



DATA BOOK

INVERTER PACKAGED AIR-CONDITIONERS (Split system, air to air heat pump type)

HYPER INVERTER

CEILING CASSETTE - 4 WAY COMPACT TYPE

Single type	Twin type
FDTC40ZSXVG	FDTC71VNXPVG
50ZSXVG	100VNXPVG
60ZSXVG	100VSXPVG
	125VNXPVG
	125VSXPVG
	Triple type
	FDTC140VNXTVG
	140VSXTVG

MICRO INVERTER

CEILING CASSETTE - 4 WAY COMPACT TYPE

Twin type	Triple type
FDTC100VNAPVG	FDTC140VNATVG
100VSAPVG	140VSATVG
125VNAPVG	
125VSAPVG	Double twin type
	FDTC200VSADVG
	250VSADVG

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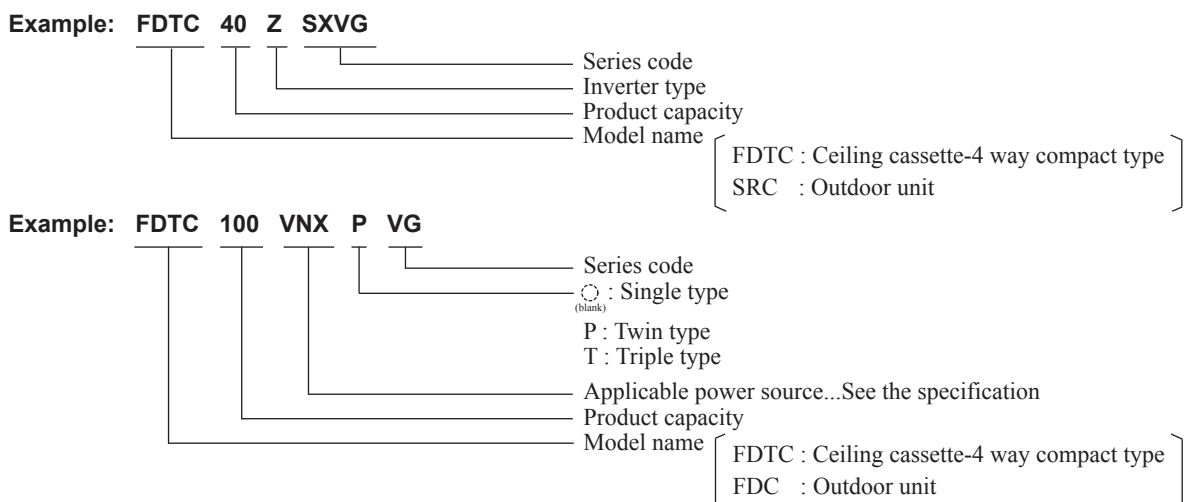
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1. HYPER INVERTER PACKAGED AIR-CONDITIONERS

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■ How to read the model name



1.1 SPECIFICATIONS

(1) Single type

Item		Model		FDTC40ZSXVG			
		Indoor unit FDTC40VG		Outdoor unit SRC40ZSX-S			
Power source		1 phase 220-240V 50Hz / 220V 60Hz					
Operation data	Nominal cooling capacity (range)	kW		4.0 [1.1(Min.)-4.7(Max.)]			
	Nominal heating capacity (range)	kW		4.5 [0.6(Min.)-5.4(Max.)]			
	Power consumption	Cooling	kW		0.980		
		Heating	kW		1.13		
	Max power consumption			2.60			
	Running current	Cooling	A		4.3 / 4.5		
		Heating	A		5.0 / 5.2		
	Inrush current, max current			5 , 12			
	Power factor	Cooling	%		99		
		Heating	%		99		
	EER	Cooling		4.08			
	COP	Heating		3.98			
	Sound power level	Cooling	dB(A)		59		
Heating		dB(A)		63			
Sound pressure level	Cooling	P-Hi : 44 Hi : 40 Me : 35 Lo : 27		50			
	Heating			49			
Silent mode sound pressure level			—		Cooling : 42 / Heating : 43		
Exterior dimensions (Height x Width x Depth)		mm		Unit 248 × 570 × 570 Panel 10 × 620 × 620		640 × 800(+71)×290	
Exterior appearance (Munsell color) (RAL color)				Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7044) near equivalent	
Net weight		kg		Unit 14 Panel 2.5		45	
Compressor type & Q'ty				—		RMT5113MCE2 (Twin rotary type)×1	
Compressor motor (Starting method)		kW		—		Direct line start	
Refrigerant oil (Amount, type)		ℓ		—		0.45 (M-MA68)	
Refrigerant (Type, amount, pre-charge length)		kg		R410A 1.5kg in outdoor unit (Incl. the amount for the piping of : 15m)			
Heat exchanger				Louver fin & inner grooved tubing		M shape fin & inner grooved tubing	
Refrigerant control				Capillary tubes + Electronic expansion valve			
Fan type & Q'ty				Turbo fan ×1		Propeller fan ×1	
Fan motor (Starting method)		W		50 < Direct line start >		34 < Direct line start >	
Air flow	Cooling	m³/min		P-Hi : 13 Hi : 11 Me : 9 Lo : 7		36	
	Heating	m³/min				33	
Available external static pressure		Pa		0		—	
Outside air intake				Possible		—	
Air filter, Quality / Quantity				Pocket plastic net ×1(Washable)		—	
Shock & vibration absorber				Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)	
Electric heater		W		0		—	
Operation control	Remote control			(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2			
	Room temperature control			Thermostat by electronics			
	Operation display			—			
Safety equipments				Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection			
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm	I/U φ 6.35 (1/4") Pipe φ 6.35(1/4") × 0.8 O/U φ 6.35 (1/4")			
		Gas line		I/U φ 12.7 (1/2") Pipe φ 12.7(1/2") × 0.8 O/U φ 12.7 (1/2")			
	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.30m			
Vertical height diff. between O/U and I/U	m		Max.20m (Outdoor unit is higher)		Max.20m (Outdoor unit is lower)		
Drain hose			Hose connectable with VP25(O.D.32)		Hole size φ 20 × 5pcs		
Drain pump, max lift height	mm		Built-in drain pump , 850		—		
Recommended breaker size	A		—				
L.R.A. (Locked rotor ampere)	A		4.8				
Interconnecting wires	Size x Core number		1.5mm ² ×4 cores (Including earth cable) / Terminal block (Screw fixing type)				
IP number			IPX0		IPX4		
Standard accessories			Mounting kit, Drain hose		Drain elbow, Drain hole grommet		
Option parts			OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E				
Notes		(1) The data are measured at the following conditions.		The pipe length is 7.5m.			
Operation	Cooling	Indoor air temperature	Outdoor air temperature		Standards		
		DB	WB	DB	WB	ISO5151-T1	
	27°C	19°C	35°C	24°C			
Heating	20°C	—	7°C	6°C			

- (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 indicate when the air-conditioner is operated at 230V50Hz or 220V60Hz.

Item		Model		FDTC50ZSXVG																						
		Indoor unit FDTC50VG		Outdoor unit SRC50ZSX-S																						
Power source		1 phase 220-240V 50Hz / 220V 60Hz																								
Operation data	Nominal cooling capacity (range)	kW		5.0 [1.1(Min.)-5.6(Max.)]																						
	Nominal heating capacity (range)	kW		5.4 [0.6(Min.)-6.3(Max.)]																						
	Power consumption	Cooling	kW		1.43																					
		Heating	kW		1.53																					
	Max power consumption			2.90																						
	Running current	Cooling	A		6.3 / 6.6																					
		Heating	A		6.7 / 7.0																					
	Inrush current, max current			5 , 15																						
	Power factor	Cooling	%		99																					
		Heating	%		99																					
	EER	Cooling			3.50																					
	COP	Heating			3.53																					
	Sound power level	Cooling	dB(A)		59																					
		Heating	dB(A)		63																					
Sound pressure level	Cooling	dB(A)		P-Hi : 44 Hi : 40 Me : 35 Lo : 27																						
	Heating	dB(A)		50																						
Silent mode sound pressure level					49																					
Exterior dimensions (Height x Width x Depth)	mm		Unit 248 × 570 × 570 Panel 10 × 620 × 620		Cooling : 42 / Heating : 43 640×800(+71)×290																					
Exterior appearance (Munsell color)			Fine snow (8.0Y9.3/0.1) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent																					
Exterior appearance (RAL color)			(RAL 9001) near equivalent		(RAL 7044) near equivalent																					
Net weight	kg		Unit 14 Panel 2.5		45																					
Compressor type & Q'ty			—		RMT5113MCE2 (Twin rotary type)×1																					
Compressor motor (Starting method)	kW		—		Direct line start																					
Refrigerant oil (Amount, type)	ℓ		—		0.45 (M-MA68)																					
Refrigerant (Type, amount, pre-charge length)	kg		R410A 1.5kg in outdoor unit (Incl. the amount for the piping of : 15m)																							
Heat exchanger			Louver fin & inner grooved tubing		M shape fin & inner grooved tubing																					
Refrigerant control			Capillary tubes + Electronic expansion valve																							
Fan type & Q'ty			Turbo fan ×1		Propeller fan ×1																					
Fan motor (Starting method)	W		50 < Direct line start >		34 < Direct line start >																					
Air flow	Cooling	m³/min	P-Hi : 13 Hi : 11 Me : 9 Lo : 7		40																					
	Heating				33																					
Available external static pressure	Pa		0		—																					
Outside air intake			Possible		—																					
Air filter, Quality / Quantity			Pocket plastic net ×1(Washable)		—																					
Shock & vibration absorber			Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)																					
Electric heater	W		0		—																					
Operation control	Remote control	(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2																								
	Room temperature control	Thermostat by electronics																								
	Operation display	—																								
Safety equipments	Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection																									
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm	I/U φ 6.35 (1/4") Pipe φ 6.35(1/4") × 0.8 O/U φ 6.35 (1/4")																						
		Gas line		I/U φ 12.7 (1/2") Pipe φ 12.7(1/2") × 0.8 O/U φ 12.7 (1/2")																						
	Connecting method			Flare piping																						
	Attached length of piping	m		—																						
	Insulation for piping			Necessary (both Liquid & Gas lines)																						
	Refrigerant line (one way) length	m		Max.30m																						
	Vertical height diff. between O/U and I/U	m		Max.20m (Outdoor unit is higher) Max.20m (Outdoor unit is lower)																						
Drain hose			Hose connectable with VP25(O.D.32)		Hole size φ 20 × 5pcs																					
Drain pump, max lift height	mm		Built-in drain pump , 850		—																					
Recommended breaker size	A		—																							
L.R.A. (Locked rotor ampere)	A		5.0																							
Interconnecting wires	Size x Core number		1.5mm ² ×4 cores (Including earth cable) / Terminal block (Screw fixing type)																							
IP number			IPX0		IPX4																					
Standard accessories			Mounting kit, Drain hose		Drain elbow, Drain hole grommet																					
Option parts	OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E																									
Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.																										
<table border="1"> <thead> <tr> <th rowspan="2">Operation</th> <th colspan="2">Indoor air temperature</th> <th colspan="2">Outdoor air temperature</th> <th rowspan="2">Standards</th> </tr> <tr> <th>DB</th> <th>WB</th> <th>DB</th> <th>WB</th> </tr> </thead> <tbody> <tr> <td>Cooling</td> <td>27°C</td> <td>19°C</td> <td>35°C</td> <td>24°C</td> <td rowspan="2">ISO5151-T1</td> </tr> <tr> <td>Heating</td> <td>20°C</td> <td>—</td> <td>7°C</td> <td>6°C</td> </tr> </tbody> </table>						Operation	Indoor air temperature		Outdoor air temperature		Standards	DB	WB	DB	WB	Cooling	27°C	19°C	35°C	24°C	ISO5151-T1	Heating	20°C	—	7°C	6°C
Operation	Indoor air temperature		Outdoor air temperature		Standards																					
	DB	WB	DB	WB																						
Cooling	27°C	19°C	35°C	24°C	ISO5151-T1																					
Heating	20°C	—	7°C	6°C																						
(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 indicate when the air-conditioner is operated at 230V50Hz or 220V60Hz.																										

(2) Twin type

Item		Model	FDTC71VNXPVG			
			Indoor unit FDTC40VG (2 units)	Outdoor unit FDC71VNX		
Power source		1 phase 220-240V 50Hz / 220V 60Hz				
Operation data	Nominal cooling capacity (range)	kW	7.1 [3.2(Min.)-8.0(Max.)]			
	Nominal heating capacity (range)	kW	8.0 [3.6(Min.)-9.0(Max.)]			
	Power consumption	Cooling	kW	2.03		
		Heating		1.64		
	Max power consumption		3.25			
	Running current	Cooling	A	9.0 / 9.4		
		Heating		7.3 / 7.6		
	Inrush current, max current		5 , 17			
	Power factor	Cooling	%	98		
		Heating		98		
	EER	Cooling	3.50			
	COP	Heating	4.88			
	Sound power level	Cooling	dB(A)	59		
Heating		66				
Sound pressure level	Cooling	dB(A)	P-Hi : 44 Hi : 40 Me : 35 Lo : 27			
	Heating		48			
Silent mode sound pressure level		-				
Exterior dimensions (Height x Width x Depth)		mm	Unit 248 × 570 × 570 Panel 10 × 620 × 620	750×880(+88)×340		
Exterior appearance (Munsell color) (RAL color)			Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent	Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight		kg	Unit14 Panel 2.5	60		
Compressor type & Q'ty			-	RMT5118MDE2×1		
Compressor motor (Starting method)		kW	-	Direct line start		
Refrigerant oil (Amount, type)		ℓ	-	0.675 (M-MA68)		
Refrigerant (Type, amount, pre-charge length)		kg	R410A 2.95kg in outdoor unit (Incl. the amount for the piping of : 30m)			
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing		
Refrigerant control			Electronic expansion valve			
Fan type & Q'ty			Turbo fan ×1	Propeller fan ×1		
Fan motor (Starting method)		W	50 < Direct line start >	86 < Direct line start >		
Air flow	Cooling	m³/min	P-Hi : 13 Hi : 11 Me : 9 Lo : 7			
	Heating		60 50			
Available external static pressure		Pa	0			
Outside air intake			Possible			
Air filter, Quality / Quantity			Pocket plastic net ×1(Washable)			
Shock & vibration absorber			Rubber sleeve (for fan motor)			
Electric heater		W	0			
Operation control	Remote control		(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2			
	Room temperature control		Thermostat by electronics			
	Operation display		-			
Safety equipments			Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection			
Installation data	Refrigerant piping size (O.D.)	Liquid line	I/U φ 6.35 (1/4") ② φ 9.52(3/8")x0.8 ① φ 9.52(3/8")x0.8 O/U φ 9.52 (3/8")			
		Gas line	I/U φ 12.7 (1/2") ② φ 12.7(1/2")x0.8 ① φ 15.88(5/8")x1.0 O/U φ 15.88 (5/8")			
	Connecting method		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 VP25(O.D.32)				
Drain pump, max lift height	mm	Built-in drain pump , 850				
Recommended breaker size	A	-				
L.R.A. (Locked rotor ampere)	A	5.0				
Interconnecting wires	Size x Core number	φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)				
IP number		IPX0		IPX24		
Standard accessories		Mounting kit, Drain hose		-		
Option parts		OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E				
Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.						
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards
		DB	WB	DB	WB	
	Cooling	27°C	19°C	35°C	24°C	
Heating	20°C	-	7°C	6°C		
(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 indicate when the air-conditioner is operated at 230V50Hz or 220V60Hz.						
(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-WA1G"×1(Optional). ① Pipe of O/U-Branch, ② Pipe of Branch-I/U						

