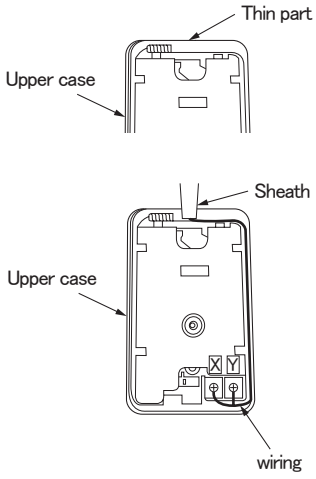
In case of embedding wiring



In case of exposing wiring

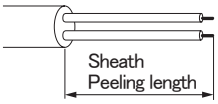


The remote control wiring can be extracted from the upper center.
After the thin part in the upper side of the remote control upper case is scraped with a nipper or knife, remove burr with a file.



The peeling length of each wiring is as follows:

X wiring : 160mm
Y wiring : 150mm



Wiring specifications

(1) Wiring of remote control should use 0.3mm² × 2 cores wires or cables. (on-site configuration)
(2) Maximum prolongation of remote control wiring is 600m.
If the prolongation is over 100m, change to the size below.
But, the wiring in the remote control case should be 0.3mm² (recommended) to 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.

Unit:mm

Length	Wiring thickness
100 to 200m	0.5mm² × 2 cores
Under 300m	0.75mm² × 2 cores
Under 400m	1.25mm² × 2 cores
Under 600m	2.0mm² × 2 cores

Adapted to **RoHS** directive

Simple Remote Control Installation Manual

PJZ012D069

Read together with indoor unit's installation manual.

⚠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 source is turned off when electric wiring work.**
  Otherwise, electric shock, malfunction and improper running may occur.

⚠ CAUTION

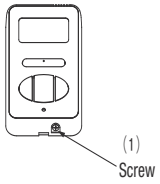
- **Do not install the remote control at the following places in order to avoid malfunction.**
  (1) Places exposed to direct sunlight
  (2) Places near heat devices
  (3) High humidity places
  (4) Hot surface or cold surface enough to generate condensation
  (5) Places exposed to oil mist or steam directly
  (6) Uneven surface
- **Do not leave the remote control without the upper case.**
  In case the upper cace needs to be detached, protect the remote control with a packaging box or bag in order to keep it away from water and dust.

Accessories	Remote control, wood screw (ϕ 3.5×16) 2 pieces
Prepare on site	Remote control cord (2 cores) (Refer to [2. Installation and wiring of remote control]) [In case of embedding cord] Electrical box, M4 screw (2 pieces) [In case of exposing cord] Cord clamp (if needed)

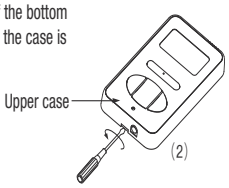
1. Installation procedure

In case of embedding cord

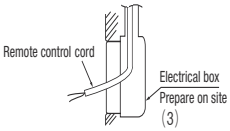
(1) Make certain to remove the screw on the bottom surface of the remote control.



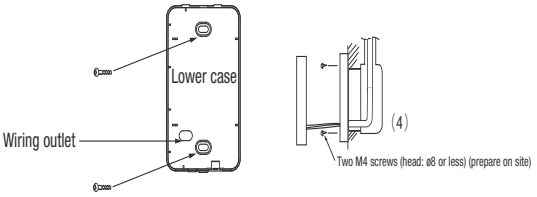
(2) Remove the upper case of the remote control.
Insert a flat-blade screwdriver to a concave portion of the bottom surface of the remote control and slightly twist it, and the case is removed.



(3) Pre-bury the electrical box and remote control cord.



(4) Prepare two M4 screws (recommended length: 12 – 16mm), and install the lower case to the electrical box.
Do not use a screw whose screw head is larger than the height of the wall around the screw hole.

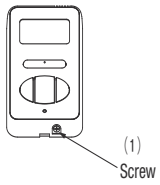


(5) Connect the remote control cord to the terminal block.
Connect the terminals (X and Y) of the remote control and the terminals (X and Y) of the indoor unit. (No polarity of X and Y)

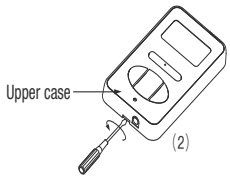
(6) Mount the upper case for restoring to its former state so as not to crimp the remote control cord, and secure with the removed screw.

In case of exposing cord

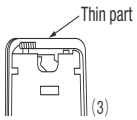
(1) Make certain to remove a screw on the bottom surface of the remote control.



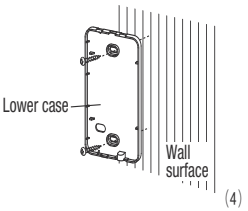
(2) Remove the upper case of the remote control.
Insert a flat-blade screwdriver to a concave portion of the bottom surface of the remote control and slightly twist it, and the case is removed.



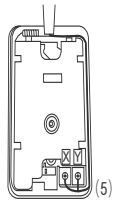
(3) The remote control cord can be extracted from the upper center.
After the thin part in the upper side of the remote control upper case is scraped with a nipper or knife, remove burr with a file.



(4) The lower case of the remote control is mounted to a flat wall with two accessory wood screws.

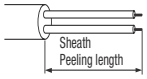


(5) Connect the remote control cord to the terminal block.
Connect the terminals (X and Y) of the remote control and the terminals (X and Y) of the indoor unit. (No polarity of X and Y)
The wiring route is as shown in the right.



The wiring in the remote control case should be 0.3 mm^2 (recommended) to 0.5 mm^2 at maximum.
Further, peel off the sheath.
The peeling length of each wiring is as follows:

X wiring : 160mm
Y wiring : 150mm



(6) Mount the upper case for restoring to its former state so as not to crimp the remote control cord, and secure with the removed screw.

(7) In the case of exposing installation, secure the remote control cord to the wall surface with a cord clamp so as not to loosen the remote control cord.

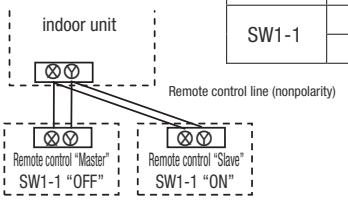
2. Installation and wiring of remote control

(1) Wiring of remote control should use 0.3mm^2 × 2 cores wires or cables. (on-site configuration)
(2) Maximum prolongation of remote control wiring is 600 m.
If the prolongation is over 100m, change to the size below.
But, the wiring in the remote control case should be 0.3mm^2 (recommended) to 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·····0.5mm^2 × 2 cores
Under 300m·····0.75mm^2 × 2 cores
Under 400m·····1.25mm^2 × 2 cores
Under 600m·····2.0mm^2 × 2 cores

3. Master/ slave setting when more than one remote control are used

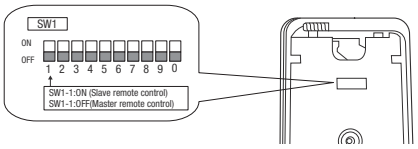
(1) Up to two remote controls can be connected to one unit (or one group) of indoor unit.