Item		Model	FDTC100VNXPVG				
			Indoor unit FDTC50VG (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	2.80			
		Heating		3.50			
	Max power consumption		5.60				
	Running current	Cooling	A	12.4 / 13.0			
		Heating		15.5 / 16.2			
	Inrush current, max current		5 , 24				
	Power factor	Cooling	%	98			
		Heating		98			
	EER	Cooling	3.57				
	COP	Heating	3.20				
	Sound power level	Cooling	dB(A)	59		70	
Heating		P-Hi : 44 Hi : 40 Me : 35 Lo : 27		48			
Sound pressure level	Cooling				50		
	Heating						
Silent mode sound pressure level		-					
Exterior dimensions (Height x Width x Depth)		mm	Unit 248 × 570 × 570 Panel 10 × 620 × 620		1300×970×370		
Exterior appearance (Munsell color) (RAL color)			Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight		kg	Unit14 Panel 2.5		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(Pre-charged up to the piping length of 30m)Outdoor unit				
Heat exchanger			Louver fin & inner grooved tubing		M shape fin & inner grooved tubing		
Refrigerant control			Electronic expansion valve				
Fan type & Q'ty			Turbo fan ×1		Propeller fan ×2		
Fan motor (Starting method)		W	50 < Direct line start >		86 × 2 < Direct line start >		
Air flow	Cooling	m³/min	P-Hi : 13 Hi : 11 Me : 9 Lo : 7		100		
	Heating						
Available external static pressure		Pa	0				
Outside air intake			Possible				
Air filter, Quality / Quantity			Pocket plastic net ×1(Washable)				
Shock & vibration absorber			Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)		
Electric heater		W	0		20(Crank case heater)		
Operation control	Remote control		(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2				
	Room temperature control		Thermostat by electronics				
	Operation display		-				
Safety equipments			Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection				
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm	I/U φ 6.35 (1/4") ② φ 9.52(3/8") × 0.8 ① φ 9.52(3/8")x0.8 O/U φ 9.52 (3/8")			
		Gas line		I/U φ 12.7 (1/2") ② φ 12.7(1/2") × 0.8 ① φ 15.88(5/8")x1.0 O/U φ 15.88 (5/8")			
Installation data	Connecting method		Flare piping		Flare piping		
	Attached length of piping		-		-		
	Insulation for piping		Necessary (both Liquid & Gas lines)				
	Refrigerant line (one way) length		Max.100m				
	Vertical height diff. between O/U and I/U		Max.30m (Outdoor unit is higher)		Max.15m (Outdoor unit is lower)		
Drain hose		Hose connectable with VP25(O.D.32)		Hole size φ 20 × 3pcs			
Drain pump, max lift height		mm	Built-in drain pump , 850				
Recommended breaker size		A	-				
L.R.A. (Locked rotor ampere)		A	5.0				
Interconnecting wires		Size x Core number	φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)				
IP number			IPX0		IPX24		
Standard accessories			Mounting kit, Drain hose		Edging		
Option parts			OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E				
Notes (1) The data are measured at the following conditions.			The pipe length is 7.5m.				
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards	
		DB	WB	DB	WB		
		Cooling	27°C	19°C	35°C		24°C
Heating	20°C	-	7°C	6°C	ISO5151-T1		
(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 indicate when the air-conditioner is operated at 230V50Hz or 220V60Hz. (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-WA1G"×1(Option). ① Pipe of O/U-Branch, ② Pipe of Branch-I/U							

Item		Model	FDTC100VSPVPG			
			Indoor unit	FDTC50VG (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	2.80		
		Heating		3.50		
	Max power consumption		7.00			
	Running current	Cooling	A	4.1 / 4.3		
		Heating		5.2 / 5.4		
	Inrush current, max current		5 , 15			
	Power factor	Cooling	%	98		
		Heating		98		
	EER	Cooling	3.57			
	COP	Heating	3.20			
	Sound power level	Cooling	dB(A)	59	70	
Heating						
Sound pressure level	Cooling	dB(A)	P-Hi : 44 Hi : 40 Me : 35 Lo : 27			
	Heating		48			
Silent mode sound pressure level		-				
Exterior dimensions (Height x Width x Depth)		mm	Unit 248 × 570 × 570 Panel 10 × 620 × 620	1300×970×370		
Exterior appearance (Munsell color) (RAL color)			Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent	Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight		kg	Unit14 Panel 2.5	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(Pre-charged up to the piping length of 30m)Outdoor unit			
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing		
Refrigerant control			Electronic expansion valve			
Fan type & Q'ty			Turbo fan ×1	Propeller fan ×2		
Fan motor (Starting method)		W	50 < Direct line start >	86 × 2 < Direct line start >		
Air flow	Cooling	m³/min	P-Hi : 13 Hi : 11 Me : 9 Lo : 7			
	Heating		100			
Available external static pressure		Pa	0	-		
Outside air intake			Possible	-		
Air filter, Quality / Quantity			Pocket plastic net ×1(Washable)	-		
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)		
Electric heater		W	-	20(Crank case heater)		
Operation control	Remote control		(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2			
	Room temperature control		Thermostat by electronics			
	Operation display		-			
Safety equipments			Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection			
Installation data	Refrigerant piping size (O.D.)	Liquid line	I/U φ 6.35 (1/4") ② φ 9.52(3/8") × 0.8 ① φ 9.52(3/8")x0.8 O/U φ 9.52 (3/8")			
		Gas line	I/U φ 12.7 (1/2") ② φ 12.7(1/2") × 0.8 ① φ 15.88(5/8")x1.0 O/U φ 15.88 (5/8")			
Connecting method			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 VP25(O.D.32)	Hole size φ 20 × 3pcs		
Drain pump, max lift height		mm	Built-in drain pump , 850			
Recommended breaker size		A	-			
L.R.A. (Locked rotor ampere)		A	5.0			
Interconnecting wires		Size x Core number	φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)			
IP number			IPX0	IPX24		
Standard accessories			Mounting kit, Drain hose	Edging		
Option parts			OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E			
Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.						
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards
		DB	WB	DB	WB	
	Cooling	27°C	19°C	35°C	24°C	
Heating	20°C	-	7°C	6°C		
(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 indicate when the air-conditioner is operated at 400V50Hz or 380V60Hz.						
(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-WA1G"×1(Option). ① Pipe of O/U-Branch, ② Pipe of Branch-I/U						

Item		Model	FDTC125VNXPVG			
			Indoor unit	FDTC60VG (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	4.10		
		Heating		4.10		
	Max power consumption		6.56			
	Running current	Cooling	A	18.2 / 19.0		
		Heating		18.2 / 19.0		
	Inrush current, max current		5 , 24			
	Power factor	Cooling	%	98		
		Heating		98		
	EER	Cooling	3.05			
	COP	Heating	3.41			
	Sound power level	Cooling	dB(A)	60		
Heating		70				
Sound pressure level	Cooling	dB(A)	P-Hi : 46 Hi : 42 Me : 38 Lo : 31			
	Heating		48			
Silent mode sound pressure level		50				
Exterior dimensions (Height x Width x Depth)		mm	Unit 248 × 570 × 570 Panel 10 × 620 × 620	1300×970×370		
Exterior appearance (Munsell color) (RAL color)			Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent	Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight		kg	Unit14 Panel 2.5	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(Pre-charged up to the piping length of 30m)Outdoor unit			
Heat exchanger			Louver fin & inner grooved tubing	M shape fin & inner grooved tubing		
Refrigerant control			Electronic expansion valve			
Fan type & Q'ty			Turbo fan ×1	Propeller fan ×2		
Fan motor (Starting method)		W	50 < Direct line start >	86 × 2 < Direct line start >		
Air flow	Cooling	m³/min	P-Hi : 14 Hi : 12 Me : 10 Lo : 8			
	Heating		100			
Available external static pressure		Pa	0			
Outside air intake			Possible			
Air filter, Quality / Quantity			Pocket plastic net ×1(Washable)			
Shock & vibration absorber			Rubber sleeve (for fan motor)			
Electric heater		W	—	20(Crank case heater)		
Operation control	Remote control	(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2				
	Room temperature control	Thermostat by electronics				
	Operation display	—				
Safety equipments		Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection				
Refrigerant piping size (O.D.)	Liquid line	mm	I/U φ 6.35 (1/4") ② φ 9.52(3/8") × 0.8 ① φ 9.52(3/8")×0.8 O/U φ 9.52 (3/8")			
	Gas line		I/U φ 12.7 (1/2") ② φ 12.7(1/2") × 0.8 ① φ 15.88(5/8")×1.0 O/U φ 15.88 (5/8")			
Connecting method			Flare piping			
Installation data	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 VP25(O.D.32)	Hole size φ 20 × 3pcs		
Drain pump, max lift height		mm	Built-in drain pump , 850			
Recommended breaker size		A	—			
L.R.A. (Locked rotor ampere)		A	5.0			
Interconnecting wires		Size x Core number	φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)			
IP number			IPX0	IPX24		
Standard accessories			Mounting kit, Drain hose	Edging		
Option parts			OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E			
Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.						
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards
		DB	WB	DB	WB	
	Cooling	27°C	19°C	35°C	24°C	
	Heating	20°C	—	7°C	6°C	ISO5151-T1
(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 indicate when the air-conditioner is operated at 230V50Hz or 220V60Hz.						
(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-WA1G"×1(Option). ① Pipe of O/U-Branch, ② Pipe of Branch-I/U						

Item		Model		FDTC125VSPVVG				
				Indoor unit FDTC60VG (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		4.10			
		Heating	kW		4.10			
	Max power consumption			8.20				
	Running current	Cooling	A		6.0 / 6.4			
		Heating	A		6.0 / 6.4			
	Inrush current, max current			5 , 15				
	Power factor	Cooling	%		98			
		Heating	%		98			
	EER	Cooling		3.05				
	COP	Heating		3.41				
	Sound power level	Cooling	dB(A)		60		70	
		Heating	dB(A)		60		70	
Sound pressure level	Cooling	dB(A)		P-Hi : 46 Hi : 42 Me : 38 Lo : 31		48		
	Heating	dB(A)		P-Hi : 46 Hi : 42 Me : 38 Lo : 31		50		
Silent mode sound pressure level			-		-			
Exterior dimensions (Height x Width x Depth)		mm		Unit 248 × 570 × 570 Panel 10 × 620 × 620		1300×970×370		
Exterior appearance (Munsell color) (RAL color)				Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight		kg		Unit14 Panel 2.5		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(Pre-charged up to the piping length of 30m)Outdoor unit				
Heat exchanger				Louver fin & inner grooved tubing		M shape fin & inner grooved tubing		
Refrigerant control				Electronic expansion valve				
Fan type & Q'ty				Turbo fan×1		Propeller fan ×2		
Fan motor (Starting method)		W		50 < Direct line start >		86×2 < Direct line start >		
Air flow	Cooling	m³/min		P-Hi : 14 Hi : 12 Me : 10 Lo : 8		100		
	Heating	m³/min		P-Hi : 14 Hi : 12 Me : 10 Lo : 8		100		
Available external static pressure		Pa		0				
Outside air intake				Possible				
Air filter, Quality / Quantity				Pocket plastic net×1(Washable)				
Shock & vibration absorber				Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)		
Electric heater		W		-		20(Crank case heater)		
Operation control	Remote control			(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2				
	Room temperature control			Thermostat by electronics				
	Operation display			-				
Safety equipments				Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection				
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm	I/U φ 6.35 (1/4") ② φ 9.52(3/8") × 0.8 ① φ 9.52(3/8") × 0.8 O/U φ 9.52 (3/8")				
		Gas line		I/U φ 12.7 (1/2") ② φ 12.7(1/2") × 0.8 ① φ 15.88(5/8") × 1.0 O/U φ 15.88 (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 VP25(O.D.32)		Hole size φ 20 × 3pcs			
Drain pump, max lift height	mm		Built-in drain pump , 850					
Recommended breaker size	A		-					
L.R.A. (Locked rotor ampere)	A		5.0					
Interconnecting wires	Size x Core number		φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)					
IP number			IPX0		IPX24			
Standard accessories			Mounting kit, Drain hose		Edging			
Option parts			OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E					
Notes (1) The data are measured at the following conditions.				The pipe length is 7.5m.				
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards		
		DB	WB	DB	WB			
	Cooling	27°C	19°C	35°C	24°C	ISO5151-T1		
Heating	20°C	-	7°C	6°C				
(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 indicate when the air-conditioner is operated at 400V50Hz or 380V60Hz.								
(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-WA1G"×1(Option). ① Pipe of O/U-Branch, ② Pipe of Branch-I/U								

(3) Triple type

Item		Model		FDTC140VNX TVG				
				Indoor unit FDTC50VG (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		4.20			
		Heating	kW		4.34			
	Max power consumption			5.64				
	Running current	Cooling	A		18.6 / 19.5			
		Heating	A		19.3 / 20.1			
	Inrush current, max current			5 , 26				
	Power factor	Cooling	%		98			
		Heating	%		98			
	EER	Cooling		3.33				
	COP	Heating		3.69				
	Sound power level	Cooling	dB(A)		59		72	
Heating		dB(A)		59		72		
Sound pressure level	Cooling	dB(A)		P-Hi : 44 Hi : 40 Me : 35 Lo : 27		49		
	Heating	dB(A)		P-Hi : 44 Hi : 40 Me : 35 Lo : 27		52		
Silent mode sound pressure level			-					
Exterior dimensions (Height x Width x Depth)		mm		Unit 248 × 570 × 570 Panel 10 × 620 × 620		1300×970×370		
Exterior appearance (Munsell color) (RAL color)				Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight		kg		Unit14 Panel 2.5		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(Pre-charged up to the piping length of 30m)Outdoor unit				
Heat exchanger				Louver fin & inner grooved tubing		M shape fin & inner grooved tubing		
Refrigerant control				Electronic expansion valve				
Fan type & Q'ty				Turbo fan ×1		Propeller fan ×2		
Fan motor (Starting method)		W		50 < Direct line start >		86 × 2 < Direct line start >		
Air flow	Cooling	m³/min		P-Hi : 13 Hi : 11 Me : 9 Lo : 7		100		
	Heating	m³/min		P-Hi : 13 Hi : 11 Me : 9 Lo : 7		100		
Available external static pressure		Pa		0				
Outside air intake				Possible				
Air filter, Quality / Quantity				Pocket plastic net ×1(Washable)				
Shock & vibration absorber				Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)		
Electric heater		W		-		20(Crank case heater)		
Operation control	Remote control			(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2				
	Room temperature control			Thermostat by electronics				
	Operation display			-				
Safety equipments				Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection				
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm	I/U φ 6.35 (1/4") ② φ 9.52(3/8") × 0.8 ① φ 9.52(3/8") × 0.8 O/U φ 9.52 (3/8")				
		Gas line		I/U φ 12.7 (1/2") ② φ 12.7(1/2") × 0.8 ① φ 15.88(5/8") × 1.0 O/U φ 15.88 (5/8")				
Installation data	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 VP25(O.D.32)		Hole size φ 20 × 3pcs		
Drain pump, max lift height		mm		Built-in drain pump , 850				
Recommended breaker size		A		-				
L.R.A. (Locked rotor ampere)		A		5.0				
Interconnecting wires		Size x Core number		φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)				
IP number				IPX0		IPX24		
Standard accessories				Mounting kit, Drain hose		Edging		
Option parts				OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E				
Notes (1) The data are measured at the following conditions.				The pipe length is 7.5m.				
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards		
		DB	WB	DB	WB			
		Cooling	27°C	19°C	35°C			24°C
Heating	20°C	-	7°C	6°C	ISO5151-T1			
(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 indicate when the air-conditioner is operated at 230V50Hz or 220V60Hz.								
(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-TA1G"×1(Option). ① Pipe of O/U-Branch, ② Pipe of Branch-I/U								

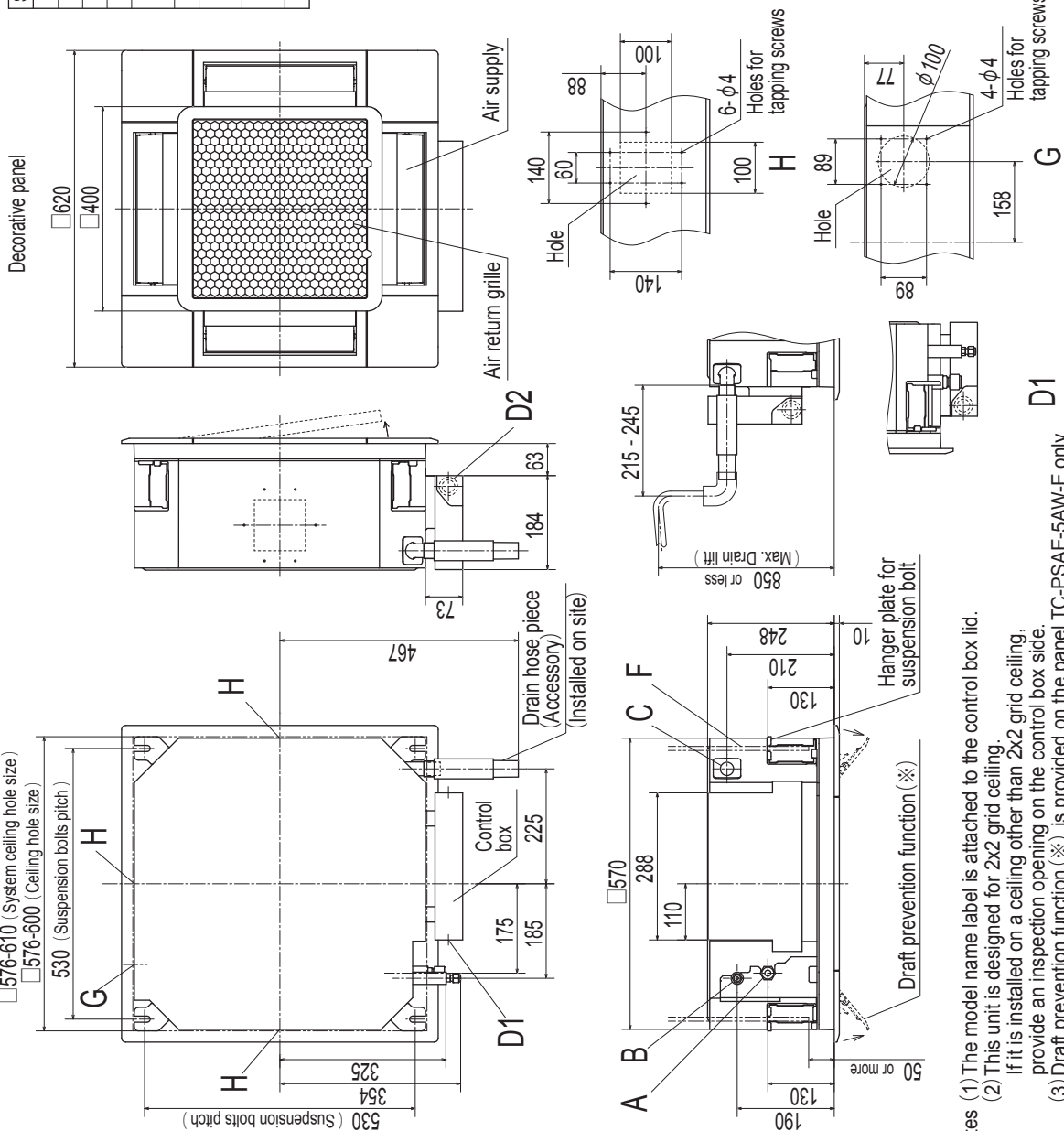
Item		Model	FDTC140VSXTVG			
			Indoor unit	FDTC50VG (3 units)	Outdoor unit	FDC140VSX
Power source		3 phase 380-415V 50Hz / 380V 60Hz				
Operation data	Nominal cooling capacity (range)	kW	14.0 [5.0(Min.)-16.0(Max.)]			
	Nominal heating capacity (range)	kW	16.0 [4.0(Min.)-20.0(Max.)]			
	Power consumption	Cooling	kW	4.20		
		Heating	kW	4.34		
	Max power consumption		6.94			
	Running current	Cooling	A	6.2 / 6.5		
		Heating	A	6.4 / 6.7		
	Inrush current, max current		5 , 15			
	Power factor	Cooling	%	98		
		Heating	%	98		
	EER	Cooling		3.33		
	COP	Heating		3.69		
	Sound power level	Cooling	dB(A)	59		
Heating		72				
Sound pressure level	Cooling	dB(A)	P-Hi : 44 Hi : 40 Me : 35 Lo : 27			
	Heating		49			
Silent mode sound pressure level			52			
Exterior dimensions (Height x Width x Depth)	mm	Unit 248 × 570 × 570 Panel 10 × 620 × 620		1300×970×370		
Exterior appearance (Munsell color) (RAL color)		Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight	kg	Unit14 Panel 2.5		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(Pre-charged up to the piping length of 30m)Outdoor unit				
Heat exchanger		Louver fin & inner grooved tubing		M shape fin & inner grooved tubing		
Refrigerant control		Electronic expansion valve				
Fan type & Q'ty		Turbo fan×1		Propeller fan ×2		
Fan motor (Starting method)	W	50 < Direct line start >		86×2 < Direct line start >		
Air flow	Cooling	m³/min	P-Hi : 13 Hi : 11 Me : 9 Lo : 7			
	Heating		100			
Available external static pressure	Pa	0				
Outside air intake		Possible				
Air filter, Quality / Quantity		Pocket plastic net ×1(Washable)				
Shock & vibration absorber		Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)		
Electric heater	W	—		20(Crank case heater)		
Operation control	Remote control	(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2				
	Room temperature control	Thermostat by electronics				
	Operation display	—				
Safety equipments		Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection				
Refrigerant piping size (O.D.)	Liquid line	mm	I/U φ 6.35 (1/4") ② φ 9.52(3/8") × 0.8 ① φ 9.52(3/8") × 0.8 O/U φ 9.52 (3/8")			
	Gas line		I/U φ 12.7 (1/2") ② φ 12.7(1/2") × 0.8 ① φ 15.88(5/8") × 1.0 O/U φ 15.88 (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 VP25(O.D.32)		Hole size φ 20 × 3pcs		
Drain pump, max lift height	mm	Built-in drain pump , 850				
Recommended breaker size	A	—				
L.R.A. (Locked rotor ampere)	A	5.0				
Interconnecting wires	Size x Core number	φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)				
IP number		IPX0		IPX24		
Standard accessories		Mounting kit, Drain hose		Edging		
Option parts		OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E				
Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.						
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards
		DB	WB	DB	WB	
	Cooling	27°C	19°C	35°C	24°C	
Heating	20°C	—	7°C	6°C		
(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 indicate when the air-conditioner is operated at 230V50Hz or 220V60Hz.						
(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-WA1G"×1(Option). ① Pipe of O/U-Branch, ② Pipe of Branch-I/U						

1.2 EXTERIOR DIMENSIONS

(1) Indoor units

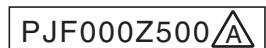
Models FDTC40VG, 50VG, 60VG

Symbol	Content
A	Gas piping φ12.7 (1/2") (Flare)
B	Liquid piping φ6.35 (1/4") (Flare)
C	Drain piping VP25 (O.D.32)
D1	Power supply connection Remote control code and signal wiring connection
D2	Suspension bolts (M10 or M8)
F	Outside air opening for ducting (Knock out)
H	Air outlet opening for ducting φ125 (Knock out)
J	Inspection opening 450X450



Unit : mm

- Notes
- (1) The model name label is attached to the control box lid.
 - (2) This unit is designed for 2x2 grid ceiling. If it is installed on a ceiling other than 2x2 grid ceiling, provide an inspection opening on the control box side.
 - (3) Draft prevention function (※) is provided on the panel TC-PSAE-5AW-E only.

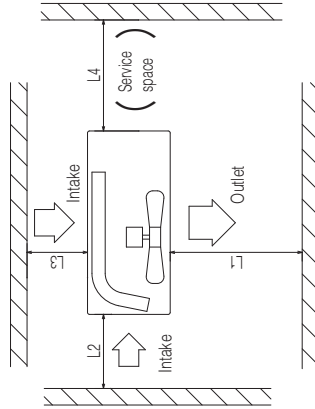
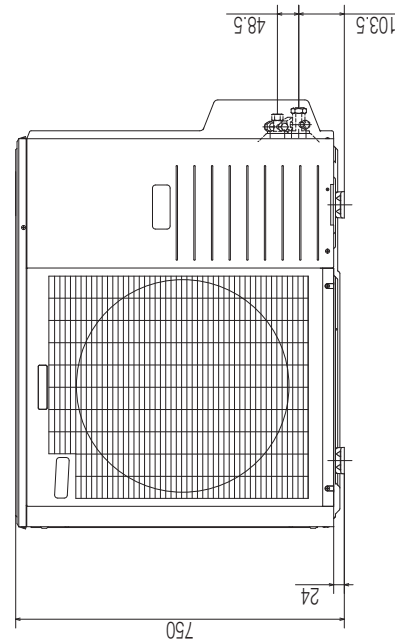
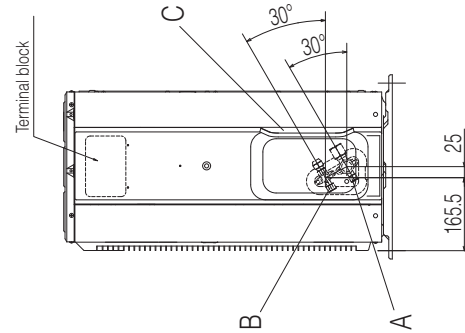
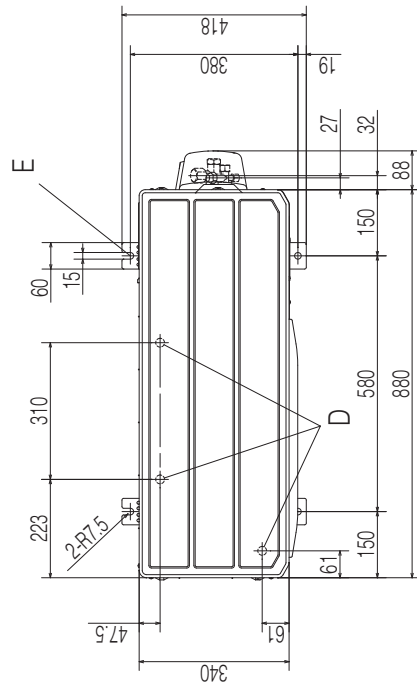


Model FDC71VNX

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 than 15mm.
- (3) Where the unit is subjected 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 unit's height.
- (6) The model name label is attached on the lower right corner of the front panel.