Switch	Setting	Function detail
SW1-1	ON	Slave remote control
	OFF	Master remote control



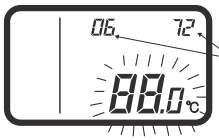
(2) Set the switch SW1-1 of the slave remote control is "Slave" (ON). The factory default is set as "Master" (OFF).

(Note) • The remote control thermistor enabled setting can be set only to the master remote control.
• Install the master remote control at the position to detect room temperature.
• The air-conditioner operation follows the last operation of the remote control in case of the master / slave setting.



4. The indication when power source is supplied

(1) At the time of turning the power source on, after the light is on for the first 2 seconds, the display becomes as shown below.
The number displayed on the upper side of LCD in the remote control is the software number, and this is not an error code.



Software number
(The number in the left is one example. Another number may be shown.)

(2) Then, "88.0 °C" blinks on the remote control until the communication between the remote control and the indoor unit is established.

(3) In the case of connecting one remote control with one unit (or one group) of indoor unit, make certain to set the master remote control (factory default).
If the slave remote control is set, a communication cannot be established.

(4) If a state where the communication between the remote control and the indoor unit cannot be established continues about for 30 minutes, "E" is displayed. Confirm the wiring of the indoor unit and the outdoor unit and master/slave setting of the remote control.

5. Confirmation method for return air temperature

Return air temperature can be confirmed by the remote control operation.

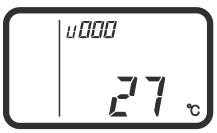
(1) **Press AIR CON No. button for over 5 seconds.**
"88" blinks on the temperature setting indicator.
("88" blinks for approximately 2 seconds while data is read.)
↓
Then, the return air temperature is displayed.
(Example) return air temperature: "27 °C" (blinking)

(Note) For the return air temperature, in the normal case, the return air temperature of the indoor unit is displayed; however, in the case that the remote control thermistor is effective, detected temperature by the remote control thermistor is displayed.

(2) **Press ⏻ ON/OFF button.**
End.

[In the case that the remote thermistor is ineffective and plural indoor units are connected to one remote control]

(1) **Press AIR CON No. button for over 5 seconds.**
indoor unit No. indicator: "U 000" (blinking)
(Among the connected indoor units, the lowest number is displayed.)



(2) **Press TEMP△ or TEMP▽ button.**
Select the indoor unit No.

(3) **Press MODE button.**
Dectder the indoor unit No.
(Example) indoor unit No. indicator: "U 000"
"88" blinks on the temperature setting indicator. (blinking for approximately 2 to 10 seconds while data is read) Then, the return air temperature is displayed. When AIR CON No. is pressed, return to the indoor unit selection display (example, "U 000").

(4) **Press ⏻ ON/OFF button.**
End.

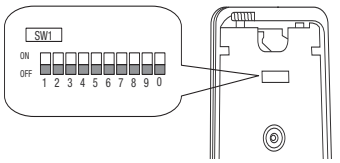
6. Function setting

Each function of the remote control and the indoor unit is automatically set to the initial setting, which is the standard use, on the occasion of connecting the remote control with the indoor unit. In the case of the standard use, the setting change is unnecessary. However, if you whould like to change the initial setting " ○ ", change the setting for only the item of the function number. Record the setting contents and stored them.

(1) Function setting item by switch on PCB

Switch No.	Setting	Setting detail	Initial setting
SW1-1	ON	Slave remote control	
	OFF	Master remote control	○
SW1-2	ON	Remote control sensor enabled	
	OFF	Remote control sensor disabled	○
SW1-3	ON	"MODE" button prohibited	
	OFF	"MODE" button enabled	○
SW1-4	ON	"ON/OFF" button prohibited	
	OFF	"ON/OFF" button enabled	○

Switch No.	Setting	Setting detail	Initial setting
SW1-5	ON	"TEMP" button prohibited	
	OFF	"TEMP" button enabled	○
SW1-6	ON	"FAN SPEED" button prohibited	※ Note 1
	OFF	"FAN SPEED" button enabled	※ Note 1
SW1-7	ON	Auto restart function enabled	
	OFF	Auto restart function disabled	○
SW1-8, 9, 0	ON	Not used	
	OFF		



- As for the slave remote control, function setting is impossible other than SW1-1.
- In the indoor unit with only one fan speed, "FAN SPEED" button cannot be enabled.

(2) Function setting item by button operation

Classification	Function No.	Function	Setting No.	Setting	Initial setting	Remarks
Remote control function	01	Indoor unit fan speed	01	Fan speed: three steps	※ Note 1	The fan speed is three steps, ❋▪▪■ - ❋▪▪■ - ❋▪.
			02	Fan speed: two steps (Hi-Lo)	※ Note 1	The fan speed is two steps, ❋▪▪■ - ❋▪.
			03	Fan speed: two steps (Hi-Me)		The fan speed is two steps, ❋▪▪■ - ❋▪▪■.
			04	Fan: one step	※ Note 1	The fan speed is fixed to one step.
	03	Remote control thermistor at the time of cooling	01	Remote control thermistor: no offset	○	
			02	Remote control thermistor: +3.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at +3.0°C.
			03	Remote control thermistor: +2.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at +2.0°C.
			04	Remote control thermistor: +1.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at +1.0°C.
			05	Remote control thermistor: -1.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at -1.0°C.
			06	Remote control thermistor: -2.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offset temperature at -2.0°C.
			07	Remote control thermistor: -3.0 °C		At the time of cooling, in the case of remote control thermistor enabled, offsett temperature at -3.0°C.
	04	Remote control thermistor at the time of heating	01	Remote control thermistor: no offset	○	
			02	Remote control thermistor: +3.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at +3.0°C.
			03	Remote control thermistor: +2.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at +2.0°C.
			04	Remote control thermistor: +1.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at +1.0°C.
			05	Remote control thermistor: -1.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at -1.0°C.
			06	Remote control thermistor: -2.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at -2.0°C.
			07	Remote control thermistor: -3.0 °C		At the time of heating, in the case of remote control thermistor enabled, offset temperature at -3.0°C.
	05	Ventilation setting	01	No ventilator connection	○	
			02	Ventilator links air-conditioner		In case of Single split series, by connecting ventilation device to CnT of the indoor printed circuit board (in case of VRF series, by connecting it to CND of the indoor printed circuit board), the operation of ventilation device is linked with the operation of indoor unit.
	06	"Auto" operation setting	01	"Auto" operation enabled	※ Note 1	
			02	"Auto" operation disabled	※ Note 1	"Auto" operation disabled
Indoor unit function	07	Operation permission/ prohibition	01	Disabled	○	
			02	Enabled		Operation permission/prohibition control is enabled.
	08	External input	01	Level input	○	
			02	Pulse input		
	09	Fan speed setting	01	Standard	Note2	
			02	High speed 1	Note2	
			03	High speed 2	Note2	
	10	Fan remaining operation at the time of cooling	01	No remaining operation	○	After cooling stopped, no fan remaining operation
			02	0.5 hours		After cooling stopped, fan remaining operation for 0.5 hours
			03	1 hour		After cooling stopped, fan remaining operation for 1 hour
			04	6 hours		After cooling stopped, fan remaining operation for 6 hours
	11	Fan remaining operation at the time of heating	01	No remaining operation	○	After heating stopped or after heating thermostat OFF, no fan remaining operation
			02	0.5 hours		After heating stopped or after heating thermostat OFF, fan remaining operation for 0.5 hours
			03	2 hours		After heating stopped or after heating thermostat OFF, fan remaining operation for 2 hours
			04	6 hours		After heating stopped or after heating thermostat OFF, fan remaining operation for 6 hours
	12	Setting temperature offset at the time of heating	01	No offset	○	
			02	Setting temperature offset + 3.0 °C		The setting temperature at the time of heating is offset by +3.0 °C.
			03	Setting temperature offset + 2.0 °C		The setting temperature at the time of heating is offset by +2.0 °C.
			04	Setting temperature offset + 1.0 °C		The setting temperature at the time of heating is offset by +1.0 °C.
	13	Heating fan controller	01	Low fan speed	※ Note 1	At the time of heating thermostat OFF, operate with low fan speed.
			02	Setting fan speed		At the time of heating thermostat OFF, operate with the setting fan speed.
			03	Intermittent operation	※ Note 1	At the time of heatingr thermostat OFF, intermittently operate.
			04	Fan off		At the time of heating thermostat OFF, a fan will be stopped. When the remote control thermistor is enabled, automatically set to "Fan off". Do not set at the time of the indoor unit thermistor.
	14	Return air temperature offset	01	No offset	○	
			02	Return air temperature offset +2.0 °C		Offset the return air temperature of the indoor unit by +2.0 °C.
			03	Return air temperature offset +1.5 °C		Offset the return air temperature of the indoor unit by +1.5 °C.
			04	Return air temperature offset +1.0 °C		Offset the return air temperature of the indoor unit by +1.0 °C.
			05	Return air temperature offset -1.0 °C		Offset the return air temperature of the indoor unit by -1.0 °C.
			06	Return air temperature offset -1.5 °C		Offset the return air temperature of the indoor unit by -1.5 °C.
			07	Return air temperature offset -2.0 °C		Offset the return air temperature of the indoor unit by -2.0 °C.