Symbol	Content
A	Service valve connection (gas side) (Flare)
B	Service valve connection (liquid side) (Flare)
C	Pipe/cable draw-out hole
D	Drain discharge hole
E	Anchor bolt hole



Minimum installation space

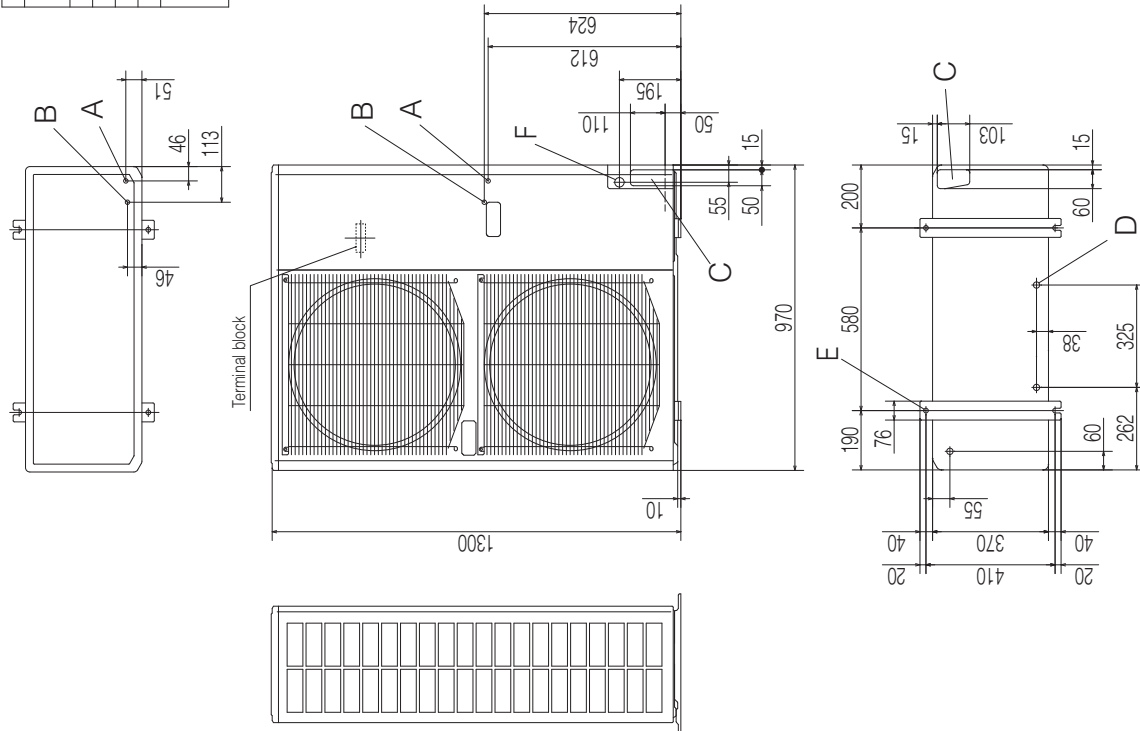
Examples of installation Dimensions	I	II	III	Unit:mm
L1	Open	Open	500	
L2	300	250	Open	
L3	100	150	100	
L4	250	250	250	

**Models FDC100VNX, 125VNX, 140VNX
100VSX, 125VSX, 140VSX**

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 than 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.
- (7) Connect the Service valve with local pipe by using the pipe of the attachment. (Gas side only)

Symbol	Content
A	Service valve connection of the attached connecting pipe (gas side) φ15.88 (5/8") (Flare)
B	Service valve connection (liquid side) φ9.52 (3/8") (Flare)
C	Pipe/cable draw-out hole
D	Drain discharge hole φ20 x 3 places M10 x 4 places
E	Anchor bolt hole φ50 (front) φ45 (side) φ50 (back)
F	Cable draw-out hole

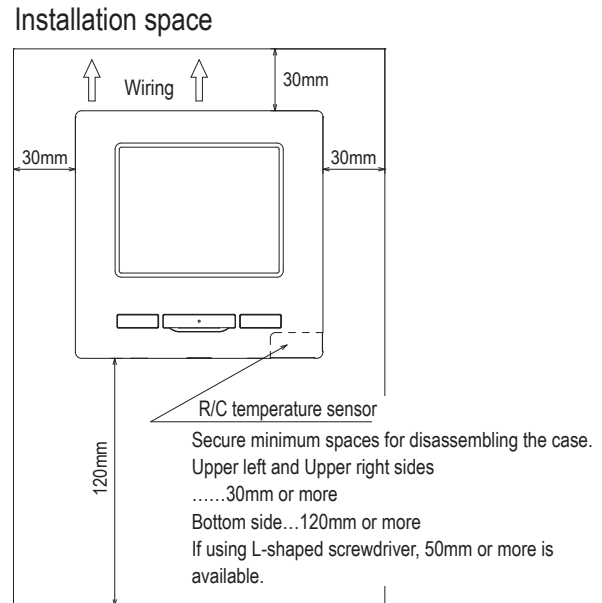
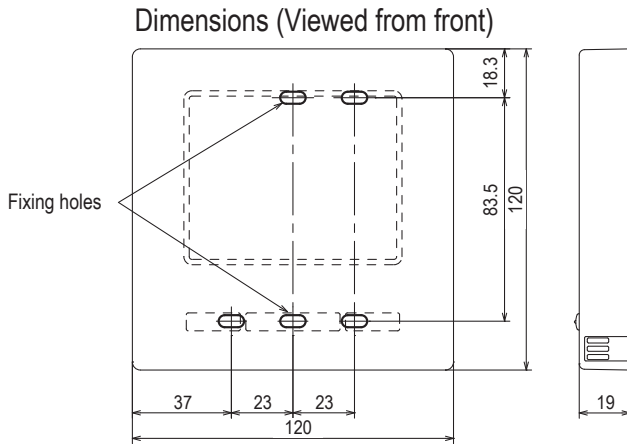


PCA001Z569

(3) Remote control (Option parts)

(a) Wired remote control

Model RC-EX3A



• 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
- (4) When you are using the automatic grille up and down panel in the IU, you may not be able to confirm the up and down motion.
 - Where the IU cannot be visually confirmed

R/C cable:0.3mm²x2 cores

When the cable length is longer than 100 m, the max size for wires used in the R/C case is 0.5 mm². 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

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

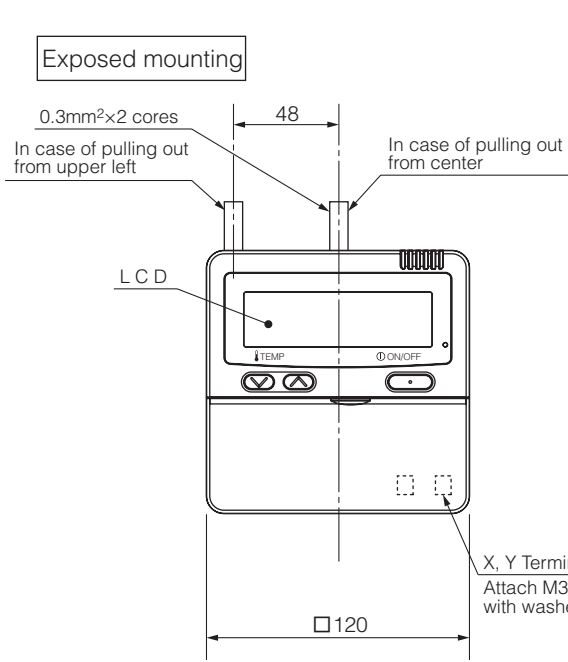
It could cause malfunction or break-down due to hazardous effects on the inverter, private power generator, high frequency medical equipment, radio communication equipment, etc.

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

Adapted RoHS directive

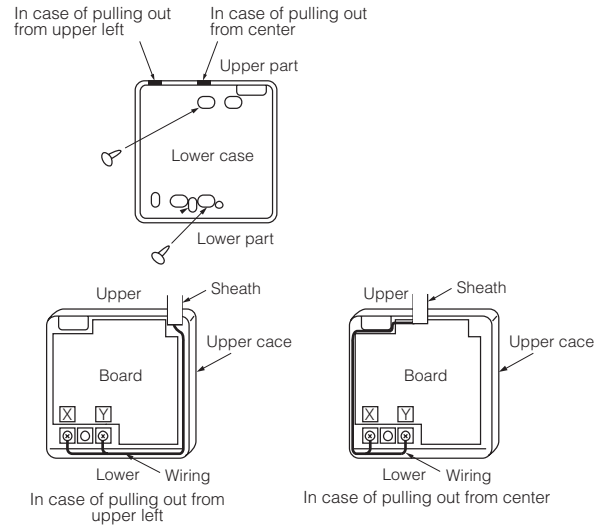
PJZ000Z333

Model RC-E5

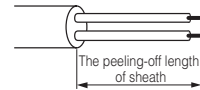


Exterior appearance (Munsell color)	Pearl white (N8.5) near equivalent
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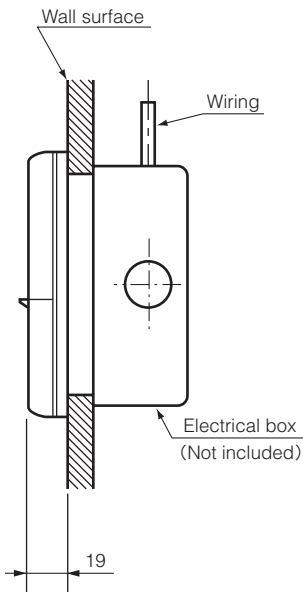
Wiring outlet
Cut off the upper thin part of remote control lower case with a nipper or knife, and grind burrs with a file etc.



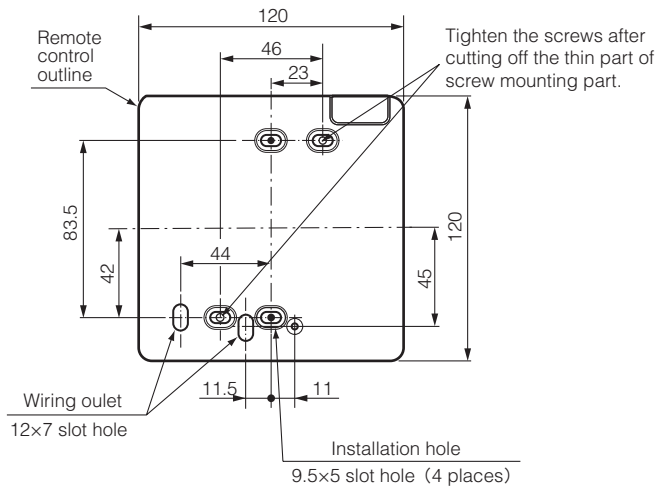
The peeling-off length of sheath	
Pulling out from upper left	Pulling out from center
X wiring : 215mm	X wiring : 170mm
Y wiring : 195mm	Y wiring : 190mm



Embedded mounting



Remote control installation dimensions



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

Unit:mm

Wiring specifications

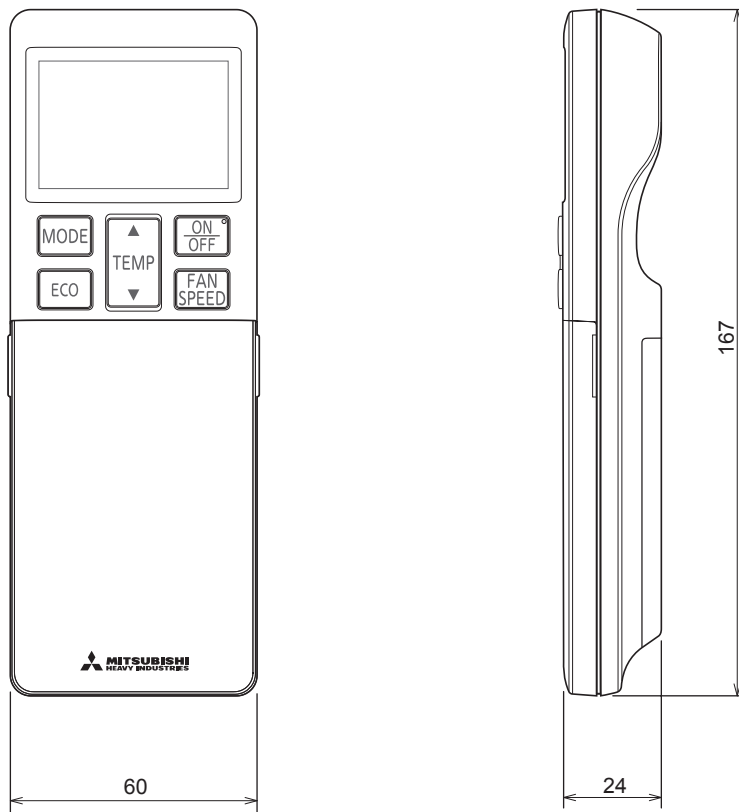
(1) If the prolongation is over 100m, change to the size below.
But, wiring in the remote control case should be under 0.5mm². Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.

Length	Wiring thickness
100 to 200m	0.5mm ² x2 cores
Under 300m	0.75mm ² x2 cores
Under 400m	1.25mm ² x2 cores
Under 600m	2.0mm ² x2 cores

PJZ000Z295

(b) Wireless remote control
RCN-E2 (Option part)

Unit: mm



1.3 ELECTRICAL WIRING

(1) Indoor units

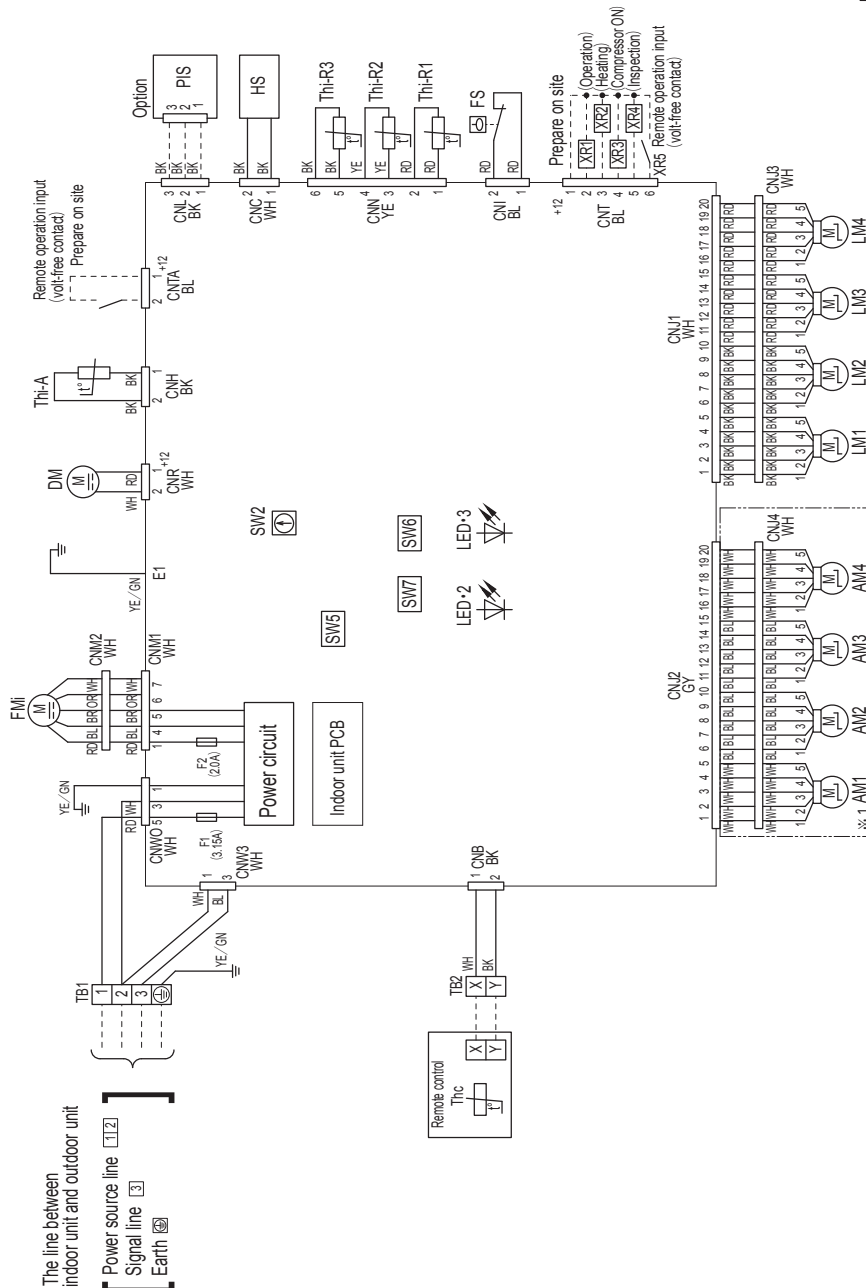
Models FDTC40VG, 50VG, 60VG

Meaning of marks

Item	Description
AM1-4	Draft prevention function motor
CNB-Z	Connector
DM	Drain motor
F1,2	Fuse
FMI	Fan motor
FS	Float switch
HS	Humidity sensor
LED-2	Indication lamp (Green-Normal operation)
LED-3	Indication lamp (Red-Inspection)
LM1-4	Lower motor
PIS	Motion sensor
SW2	Remote control communication address
SW5	Plural units Master/ Slave setting
SW6	Model capacity setting
SW7-1	Operation check drain motor test run
TB1	Terminal block (Power source) (□mark)
TB2	Terminal block (Signal line) (□mark)
Thc	Thermistor (Remote control)
Thi-A	Thermistor (Return air)
Thi-R1,2,3	Thermistor (Heat exchanger)

Color marks

Mark	Color	Mark	Color
BK	Black	WH	White
BL	Blue	YE	Yellow
BR	Brown	GY	Gray
OR	Orange	YE/GN	Yellow/Green
RD	Red		



Notes 1. - - - - indicates wiring on site.

2. See the wiring diagram of outdoor unit about the line between indoor unit and outdoor unit.

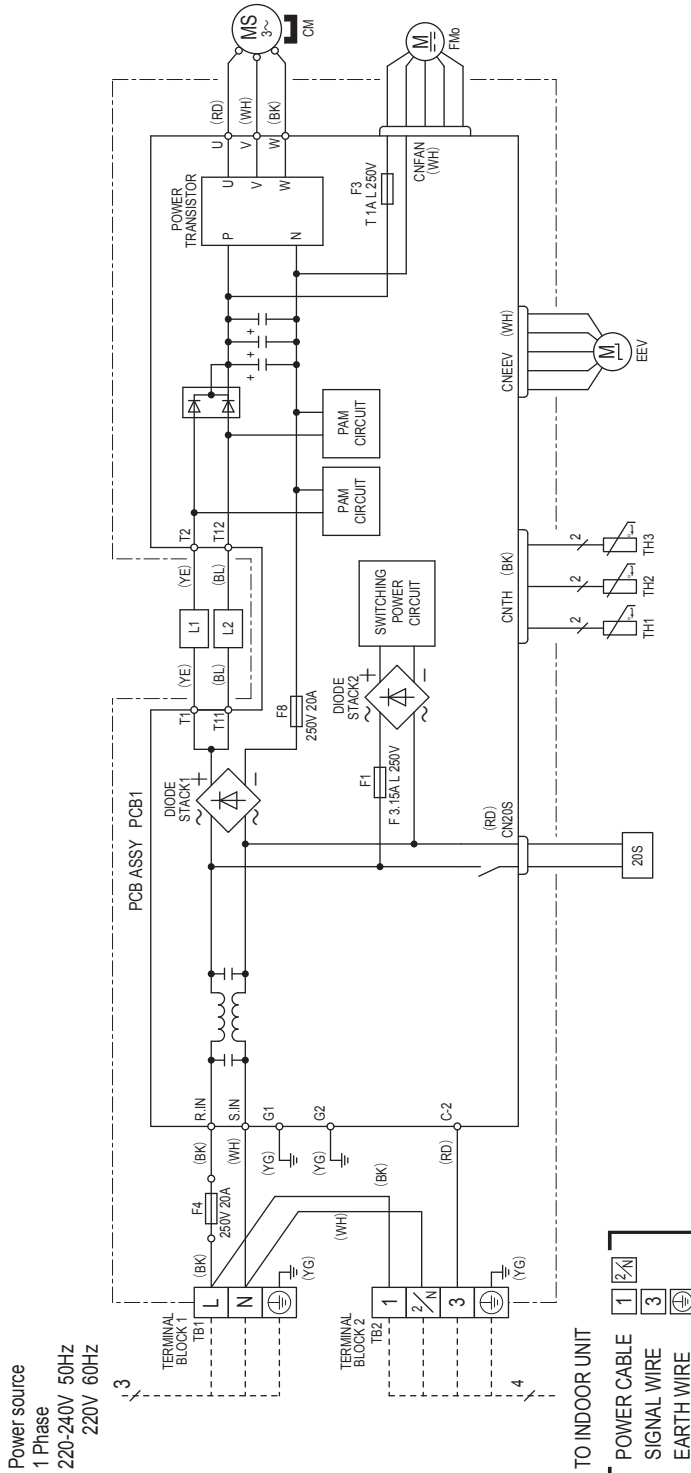
3. Use twin core cord (0.3mm²) at remote control line.

4. Do not put remote control line alongside power source line.

5. Draft prevention function (※ 1) is provided on the panel TC-PSAE-5AW-E only.

PJF000Z503

(2) Outdoor units
 Models SRC40ZSX-S, 50ZSX-S, 60ZSX-S



Meaning of marks

Item	Description
ZS	Solenoid coil for 4-way valve
CN20S	Connector
CNEEV	Compressor motor
CNFAN	Electric expansion valve (coil)
CNTH	Fan motor
CM	Reactor
EEV	Heat exchanger sensor
FMo	Outdoor air temp. sensor
L1,2	Discharge pipe temp. sensor
TH1	
TH2	
TH3	

Color marks

Mark	Color
BK	Black
BL	Blue
RD	Red
WH	White
YE	Yellow
YG	Yellow / Green

Power cable, indoor-outdoor connecting wires

Model name	MAX running current (A)	Power cable wire size x number*	Power cable length (m)	Connecting cable wire size x number*
SRC40ZSX-S	15	2.0mm ² x 3	13	1.5mm ² x 4
SRC50ZSX-S				
SRC60ZSX-S				

* The wire numbers include earth wire (Yellow / Green)
 * Switchgear or circuit breaker capacity should be chosen according to national or regional electricity regulations.
 * The power 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 failing outside of these conditions, please follow the national or regional electricity regulations.

RWC000Z298

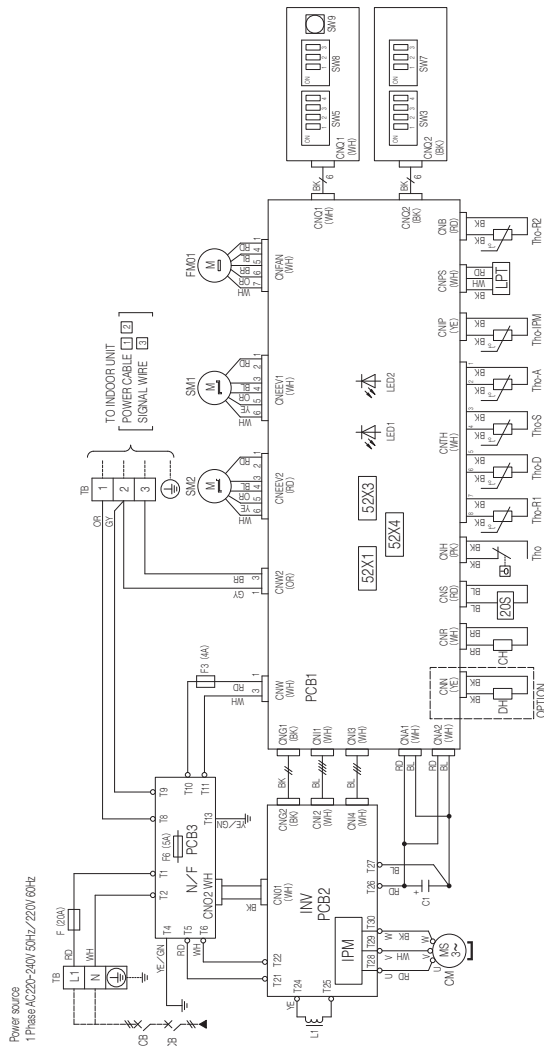
Model FDC71VNX

Meaning of marks

Item	Description
CM	Compressor motor
FM01	Fan motor
CH	Crankcase heater
DH	Drain pan heater
52X1	Auxiliary relay (for CH)
52X3	Auxiliary relay (for 2OS)
52X4	Auxiliary relay (for DH)
2OS	Solenoid valve for 4-way valve
SM1	Expansion valve for cooling
SM2	Expansion valve for heating
63H1	High pressure switch
Tho-A	Thermistor (Outdoor air temp.)
Tho-D	Thermistor (Discharge pipe temp.)
Tho-R1R2	Thermistor (Heat exchanger temp.)
Tho-S	Thermistor (Suction pipe temp.)
Tho-IPM	Thermistor (IPM)
LPT	Low pressure sensor
IPM	Intelligent power module
TB	Terminal block
FF3	Fuse
CoA-Z	Connector
SW9	Pump down switch
SW3.5	Local setting switch
LED1	Indication lamp (GREEN)
LED2	Indication lamp (RED)
L1	Reactor

Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
OR	Orange
RD	Red
WH	White
YE	Yellow
YE/GN	Yellow/Green
GY	Gray
PK	Pink



Local setting switch SW3, SW5 (Set up at shipment OFF)

SW3-1	Defrost control change	The defrost 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.
SW5-2	Snow guard fan control	When this switch is turned ON, the outdoor unit fan will run for 10 seconds in 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.
SW5-3,4	Trial operation	Method of trial operation 1. Trial operation can be performed by using SW5-3. 2. Cooling trial operation will be performed when SW5-4 is OFF, and heating trial operation when SW5-4 is ON. 3. Be sure to turn OFF SW5-3 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
FDC71	17	3.5	21	φ 1.6mm x 3	φ 1.6mm

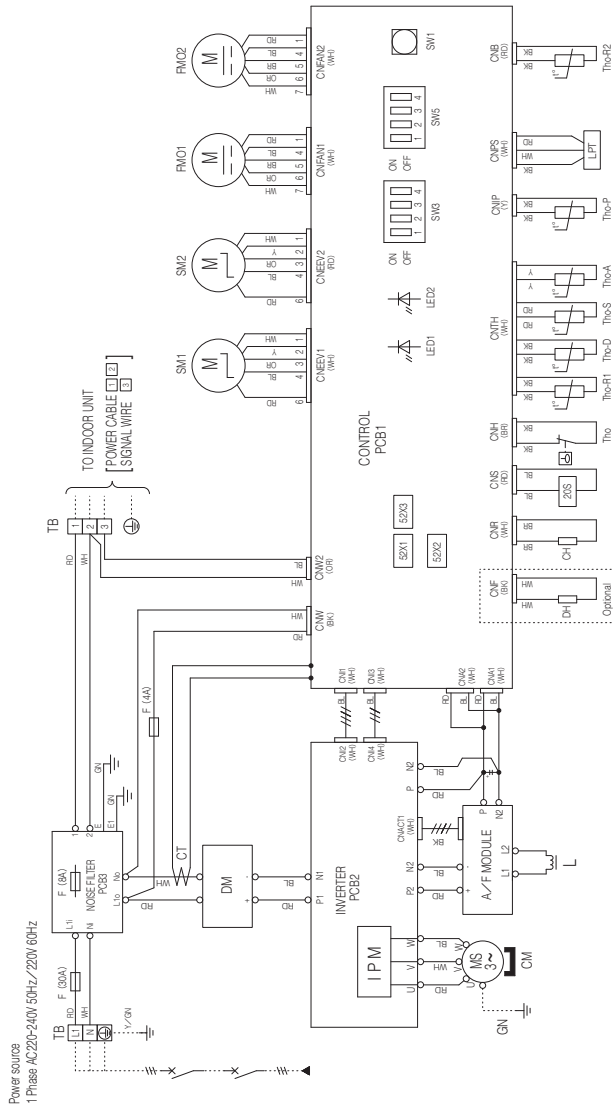
- The specifications shown in the above table are for units without heaters. For units with heaters, refer to the installation instructions or the construction instructions of the indoor unit.
- Switching gear of circuit breaker capacity which is calculated from MAX. over current should be chosen along 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.
- Don't operate SW3-3, SW5-1, SW5-2, SW7, SW8

PCA001Z605

Models FDC100VNX, 125VNX, 140VNX

Color marks		Meaning of marks	
Mark	Color	Item	Description
BK	Black	Cr-A-Z	Connector
BL	Blue	CH	Crankcase heater
BR	Brown	DH	Drain pan heater
GN	Green	CM	Compressor motor
GR	Gray	CT	Current sensor
P	Pink	DM	Diode module
OR	Orange	F	Fuse
RD	Red	FM01	Fan motor
WH	White	IPM	Intelligent power module
Y	Yellow	L	Reactor
Y/GN	Yellow/Green	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

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



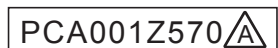
Local setting switch SW3 (Set up at shipment OFF)

Local setting switch SW3 (Set up at shipment OFF)	Function	Method of trial operation
SW3-1	Defrost control change	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.
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	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)
FDC100	24	5.5	25	φ 1.6mm x 3	φ 1.6
FDC125	26		23		
FDC140					

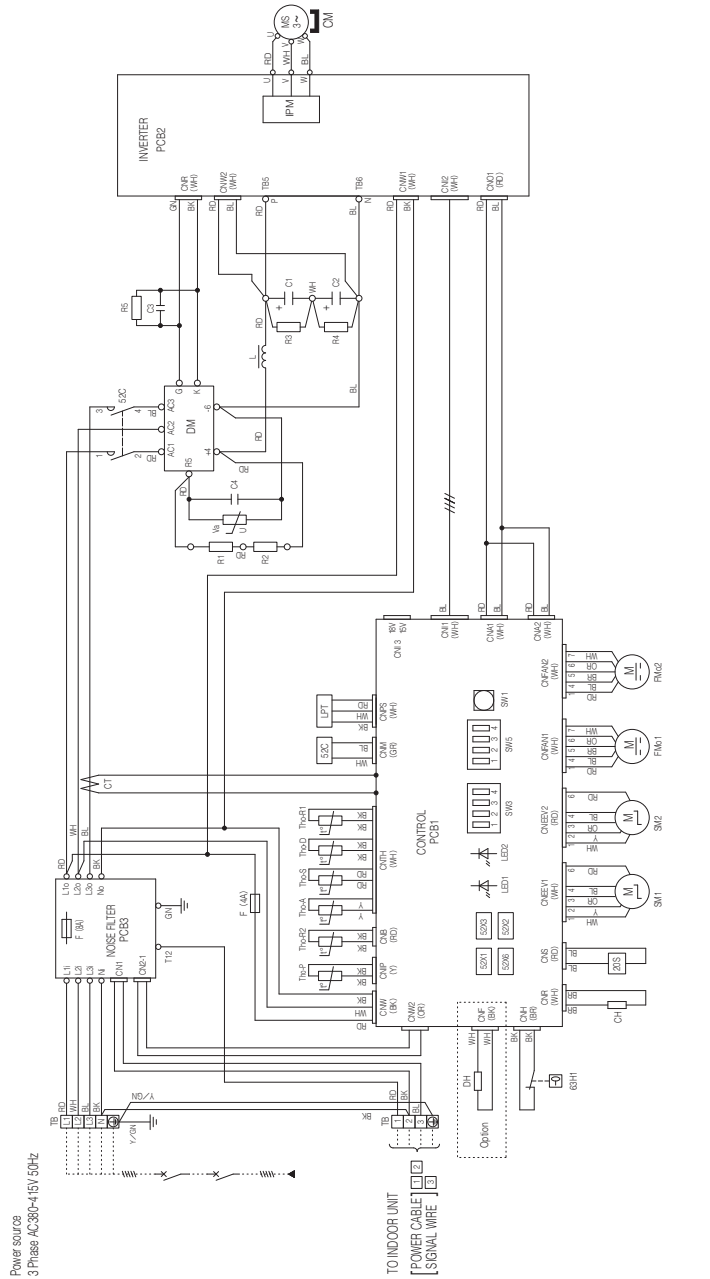
- The specifications shown in the above table are for units without heaters. For units with heaters, refer to the installation instructions or the construction instructions of the indoor unit.
- Switching of circuit breaker capacity which is calculated from MAX. over current should be chosen along the 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. A dapt. fit to the regulation in effect in each country.