Note 1: The symbol " ※ " in the initial setting varies depending upon the indoor unit and the outdoor unit to be connected, and this is automatically determined as follows:

Swith No. Function No.	Function	Setting	Product model
SW1-6	"FAN SPEED" button	"FAN SPEED" button prohibited	Product model whose indoor fan speed is only one step
		"FAN SPEED" button enabled	Product model whose indoor fan speed is two steps or three steps
Remote control function 01	Indoor unit fan speed	Fan speed: three steps	Product model whose indoor unit fan speed is three steps
		Fan speed: two steps (Hi-Lo)	Product model whose indoor unit fan speed is two steps
		Fan speed: two steps (Hi-Me)	
		Fan: one step	Product model whose indoor unit fan speed is only one step
Remote control function 06	"Auto" operation setting	"Auto" operation enabled	Product model where "Auto" mode is selectable
		"Auto" operation disabled	Product model without "Auto" mode
Indoor unit function 13	Heating fan control	Low fan speed	Product model except FDUS
		Intermittent operation	FDUS

Note 2: Fan speed of "High speed" setting

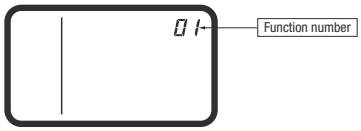
Fan speed setting	Indoor unit fan speed setting		
	❋▪▪■ - ❋▪▪■ - ❋▪	❋▪▪■ - ❋▪	❋▪▪■ - ❋▪▪
Standard	Hi — Mid — Lo	Hi — Lo	Hi — Mid
High speed 1・2	P-Hi — Hi — Mid	P-Hi — Mid	P-Hi — Hi

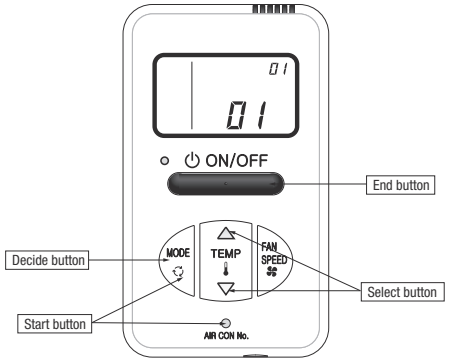
Initial setting of some indoor unit is "High speed".

Note 3: As for plural indoor unit, set indoor functions to each master and slave indoor unit.
But only master indoor unit is received the setting change of indoor unit function "07 Operation permission/ prohibition" and "08 External input".

7. How to set functions by button operation

(1) **Stop air-conditioner, and simultaneously press AIR CON No. and MODE buttons at the same time for over three seconds.**
The function number "01" blinks in the upper right.

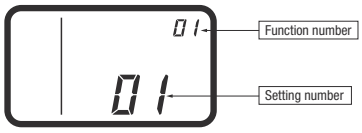




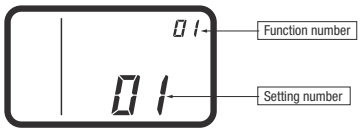
(2) **Press TEMP△ or TEMP▽ button.**
Select the function number.

(3) **Press MODE button.**
Decide the function number.

(4) **[In the case of selecting the remote control function (01-06)]**
① The current setting number of the selected function number blinks
(Example)
Function number: "01" (lighting)
Setting number: "01" (blinking)



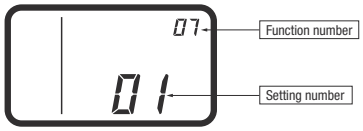
② **Press TEMP△ or TEMP▽ button.**
Select the setting number.
③ **Press MODE button.**
The setting is completed.
Light is on for approximately 3 to 20 seconds while data of the decided function No. and setting No. is transmitted.
(Example)
Function number: "01" (lighting for 3 to 20 seconds)
Setting number: "01" (lighting for 3 to 20 seconds)



Then, the screen goes back to the function number blinking indication (1), if the setting is sequentially conducted, continue with the same procedures. If the setting is finished, proceed to (5).

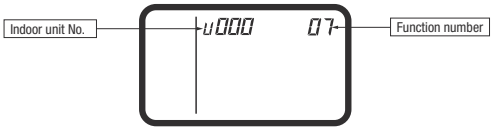
(5) **Press ON/OFF button.**
The setting is completed.

[In the case of selecting the indoor unit function (07-14)]
① **"88" blinks on the temperature setting indicators.**
(blinking for approximately 2 to 10 seconds while data are read)
↓
After that, the current setting number of the selected function number blinks.
(Example)
Function number: "07" (lighting)
Setting number: "01" (blinking)



Proceed to ②.

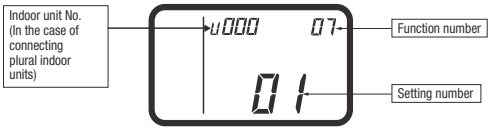
[Note]
a. In the case of connecting one remote control to plural indoor units, the display will be as follows:
Indoor unit No. display: "U 000" (blinking)
(Display the lowest number among the connected indoor units.)



b. Press TEMP△ or TEMP▽ button.
Select the indoor unit No. to be set.
If "U ALL" is selected, the same setting can be set to all units.
c. Press MODE button.
Decide the indoor unit No.
"88" blinks on the temperature setting indicators. (blinking for 2 to 10 seconds while data is read)
When AIR CON No. button is pressed, go back to the indoor unit selection display (for example, "U 000" blinking).

② **Press TEMP△ or TEMP▽ button.**
Select the setting number

③ **Press MODE button.**
The setting is completed.
Light is on for approximately 3 to 20 seconds while data of the decided function No. and setting No. is transmitted.
(Example)
Indoor unit No.: "U 000" (lighting for 3 to 20 seconds)
Function number: "07" (lighting for 3 to 20 seconds)
Setting number: "01" (lighting for 3 to 20 seconds)



Then, the screen goes back to the function number blinking indication (1), if the setting is sequentially conducted, continue with the same procedures. If the setting is finished, proceed to (5).

・Even if ON/OFF button is pressed during setting, the setting is ended. However, any details where the setting has not been completed will be ineffective.
・The setting contents are stored in the control, and even if the power failure occur, this will not be lost.

[Confirmation method for current setting]
According to the operation, the "setting number" displayed first after selecting "function number" and pressing MODE button is the currently set content.
(However, in the case of selecting "U ALL" (all units), the setting number of the lowest number among the indoor units is displayed.)

(2) INTERFACE KIT
(a) Interface kit (SC-BIKN-E)

RKZ012A088B

Accessories included in package

Be sure to check all the accessories included in package.

No.	Part name	Quantity
①	Indoor unit's connection cable (cable length: 1.8m)	1
②	Wood screws (for mounting the interface: ø4x 25)	2
③	Tapping screws (for the cable clump and the interface mounting bracket)	3
④	Interface mounting bracket	1
⑤	Cable clamp (for the indoor unit's connection cable)	1
⑥*	CnT terminal connection cable (total cable length: 0.5m)	1

* SC-BIKN-EA only

Safety precautions

Before use, please read these Safety Precautions thoroughly before installation.

- All the cautionary items mentioned below are important safety related items to be taken into consideration, so be sure to observe them at all times.

⚠Warning	Incorrect installation could lead to serious consequences such as death, major injury or enviromental destruction.

- Symbols used in these precautions

	Always go along these instruction.

- After completed installation, carry out trial operation to confirm no anomaly, and ask the user to keep this installation manual in a good place for future reference.

⚠ Warnings

- **Installation must be carried out by a qualified installer.**
  If you install it by yourself, it may cause an electric shock, fire and personal injury , as a result of a system malfunction.
- **Install it in full accordance with the instruction manual.**
  Incorrect installation may cause an electric shock, fire and personal injury.
- **Electrical work must be carried out by a qualified electrician in accordance with the technical standard for electrical equipment, the indoor wiring standard and this instruction manual.**
  Incorrect installation may cause an electric shock, fire and personal injury.
- **Use the specific cables for wiring. And connect all the cables to terminals or connectors securely and clamp them with cable clamps in order for external forces not to be transmitted to the terminals directly.**
  Incomplete connection may cause malfunction, and lead to heat generation and fire.
- **Use the original accessories and specified components for installation.**
  If the parts other than those prescribed by us are used, it may cause an electric shock, fire and sersonal injury.

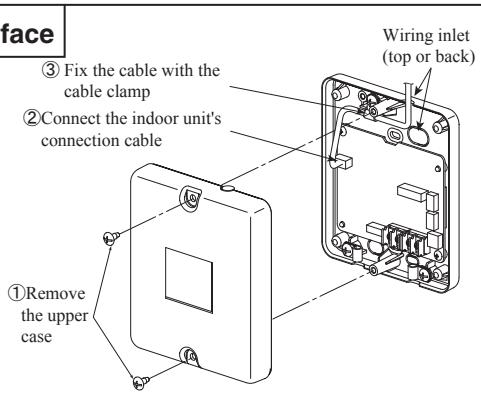
Connecting the indoor unit's connection cable to the interface

①Remove the upper case of the interface.
- Remove 2 screws from the interface casing before removal of upper casing.

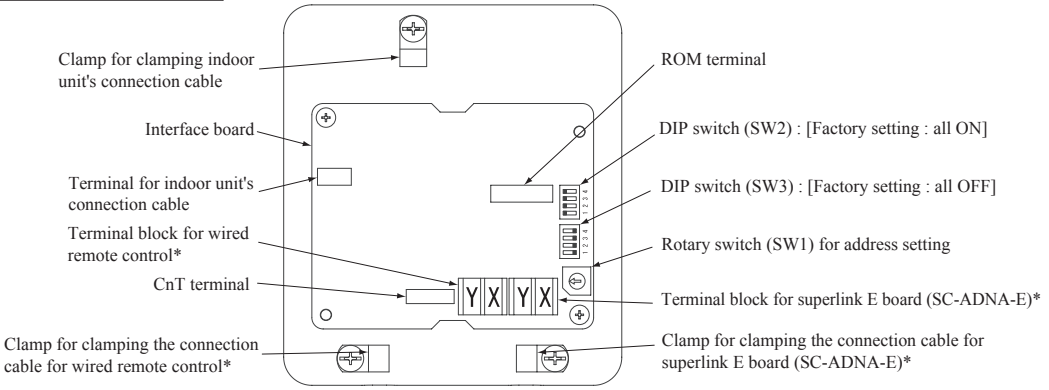
②Connect the indoor unit's connection cable to the interface.
- Connect the connector of the indoor unit connection cable to the connector on the interface's circuit board.

③Fix the indoor unit's connection cable with the cable clamp.
- Cable can be brought in from the top or from the back.
- Cut out the punch-outs for the connection cables running into the casing with cutter.

④Connect the indoor unit's connection cable to the indoor control PCB.
- Connect the indoor unit's connection cable to the indoor control PCB securely.
- Clamp the connection cable to the indoor control box securely with the cable clamp provided as an accessory.
- Regarding the cable connection to the indoor unit, refer to the instruction manual for indoor unit.



Name of each part of the interface



*Either the connection cables of superlink E board (SC-ADNA-E) or of wired remote control is connectable.

Switch	Setting	Function	Switch	Setting	Function
SW2-1	ON**	CnT level input	SW2-3	ON**	External input (CnT input)
	OFF	CnT pulse input		OFF	Operation permission/prohibition (CnT input)
SW2-2	ON**	Wired remote control : Enable	SW2-4	ON**	Annual cooling : Enable***
	OFF	Wired remote control : Disable		OFF	Annual cooling : Disable***

** Factory setting

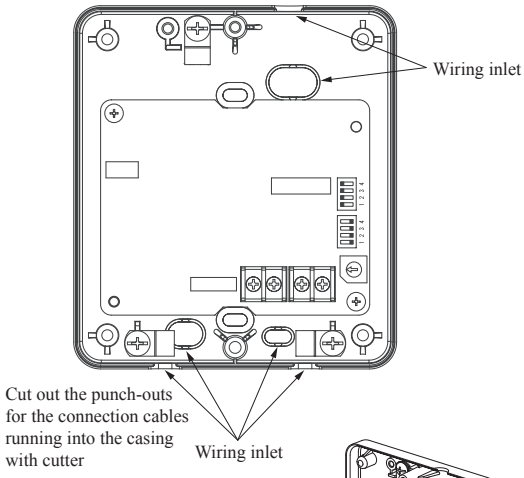
*** Indoor fan control at low outdoor air temperature in cooling

Installation of the interface

- Install the interface within the range of the connection cable length (approximately 1.3m) from the indoor unit.
- Be sure not to extend the connection cable on site. If the connection cable is extended, malfunction may occur.
- Fix the interface on the wall, pillar or the like.