Models FDC100VSX, 125VSX, 140VSX

Meaning of marks

Item	Description
CH	Crankcase heater
CM	Compressor motor
CRA-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)
2XS	Solenoid valve for 4-way valve
52C	Relay
52X1	Auxiliary relay (for CH)
52X2	Auxiliary relay (for DH)
52X3	Auxiliary relay (for 2XS)
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

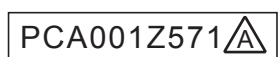
Local setting switch SW3 (Set up at shipment OFF)

SW3-1	Defrost control change	The defrost 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	Show 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 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)
FDC100	15	3.5	27	φ 1.6mm x 3	φ 1.6
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 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, please follow the internal cabling regulations. Adapt it to the regulation in effect in each country.

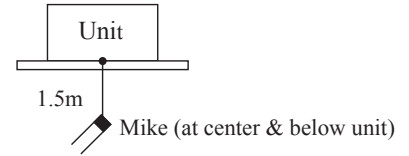


1.4 NOISE LEVEL

- Notes(1) The data are based on the following conditions.
 Ambient air temperature: Indoor unit 27°CWB. Outdoor unit 35°CDB.
 (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.

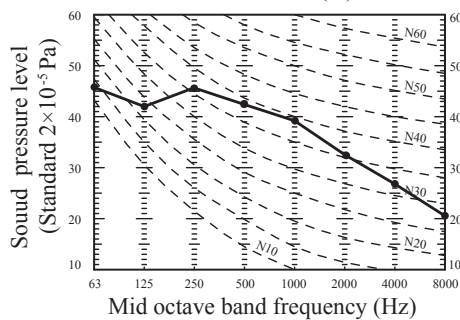
(1) Indoor units

Measured based on JIS B 8616
 Mike position as right



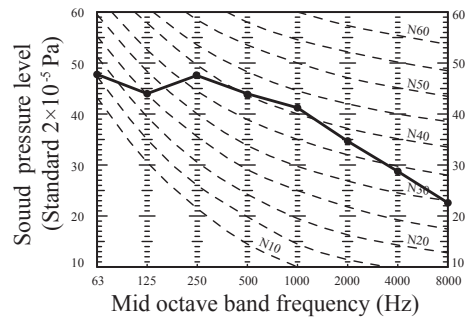
Model FDTC40,50VG

Noise level 44 dB (A) at P-HIGH
 40 dB (A) at HIGH
 35 dB (A) at MEDIUM
 27 dB (A) at LOW



Model FDTC60VG

Noise level 46 dB (A) at P-HIGH
 42 dB (A) at HIGH
 38 dB (A) at MEDIUM
 31 dB (A) at LOW

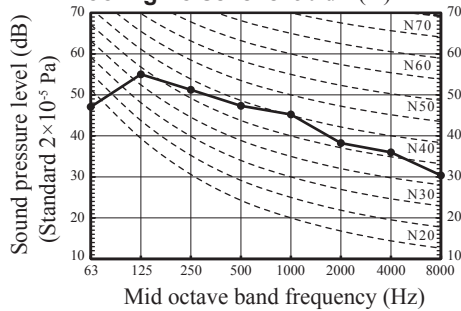


(2) Outdoor units

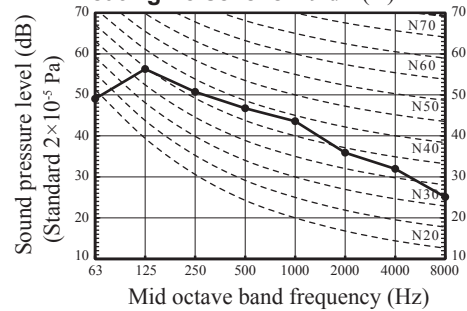
Measured based on JIS B 8616 or JIS C 9612
 Mike position: at highest noise level in position as mentined below.
 Distance from front side 1m

Model SRC40ZSX-S, 50ZSX-S

Cooling noise level 50 dB (A)

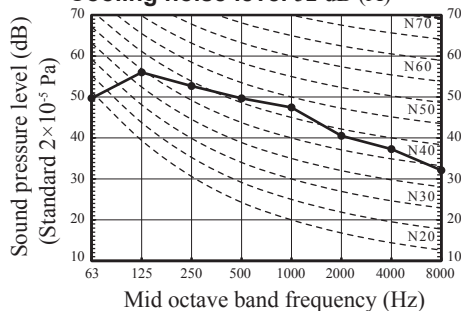


Heating noise level 49 dB (A)

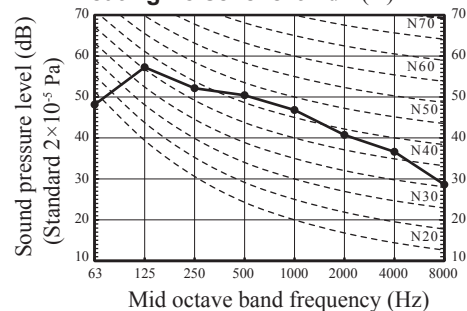


Model SRC60ZSX-S

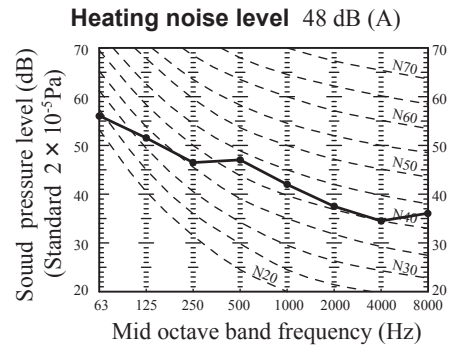
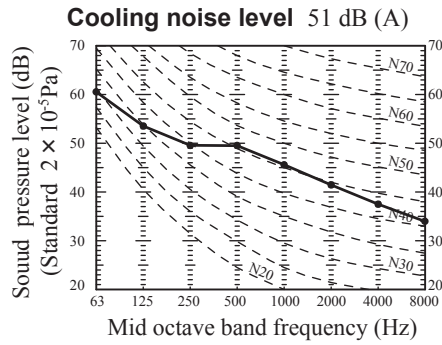
Cooling noise level 52 dB (A)



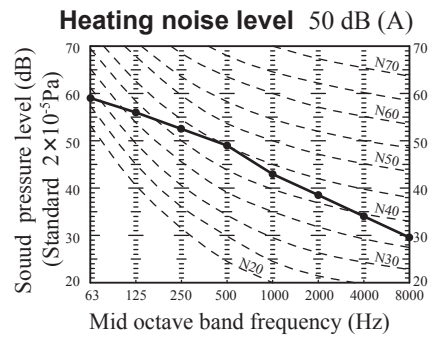
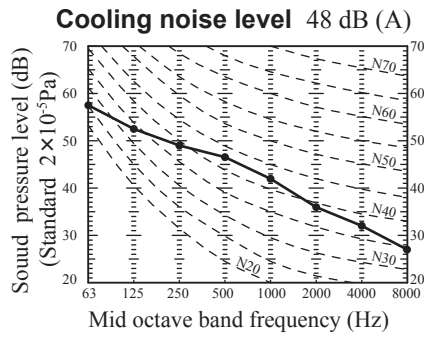
Heating noise level 52 dB (A)



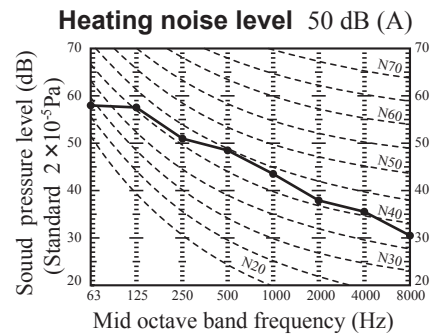
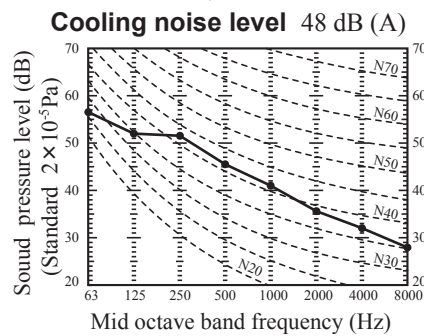
Model FDC71VNX



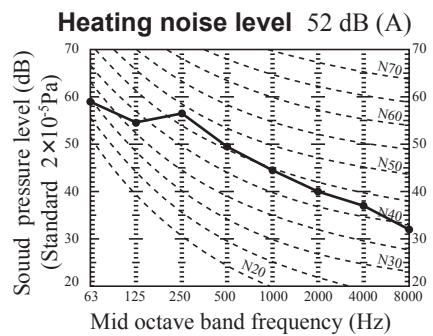
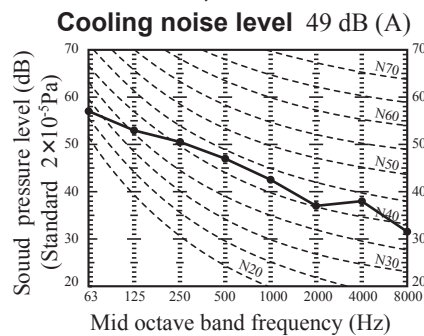
Model FDC100VNX,100VSX



Models FDC125VNX,125VSX



Models FDC140VNX,140VSX



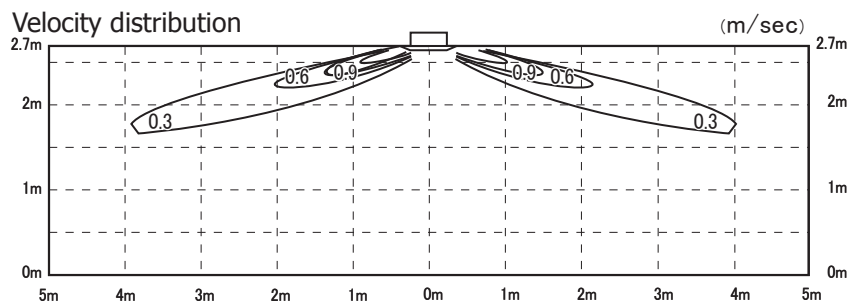
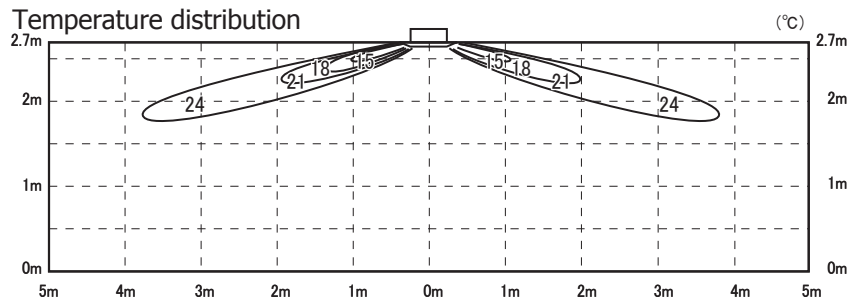
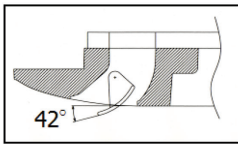
1.5 TEMPERATURE AND VELOCITY DISTRIBUTION

Indoor temperature
 Cooling 27°CDB / 19°CWB
 Heating 20°CDB
 Note: These figures represent the typical main range of temperature and velocity distribution at the center of air outlet within the published conditions.
 In the actual installation, they may differ from the typical figures under the influence of air temperature conditions, ceiling height, operation conditions and obstacles.

Models FDTC40VG, 50VG

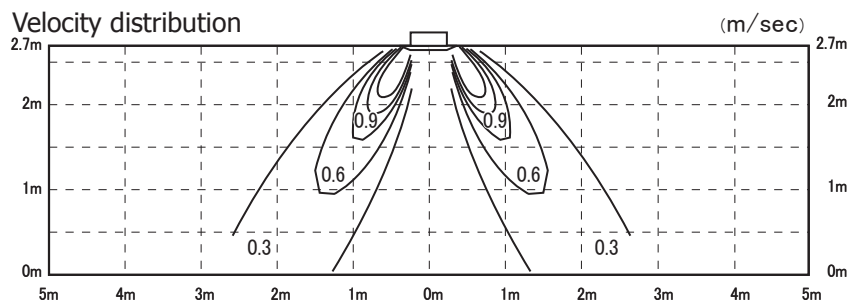
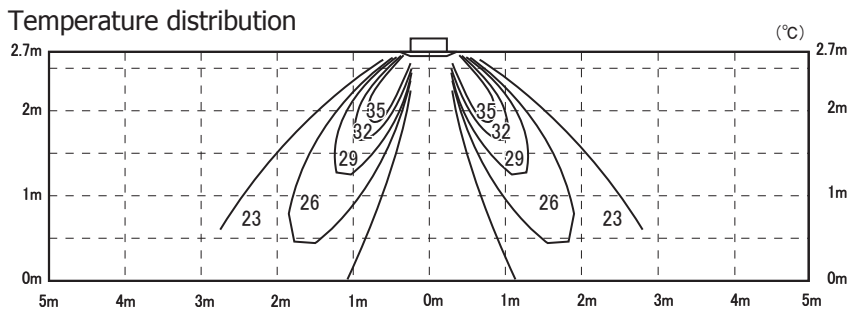
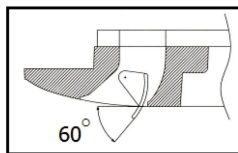
Cooling Air flow: P-Hi