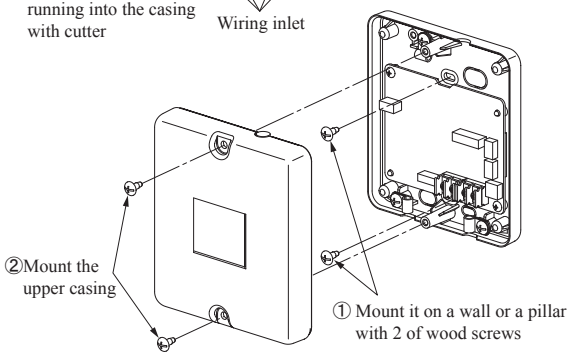
●Do not install the interface and wired remote control at the following places.

○Places exposed to direct sunlight
○Places near heating devices
○High humidity places
○Surfaces where are enough hot or cold to generate condensation
○Places exposed to oil mist or steam directly
○Uneven surface



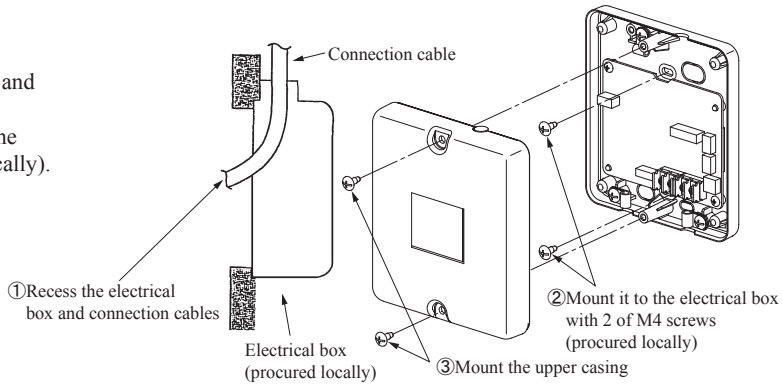
Mounting the interface directly on a wall

①Mount the lower casing of the interface on a flat surface with wood screws provided as standard accessory.
②Mount the upper casing.



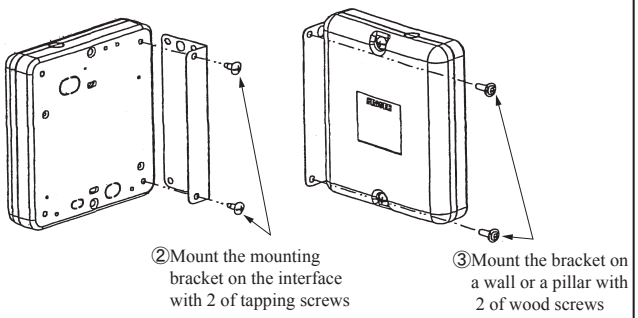
Recessing the interface in the wall

①Recess the electrical box (procured locally) and connection cables in the wall.
②Mount the lower casing of the interface to the electrical box with M4 screws (procured locally).
③Mount the upper casing.



Mounting the interface with the mounting bracket

①Mount the mounting bracket to the interface with tapping screws provided as standard accessory.
②Mount the mounting bracket on wall or the like with wood screws provided as standard accessory.
③Mount the mounting bracket to a wall surface, etc. using the wood screws provided.



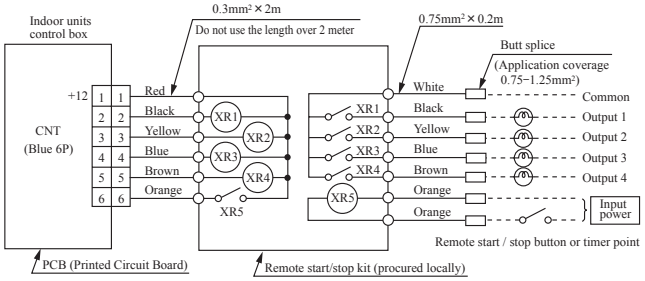
Installation check items

☐ Are the connection cables connected securely to the terminal blocks and connectors?
☐ Are the thickness and length of the connection cables conformed with the standard?

Functions of CnT connector

It is available to operate the air-conditioner unit and to monitor the operation status with the external control unit (remote display) by sending the input/output signal through CnT connector on the indoor control PCB.

①Connect a external remote control unit (procured locally) to CnT terminal.
②In case of the pulse input, switch OFF the DIP switch SW2-1 on the interface PCB.
③When setting operation permission/prohibition mode, switch OFF the DIP switch SW2-3 on the interface PCB.



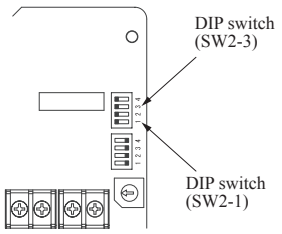
Input/ Output	Function	Output signal		Content
		Relay	ON/OFF	
Output 1	Operation output	XR_1	ON	During air-conditioner operation
Output 2	Heating output	XR_2	ON	During heating operation
Output 3	Compressor operation output	XR_3	ON	During compressor running
Output 4	Malfunction output	XR_4	ON	During anomalous stop

- $XR_{1\sim4}$ are for the DC 12V relay
- XR_5 is a DC 12/24V or AC 220-240V relay
- CnT connector (local) maker, model

Connector	Molex	5264-06
Terminals	Molex	5263T

Input/ Output	Function	SW2-1		SW2-3				Air-conditioner	Operation by remote control
		Setting		Setting	Input signal		Content		
					Level/Pulse	XR_5			
Input	External control input	ON*	Level input	ON*	Level	OFF→ON	External input	ON	Allowed
						ON→OFF		OFF	
				OFF		OFF→ON	Operation permission	OFF	
						ON→OFF	Operation prohibition	OFF	Not allowed
		OFF	Pulse input	ON*	Pulse	OFF→ON	External input	OFF→ON	Allowed
								ON→OFF	
				OFF	Level	OFF→ON	Operation permission	ON	
						ON→OFF	Operation prohibition	OFF	Not allowed

* Factory setting

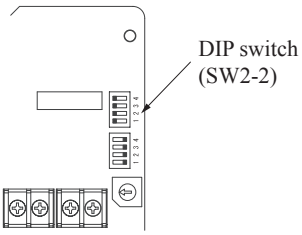


Connection of Superlink E board

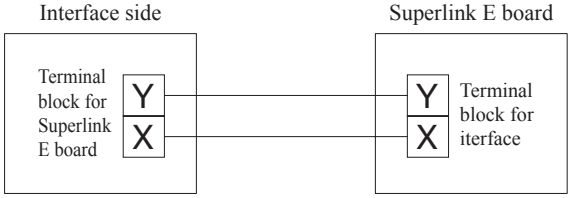
Regarding the connection of Superlink E board, refer to the instruction manual of Superlink E board.
For electrical work, power source for all of units in the Superlink system must be turned OFF.

①Switch ON the DIP switch SW2-2 (Factory setting: ON) on the interface PCB.

Caution: Wireless remote control attached to the indoor unit can be used in parallel, after connecting the wired remote control. However, some of functions other than the basic functions such as RUN/STOP, Temperature Setting, etc. may not work properly and may have a mismatch between the display and the actual behavior.



②Wiring connection between the interface and the Superlink E board.

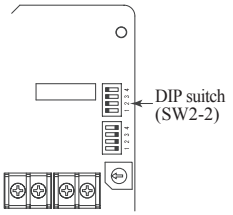


No.	Names of recommended signal wires
1	Shielded wire
2	Vinyl cabtyre round cord
3	Vinyl cabtyre round cable
4	Vinyl insulated wire vinyl sheathed cable for control

Within 200 m 0.5 mm² × 2 cores
Within 300 m 0.75 mm² × 2 cores
Within 400 m 1.25 mm² × 2 cores
Within 600 m 2.0 mm² × 2 cores

③Clamp the connection cables with cable clamps.

Connection of wired remote control



Regarding the connection of wired remote control, refer to the instruction manual of wired remote control.

①Switch ON the DIP switch SW2-2 (Factory setting : ON) on the interface PCB.

Caution: Wireless remote control attached to the indoor unit can be used in parallel, after connecting the wired remote control. However, some of functions other than the basic functions such as RUN/STOP, Temperature Setting, etc. may not work properly and may have a mismatch between the display and the actual behavior.

②Wiring connection between the interface and the wired remote control.

Installation and wiring of wired remote control

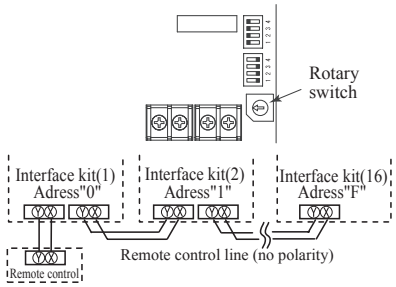
Ⓐ Install the wired remote control with reference to the attached instruction manual of wired remote control.
Ⓑ 0.3mm² x 2 cores cable should be used for the wiring of wired remote control.
Ⓒ Maximum length of wiring is 600m.
If the length of wiring exceeds 100m, change the size of cable as mentioned below.
100m-200m: 0.5mm² x 2 cores, 300m or less: 0.75mm² x 2 cores, 400m or less: 1.25mm² x 2 cores, 600m or less: 2.0mm² x 2 cores
However, cable size connecting to the terminal of wired remote control should not exceed 0.5mm². Accordingly if the size of connection cable exceeds 0.5mm², be sure to downsize it to 0.5mm² at the nearest section of the wired remote control and waterproof treatment should be done at the connecting section in order to avoid contact failure.
Ⓓ Don't use the multi-core cable to avoid malfunction.
Ⓔ Keep the wiring of wired remote control away from grounding (Don't touch it to any metal frame of building, etc.).
Ⓕ Connect the connection cables to the terminal blocks of the wired remote control and the interface securely (no polarity).

③Clamp the connection cables with cable clamps.

Control of multiple units by a single wired remote control

Multiple units (up to 16) can be controlled by a single wired remote control.
In this case, all units connected with a single wired remote control will operate under the same mode and same setting temperature.

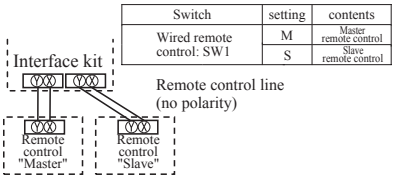
①Connect all the interface with 2 cores cables of wired remote control line.
②Set the address of indoor unit for remote control communication from "0" to "F" with the rotary switch SW1 on the interface PCB.
③After turning the power ON, the address of indoor unit can be displayed by pressing AIR CON No. button on the wired remote control.
Make sure all indoor units connected are displayed in order by pressing ▲ or ▼ button.



Master/Slave setting wired when 2 of wired remote control are used

Maximum two wired remote control can be connected to one indoor unit (or one group of indoor units)

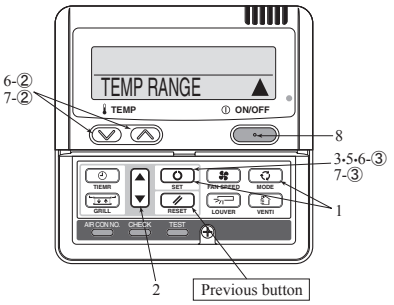
①Set the DIP switch SW1 on the wired remote control to "Slave" for the slave remote control. (Factory setting : Master)
○ Caution : Remote control sensor is invalid.



● When using the wireless remote control in parallel with the wired remote control;
Since temperature setting range of wired remote control is different from that of wireless remote control, please adjust the setting range of wired remote control to be the same setting range of wireless remote control by following procedure. (The set temperature may not be displayed correctly on the wireless remote control, unless change of temperature setting range is done.)
Changing procedure of temperature setting range is as follows.

How to set upper and lower limit of temperature sting range

1. Stop the air-conditioner, and press (SET) and (MODE) button at the same time for 3 seconds or more.
The indication changes to"FUNCTION SET▼"
2. Press ▼ button once, and change to the "TEMP RANGE ▲" indication.
3. Press (SET) button, and enter the temperature range setting mode.
4. Confirm that the "Upper limit ▼ " is shown on the display.
5. Press (SET)button to fix.
6. ①Indication: "☝∨∧SET UP"→"UPPER 28℃ ∨∧"
②Select the upper limit value 30℃ with temperature setting button △."UPPER30℃∨ " (blinking)
③Press (SET) button to fix. "UPPER 30℃" (Displayed for two seconds)
After the fixed upper limit value displayed for two seconds, the indication will return to"UPPER LIMIT▼".
7. Press ▼ button once, "LOWER LIMIT ▲ " is selected, press (SET) button to fix.
①Indication: "☝∨∧SET UP" → "LOWER 20℃∨∧"
②Select the lower limit value 18℃ with temperature setting button ▽."LOWER18℃∧ " (blinking)
③Press (SET) button to fix. "LOWER 18℃" (Displayed for two seconds)
After the fixed lower limit value displayed for two seconds, the indication will return to"LOWER LIMIT▼"
8. Press ON/OFF button to finish.



Temperature setting range

Mode	Temperature setting range
Cooling, Heating, Dry, Auto	18-30℃

- It is possible to quit in the middle by pressing ON/OFF button, but the change of setting is incompleted.
- During setting, if pressing (RESET) button, it returns to the previous screen.