Louver position



Heating Air flow: P-Hi

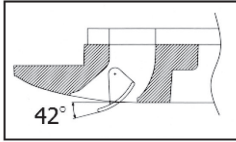
Louver position



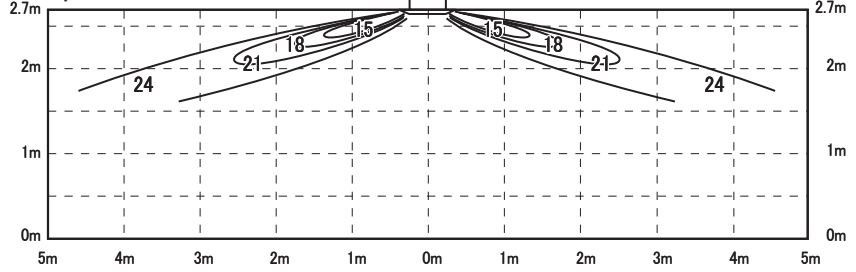
Model FDTC60VG

Cooling Air flow: P-Hi

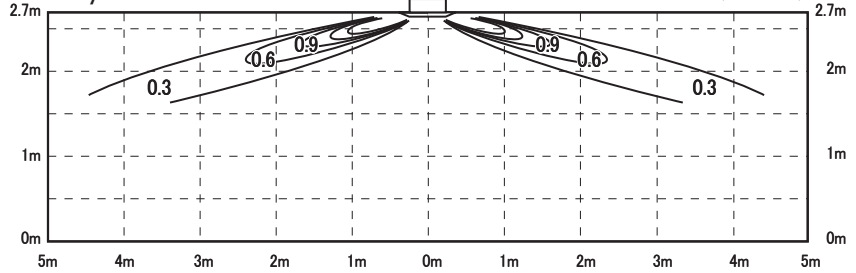
Louver position



Temperature distribution

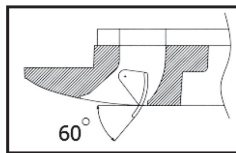


Velocity distribution

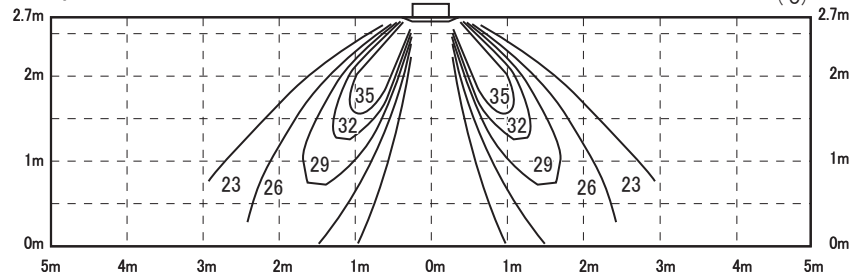


Heating Air flow: P-Hi

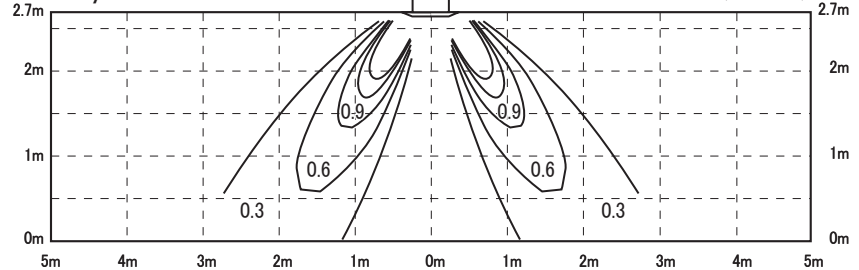
Louver position



Temperature distribution

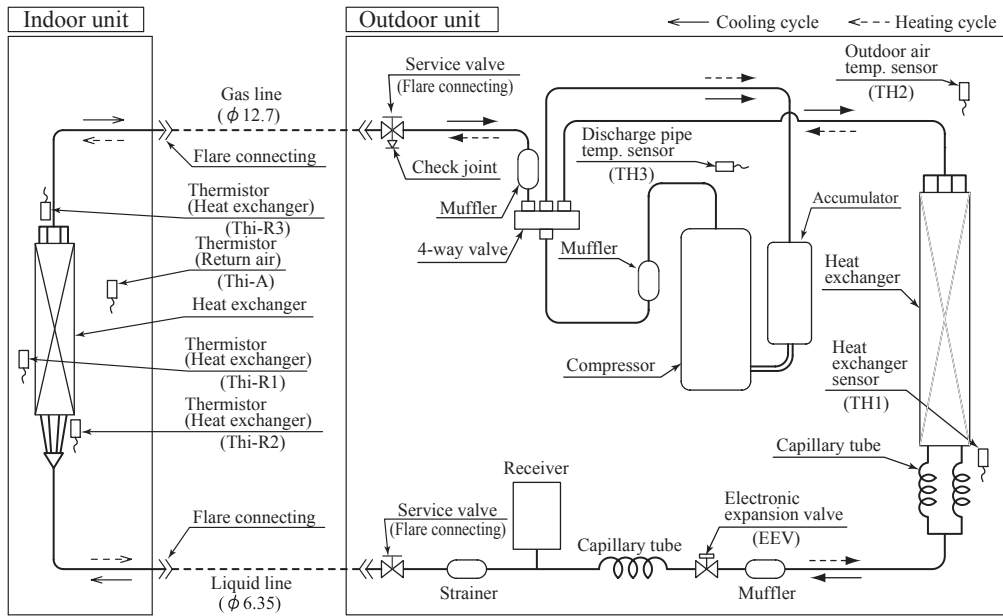


Velocity distribution

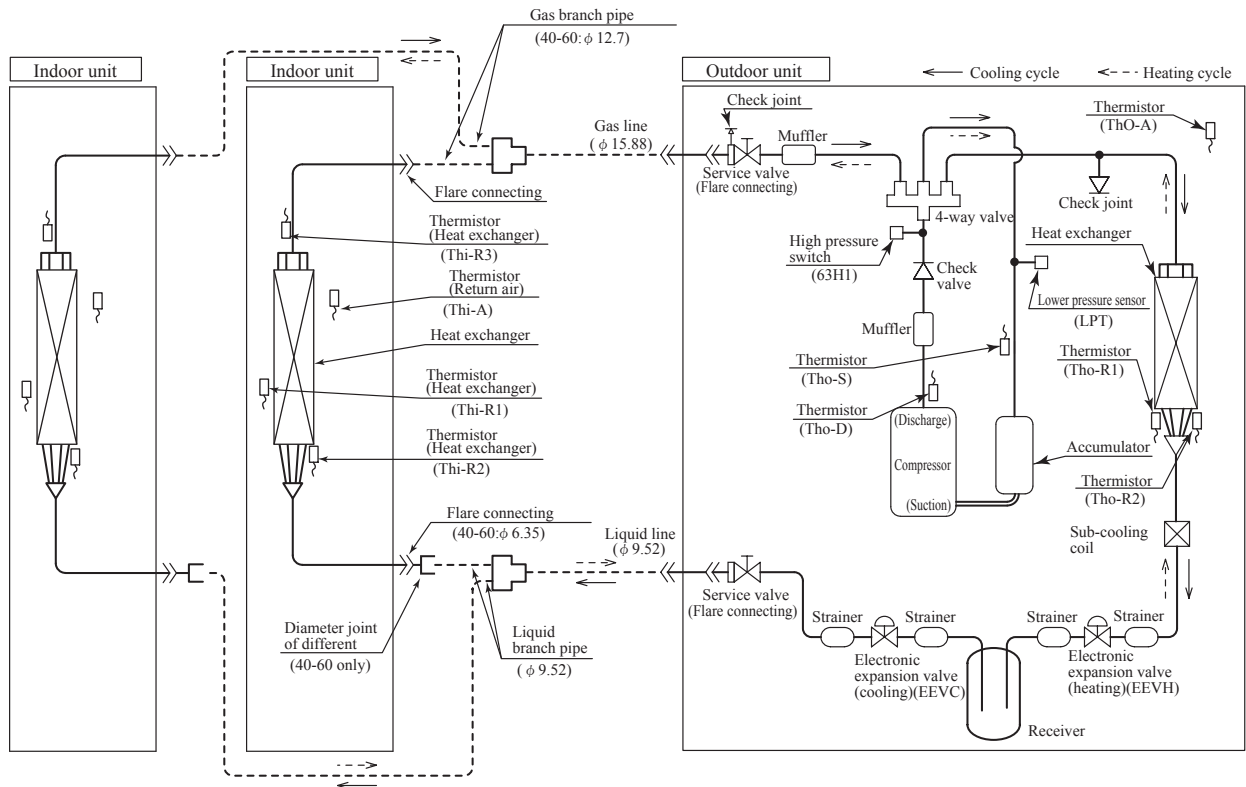


1.6 PIPING SYSTEM

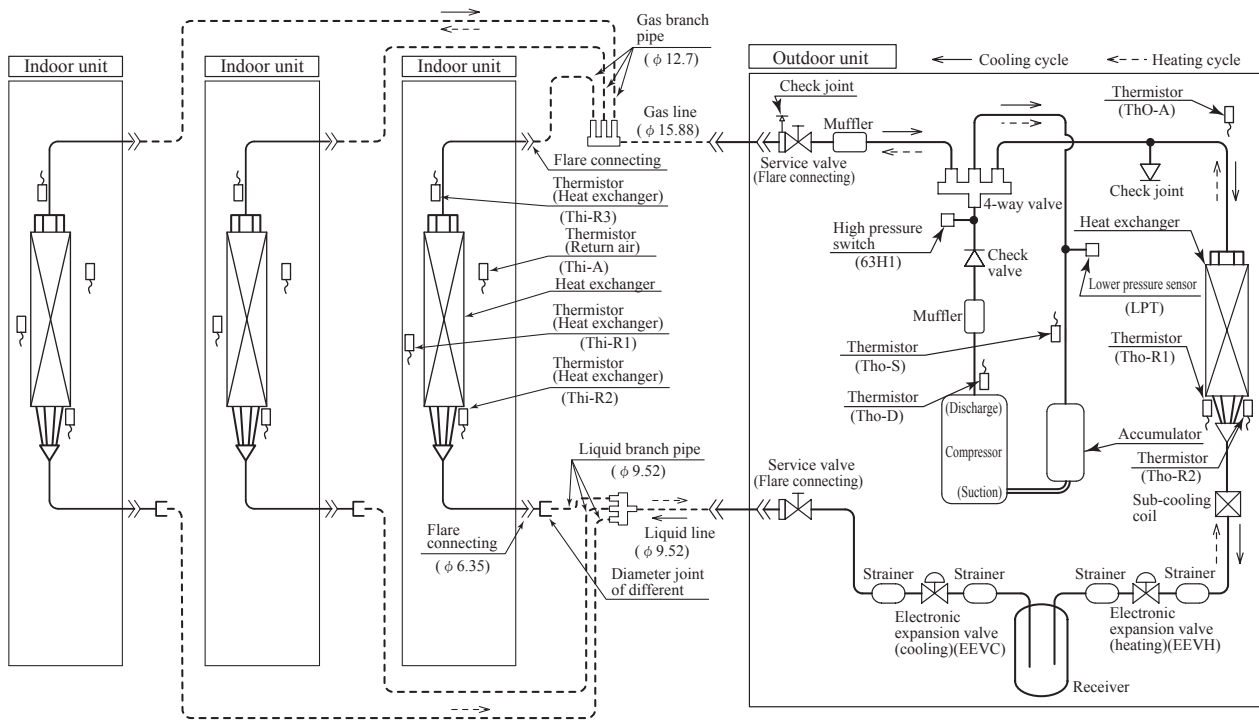
(1) Single type Models FDTC40, 50, 60



(2) Twin type Models FDTC71, 100, 125



**(3) Triple type
Model FDTC140**



Preset point of the protective devices

Parts name	Mark	Equipped unit	FDTC40, 50, 60 model	FDTC71, 100, 125, 140 model
Thermistor (for protection overloading in heating)	Thi-R	Indoor unit		OFF 63°C ON 56°C
Thermistor (for frost prevention)	Thi-R		OFF 1.0°C ON 10°C	
Thermistor (for protection high pressure in cooling.)	Tho-R (TH1)	Outdoor unit	OFF 63°C ON 53°C	OFF 65°C ON 51°C
Thermistor (for detecting discharge pipe temp.)	Tho-D (TH3)	Outdoor unit	OFF 115°C ON 95°C	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 0.079MPa ON 0.227MPa

Note(1) Values in () shown in the case of SRC40, 50, 60 models.

1.7 RANGE OF USAGE & LIMITATIONS

Operating temperature range		See the next page.
		When snow accumulate, install a snow hood. <SRC40-60> When used below -5°C, install a snow hood. <FDC71-140>
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 : 23°C or less, relative humidity : 80% or less<SRC40-60> Dew point temperature : 28°C or less, relative humidity : 80% or less<FDC71-140>
Limitations on unit and piping installation		See page 33 and 34.
Compressor ON-OFF cycling	Cycle time	Max.4 times/h (Inching prevention 10 minutes)<SRC40-60> 7 minutes or more (from OFF to OFF) or (from ON to ON)<FDC71-140>
	Stop time	3 minutes or more
Power source	Voltage range	Rating $\pm 10\%$
	Voltage drop at start-up	Min.85% of rating
	Phase-to-phase unbalance	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 values, add polyurethane foam insulation on the outer plate (10mm or thicker) of indoor unit.

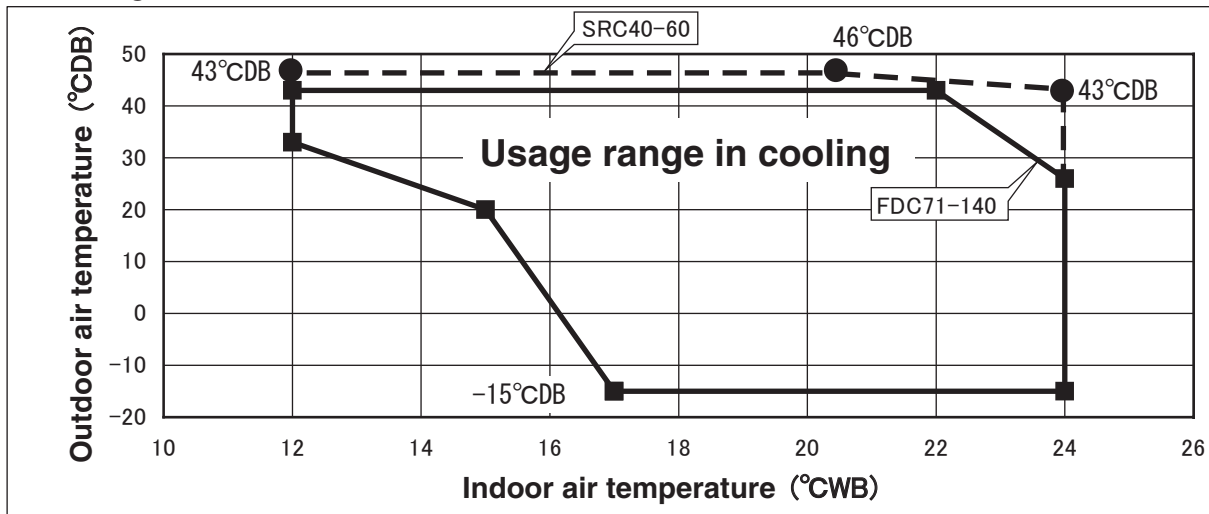
Note 3. Both gas and liquid pipes need to be cover with 20mm or thicker heat insulation materials at the place where humidity exceeds 70%.