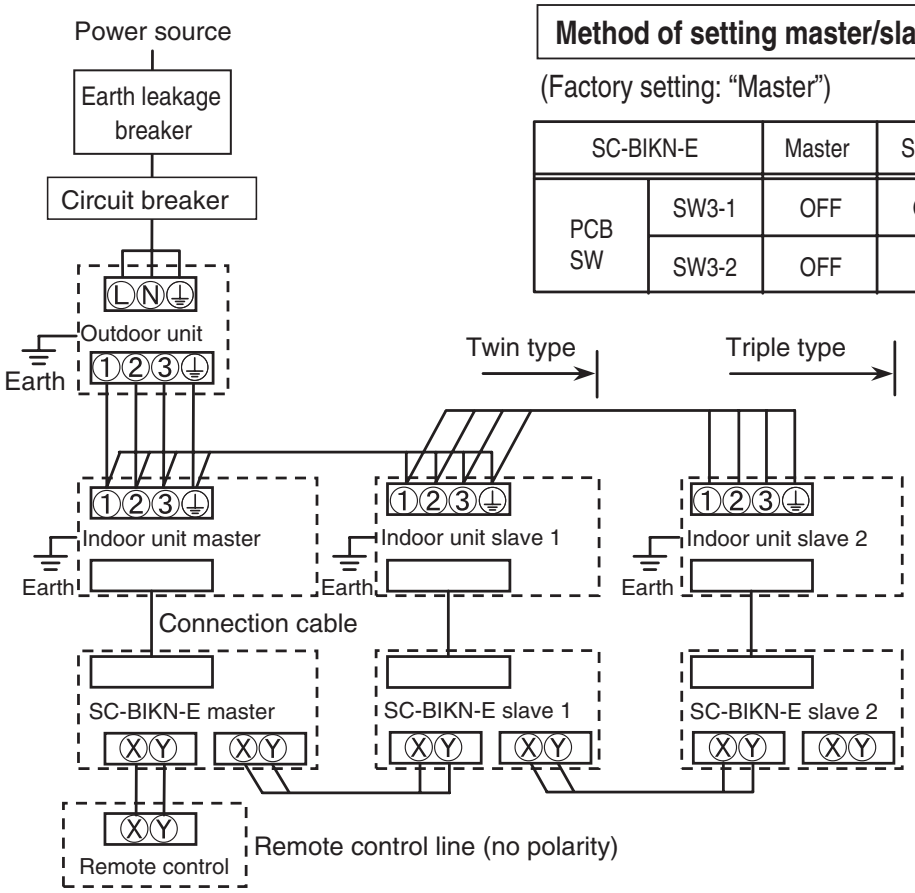
(b) Cable connection for SRK twin / triple installation

①Connect the same pairs number of terminal block "①,②,and ③"and " Ⓧ and Ⓨ " between master and slave indoor units.

②Do the same address setting of all inside units belong to same refrigerant system by rotary switch SW1 on SC-BIKN-E's PCB (Printed circuit board).

③Set slave indoor unit as "slave 1" through "slave 3" by address switch SW3-1, 3-2 on SC-BIKN-E's PCB.

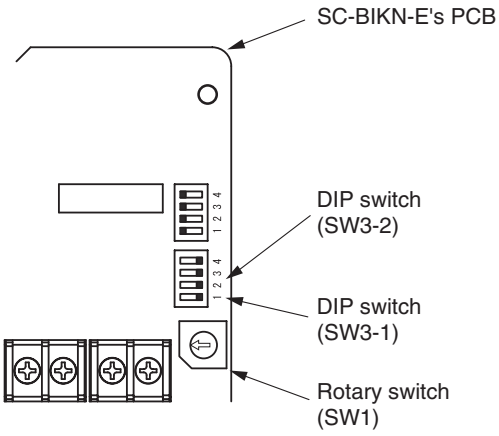
④When the AIR CON No. button on the remote control unit is pressed after turning on the power, an indoor unit's address number will be dis played. Do not fail to confirm that the connected indoor unit's numbers are displayed on the remote control unit by pressing the ▲ or ▼ button.



Method of setting master/slave of SC-BIKN-E

(Factory setting: "Master")

SC-BIKN-E		Master	Slave 1	Slave 2
PCB SW	SW3-1	OFF	OFF	ON
	SW3-2	OFF	ON	OFF



RKZ012A092

(3) SUPERLINK E BOARD (SC-ADNA-E)

PJZ012D029F

- Read and understand the instructions completely before starting installation.
- Refer to the instructions for both indoor and outdoor units.

Safety precautions

- Carefully read "Safety precautions" first. Follow the instructions for installation.
- Precautions are grouped into "Warning⚠" and "Caution⚠". The "Warning⚠" group includes items that may lead to serious injury or death if not observed. The items included in the "Caution⚠" group also may lead to serious results under certain conditions. Both groups are crucial for safety installation. Read and understand them carefully.
- After installation, conduct the test operation of the device to check for any abnormalities. Describe how to operate the device to the customer following the installation instruction manual. Instruct the customer to keep this installation instruction for future reference.

⚠Warning

- This device should be installed by the dealer where you purchase the device or a licensed professional shop. If the device is incorrectly installed by the customer, it may result in electric shock or fire.
- Install the device carefully following the installation instruction. If the device is incorrectly installed, it may result in electric shock or fire.
- Use the accessory parts and specified parts for installation. If any parts that do not match the specifications are used, it may result in electric shock or fire.
- A person with the electrical service certification should conduct the service based on the "Technical standards for electrical facilities", "Electrical Wiring Code", and the installation instruction. If the work is done incorrectly, it may result in electric shock or fire.
- Wiring should be securely connected using the specified types of wire. No external force on the wire should be applied to any terminals. If a secure connection is not achieved, it may result in electric shock or fire.

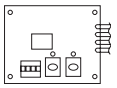
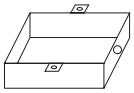
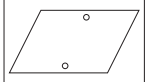
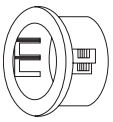
⚠Caution

- Provide ground connection.
  The ground line should never be connected to the gas supply piping, the water supply piping, the lightning conductor rod, nor the telephone ground.If the grounding is improper, it may result in electric shock.
- Do not install the device in the following locations.
  1.Where there is mist/spray of oil or steam such as kitchens.
  2.Where there is corrosive gases such as sulfurous acid gas.
  3.Where there is a device generating electromagnetic waves.
  These may interfere with the control system resulting in the device becoming uncontrollable.
  4.Where flammable volatile materials such as paint thinner and gasoline may exist or where they are handled. This may cause a fire.

1 Application

Indoor-to-outdoor three core communication specification type 3 (since October 2007)

2 Accessories

SL E board	Metal box	Metal cover	Screw for ground
			M4×8L 2 pieces 
Pan head screws	Locking supports	Binding band	Grommet
ø4×8L 2 pieces 	To secure the print board and the metal box Made of nylon 4 pieces 		

3 Function

Allowing the center console SL1N-E, SL2N-E, and SL4 -AE/BE to control and monitor the commercial air-conditioner unit.

4 Control switching

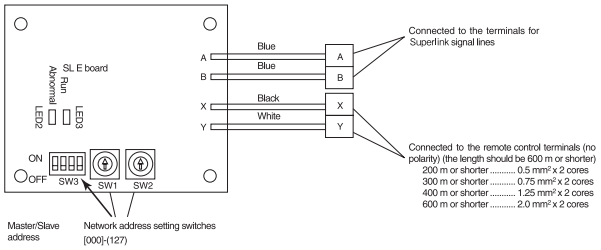
Settings can be changed by the switch SW3 on the SL E board as in the following.

Switch	Symbol	Switch	Remarks
SW3	1	ON	Master
		OFF (default)	Slave
	2	ON	Fixed previous protocol
		OFF (default)	Automatic adjustment of Superlink protocol
	3	ON	Indicates the forced operation stop when abnormality has occurred.
		OFF (default)	Indicates the status of running/stop as it is, when abnormality has occurred.
	4	ON	The hundredth address activated "1"
		OFF (default)	The hundredth address activated "0"

5 Connection Outline

Note for setting the address

- Set the address between 00 and 47 for the previous Superlink connection and between 000 and 127 for the new Superlink connection. (*1)
- Do not set the address overlapping with those of the other devices in the network. (The default is 000)



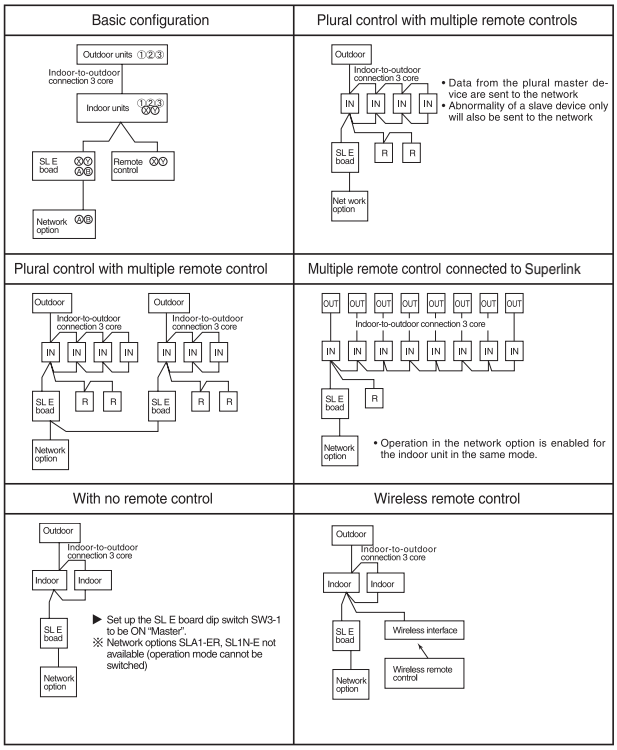
(*1) Whether the actual link is either the new Superlink or the previous Superlink depends on the models of the connected outdoor and indoor units. Consult the agent or the dealer.

Signal line specification

Communication method	Previous Superlink	New Superlink
Line type	MVVS	MVVS
Line diameter	0.75 - 1.25mm²	0.75/1.25mm²
Signal line (total length)	up to 1000m	up to 1500/1000m (*2)
Signal line (maximum length)	up to 1000m	up to 1000m

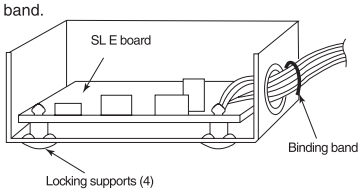
(*2) Up to 1500 m for 0.75 mm², and up to 1000 m for 1.25 mm².
Do not use 2.0 mm². It may cause an error.
(*3) Connect grounding on both ends of the shielding wire.
For the grounding method, refer to the section "6 Installation".

(1) Set the Superlink network address with SW1 (tens place), SW2 (ones place), and SW3 (hundreds place).
(2) Set the SL E board SW3-1 to be ON (Master) when using this without any remote control (no wired remote control nor wireless remote control).
(3) Set up the plural master/slave device using the dip switches on the indoor unit board.
(4) Set up the remote control master/slave device using the slide switch on the remote control board.
(5) Set up "0" to "F" using the address rotary switch on the indoor unit board when controlling the indoor unit with the multiple remote control.

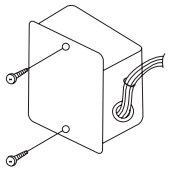


6 Installation

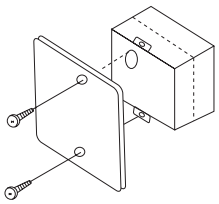
1. When using the metal box (mounted on the indoor unit / mounted on the back of the remote control):
   (1) Mount the SL E board in the metal box using the locking supports.
   (2) Wiring should go through the provided grommet since then through the wiring to the hole on the Metal box.
   Secure the grommet after inserting the grommet into the Metal box as shown in below figure, then tie the wiring at the outlet of the unit using a binding band.



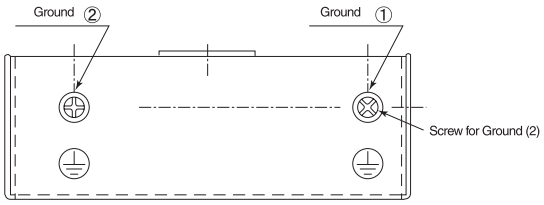
▲ When installed outside the indoor unit, put the metal cover on.



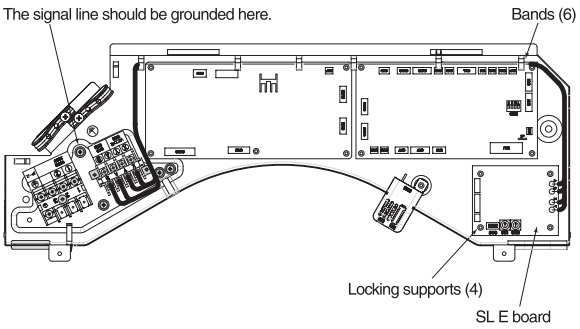
▲ When installed on the back of the remote control, mount it directly on the remote control bottom case.



Connect grounding. Connect grounding for the power line to Ground ①, and grounding for the signal line to Ground ② or to the Ground on the indoor unit control box.



2. When connecting to the indoor unit control box (ceiling-concealed type and FDT type only):
   (1) Mount the SL E board in the control box using the locking supports.
   (2) Remove 6 bands from the box and put the wiring through the bands to be secured.



Electrical shock hazard! Make sure to turn the power off for servicing. Be cautious so that no abnormal force should be applied to the wiring. Do not let the SL E board hung by the wiring. Do not damage the board with a screw driver.
The board is sensitive to static electricity. Release the static electricity of your body before servicing.
(you can do this by touching the control board which is grounded).

Location of installation

Install the device at the location where there are no electromagnetic waves nor where there is water and dust. The specified temperature range of the device is 0 to 40°C. Install the device at the location where the ambient temperature stays within the range. If it exceeds the specification, make sure to provide solution such as installing a cooling fan. When used outside of the range, it may cause abnormal operation.

7 Indicator display

Check the LED 3 (green) and LED 2 (red) on the SL E board for flashing.

SL E board LEDs		Inspection mode	Display on the integrated network control device
Red	Green		
Off	Flashing	Normal communication	
Off	Off	• Disconnection in the remote control communication line (X or Y) • Short-circuit in the remote control communication line (between X and Y) • Faulty indoor unit remote control power • Faulty remote control communication circuit • Faulty CPU on SL E board	No corresponding unit number
One flash	Flashing	• Disconnection in the Superlink signal line (A or B) • Short-circuit in the Superlink signal line (between A and B) • Faulty Superlink signal circuit	
Two flashes	Flashing	• Faulty address setting for the SL E board (Set up the address for previous SL E board : more than 48 new SL E board : more than 128)	
Three flashes	Flashing	• SL E board parent not set up when used without a remote control • Faulty remote control communication circuit	E1
Four flashes	Flashing	• Address overlapping for the SL E board and the Superlink network connected indoor unit	E2
Off	Flashing	• Number of connected devices exceeds the specification for the multiple indoor unit control	E10

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INVERTER PACKAGED AIR-CONDITIONERS

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