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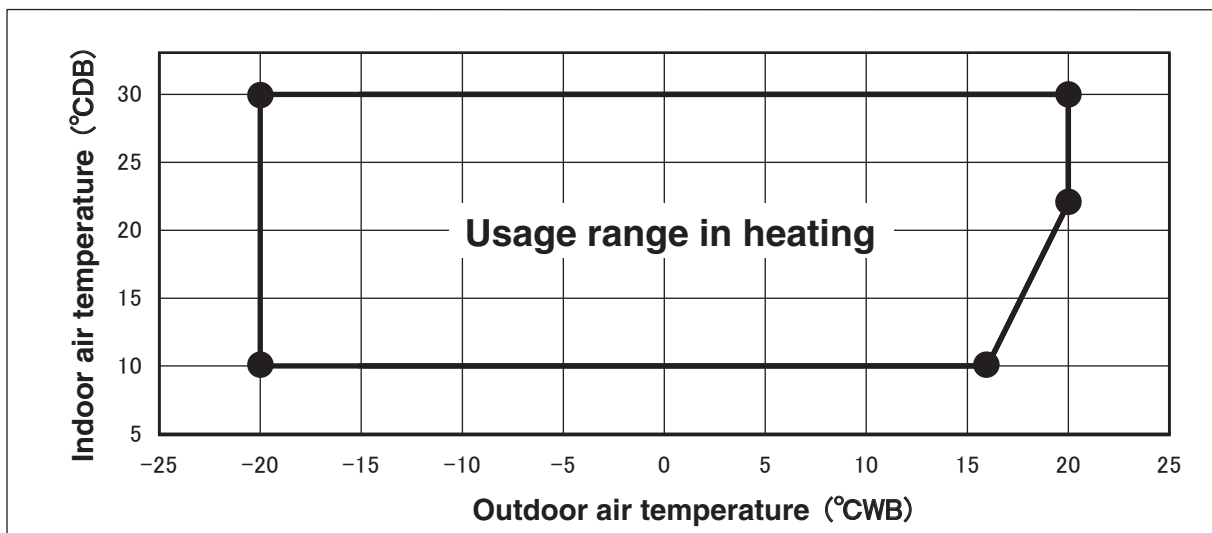
PJA003Z396

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.

“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.

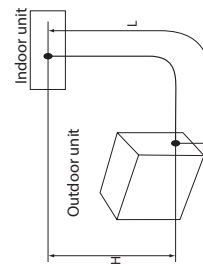
[Reason]

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

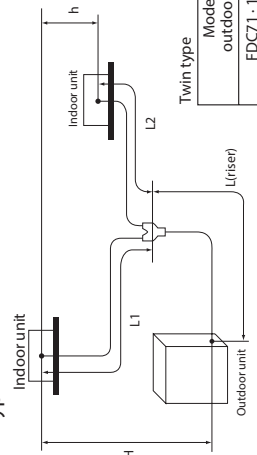
This makes high and low pressures to drop as well. This low pressure drop makes the indoor heat exchanger temperature to drop and will activate anti-frost control at indoor heat exchanger at frequent intervals, that cooling operation may not be established for an given time.

Limitation on unit and piping installation - single, twin.				
Descriptions	Models for outdoor unit	Dimensional limitations	Marks appearing in the drawing	
			Single type	Twin type
One-way pipe length	SRC40 · 50 · 60	≤ 30m	L	L + L1 + L2
	FDC71	≤ 50m		
	FDC100 · 125	≤ 100m		
Main pipe length	FDC71	≤ 50m		L
	FDC100 · 125	≤ 100m		
	FDC71	≤ 20m		
One-way pipe length after first branching point	FDC71	≤ 20m		L1, L2
	FDC100 · 125	≤ 30m		
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	SRC40 · 50 · 60	H	H
		FDC71		
		FDC100 · 125		
Elevation difference among indoor units	When outdoor unit is positioned lower	SRC40 · 50 · 60	H	H
		FDC71		
		FDC100 · 125		

Single type



Twin type



- (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
FDC71 · 100 · 125	1.0 kg

Limitation on unit and piping installation - triple.				
Descriptions	Models for outdoor unit	Dimensional limitations	Marks appearing in the drawing	
			Triple type A	Triple type B
One-way pipe length	FDC140	≤ 100m	L + L1 + L2 + L3	L + La + L1 + L2 + L3 ※1
Main pipe length	FDC140	≤ 100m	L	L
One-way pipe length first branching point to indoor units between	FDC140	≤ 30m	L1,L2,L3	L1 ※1
One-way pipe length between first branching point from and second branching point	FDC140	≤ 5m		La
One-way pipe length first branching point and indoor units	FDC140	≤ 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)
One-way pipe length difference from second branching point to indoor units		3m ≤, ≤ 10m	(not possible)	L1 - (La + L2),L1 - (La + L3) ※1
Elevation difference between indoor and outdoor	When the outdoor unit is positioned higher	≤ 10m		L2 - L3
	When the outdoor unit is positioned lower	≤ 30m		H
Elevation difference among indoor units		≤ 15m		
		≤ 0.5m		h1,h2,h3

Triple type A

Triple type B

Branch piping set (option)

Model for outdoor units	Triple type A Branch piping	Triple type B First branch	Triple type B Second branch
FDC140	DIS-TA1G	DIS-WA1G	DIS-WA1G

※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 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.

1.8 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 (1.8.1) × Correction factors shown in the table (1.8.2) (1.8.3) (1.8.4).

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.

1.8.1 Capacity tables

(1) Single type

Model **FDTC40ZSXVG** Indoor unit **FDTC40VG** Outdoor unit **SRC40ZSX-S**

Cooling mode

Outdoor air temp. °CDB	Indoor air temperature																
	18 °CDB		21 °CDB		23 °CDB		26 °CDB		27 °CDB		28 °CDB		31 °CDB		33 °CDB		
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	
11						3.38	3.06	3.56	3.33	3.65	3.30	3.75	3.28	3.95	3.48	4.15	3.42
13						3.46	3.10	3.65	3.36	3.75	3.34	3.85	3.31	4.05	3.51	4.26	3.45
15						3.54	3.13	3.74	3.39	3.84	3.37	3.95	3.35	4.15	3.54	4.36	3.48
17						3.62	3.16	3.83	3.43	3.94	3.41	4.04	3.38	4.26	3.58	4.47	3.51
19						3.69	3.19	3.91	3.46	4.02	3.44	4.15	3.42	4.41	3.63	4.67	3.57
21						3.81	3.24	3.99	3.49	4.10	3.47	4.26	3.46	4.56	3.68	4.87	3.64
23						3.85	3.26	4.04	3.51	4.15	3.49	4.30	3.47	4.59	3.69	4.88	3.64
25			3.73	3.39	3.89	3.28	4.08	3.53	4.20	3.50	4.34	3.49	4.61	3.69	4.89	3.64	
27			3.76	3.40	3.93	3.30	4.13	3.55	4.25	3.52	4.36	3.49	4.60	3.69			
29			3.70	3.38	3.86	3.27	4.06	3.52	4.18	3.50	4.30	3.47	4.54	3.67			
31			3.64	3.35	3.80	3.24	4.00	3.50	4.12	3.47	4.24	3.45	4.48	3.65			
33	3.23	3.02	3.44	3.26	3.74	3.21	3.94	3.47	4.06	3.45	4.18	3.43	4.42	3.63			
35	3.28	3.04	3.44	3.26	3.68	3.19	3.88	3.45	4.00	3.43	4.12	3.41	4.36	3.61			
37	3.23	3.02	3.38	3.23	3.62	3.16	3.82	3.43	3.94	3.41	4.06	3.39	4.30	3.59			
39	3.17	2.99	3.32	3.21	3.56	3.14	3.76	3.40	3.88	3.38	4.00	3.36	4.23	3.57			
41	3.12	2.97	3.27	3.18	3.50	3.11	3.70	3.38	3.82	3.36	3.93	3.34	4.17	3.55			
43	3.06	2.94	3.21	3.15	3.44	3.09	3.64	3.36	3.76	3.34	3.87	3.32	4.10	3.52			

(kW)

Heating mode : HC

Outdoor air temp. °CDB	°CWB	Indoor air temperature				
		°CDB				
		16	18	20	22	24
-19.8	-20	2.19	2.15	2.11	2.06	2.01
-17.7	-18	2.34	2.30	2.26	2.22	2.17
-15.7	-16	2.50	2.46	2.42	2.38	2.33
-13.5	-14	2.67	2.63	2.59	2.55	2.50
-11.5	-12	2.83	2.79	2.75	2.71	2.67
-9.5	-10	3.00	2.96	2.92	2.88	2.84
-7.5	-8	3.17	3.13	3.09	3.05	3.01
-5.5	-6	3.23	3.20	3.16	3.12	3.09
-3.0	-4	3.29	3.26	3.23	3.20	3.17
-1.0	-2	3.36	3.33	3.30	3.28	3.25
1.0	0	3.42	3.40	3.38	3.35	3.33
2.0	1	3.45	3.43	3.41	3.39	3.37
3.0	2	3.67	3.65	3.63	3.61	3.59
5.0	4	4.11	4.09	4.07	4.04	4.01
7.0	6	4.55	4.53	4.50	4.47	4.44
9.0	8	4.78	4.75	4.72	4.69	4.66
11.5	10	5.01	4.98	4.95	4.91	4.88
13.5	12	5.30	5.26	5.21	5.14	5.10
15.5	14	5.58	5.53	5.48	5.37	5.32
16.5	16	5.73	5.67	5.61	5.48	5.44

(kW)

PJF000Z511

Model **FDTC50ZSXVG** Indoor unit **FDTC50VG** Outdoor unit **SRC50ZSX-S**

Cooling mode

Outdoor air temp. °CDB	Indoor air temperature																
	18 °CDB		21 °CDB		23 °CDB		26 °CDB		27 °CDB		28 °CDB		31 °CDB		33 °CDB		
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	
11						4.22	3.43	4.45	3.68	4.56	3.65	4.69	3.63	4.94	3.82	5.19	3.75
13						4.32	3.47	4.56	3.73	4.68	3.70	4.81	3.67	5.07	3.86	5.32	3.79
15						4.42	3.52	4.68	3.78	4.80	3.75	4.93	3.72	5.19	3.90	5.45	3.83
17						4.53	3.57	4.79	3.82	4.92	3.79	5.06	3.77	5.32	3.95	5.58	3.87
19						4.62	3.61	4.89	3.86	5.02	3.83	5.19	3.82	5.51	4.02	5.84	3.96
21						4.76	3.67	4.99	3.91	5.13	3.88	5.32	3.87	5.70	4.08	6.09	4.04
23						4.81	3.69	5.04	3.93	5.19	3.90	5.37	3.89	5.73	4.10	6.10	4.04
25			4.66	3.84	4.86	3.71	5.10	3.95	5.25	3.93	5.42	3.91	5.76	4.11	6.11	4.05	
27			4.70	3.86	4.91	3.74	5.16	3.98	5.31	3.95	5.46	3.92	5.75	4.10			
29			4.62	3.82	4.83	3.70	5.08	3.94	5.23	3.92	5.38	3.89	5.68	4.08			
31			4.54	3.78	4.75	3.66	5.00	3.91	5.15	3.89	5.30	3.86	5.60	4.05			
33	4.04	3.43	4.31	3.67	4.67	3.63	4.93	3.88	5.08	3.86	5.23	3.83	5.53	4.02			
35	4.11	3.46	4.30	3.67	4.59	3.59	4.85	3.85	5.00	3.83	5.15	3.80	5.45	4.00			
37	4.04	3.43	4.23	3.63	4.52	3.56	4.77	3.81	4.92	3.79	5.07	3.77	5.37	3.97			
39	3.97	3.39	4.16	3.60	4.45	3.53	4.70	3.79	4.85	3.77	4.99	3.74	5.29	3.94			
41	3.90	3.36	4.09	3.57	4.38	3.50	4.62	3.75	4.77	3.74	4.92	3.71	5.21	3.91			
43	3.83	3.32	4.01	3.53	4.30	3.46	4.55	3.72	4.69	3.70	4.84	3.68	5.13	3.88			

(kW)

Heating mode : HC

Outdoor air temp. °CDB	°CWB	Indoor air temperature				
		°CDB				
		16	18	20	22	24
-19.8	-20	2.63	2.58	2.53	2.47	2.42
-17.7	-18	2.81	2.77	2.72	2.66	2.61
-15.7	-16	3.00	2.95	2.91	2.85	2.80
-13.5	-14	3.20	3.15	3.11	3.05	3.00
-11.5	-12	3.40	3.35	3.31	3.26	3.20
-9.5	-10	3.60	3.55	3.51	3.46	3.41
-7.5	-8	3.80	3.75	3.71	3.66	3.61
-5.5	-6	3.88	3.83	3.79	3.75	3.71
-3.0	-4	3.95	3.92	3.88	3.84	3.80
-1.0	-2	4.03	4.00	3.97	3.93	3.90
1.0	0	4.10	4.08	4.05	4.03	4.00
2.0	1	4.14	4.12	4.10	4.07	4.05
3.0	2	4.41	4.38	4.36	4.33	4.30
5.0	4	4.94	4.91	4.88	4.85	4.82
7.0	6	5.46	5.43	5.40	5.37	5.33
9.0	8	5.74	5.70	5.67	5.63	5.59
11.5	10	6.02	5.98	5.94	5.89	5.85
13.5	12	6.36	6.31	6.25	6.17	6.12
15.5	14	6.70	6.64	6.57	6.44	6.39
16.5	16	6.87	6.80	6.73	6.58	6.52

(kW)

PJF000Z511

Notes(1) These data show average status.

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 **FDTC60ZSXVG** Indoor unit **FDTC60VG** Outdoor unit **SRC60ZSX-S**

Cooling mode

(kW)

Heating mode : HC

(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					4.73	3.56	4.98	3.80	5.11	3.76	5.25	3.71	5.53	3.89	5.81	3.78
13					4.84	3.60	5.11	3.85	5.24	3.80	5.39	3.76	5.67	3.93	5.96	3.82
15					4.95	3.65	5.24	3.90	5.38	3.85	5.52	3.80	5.82	3.97	6.11	3.86
17					5.07	3.69	5.37	3.95	5.51	3.90	5.66	3.85	5.96	4.02	6.25	3.90
19					5.17	3.74	5.48	3.99	5.63	3.94	5.81	3.90	6.17	4.08	6.54	3.98
21					5.33	3.80	5.59	4.03	5.74	3.98	5.96	3.96	6.39	4.15	6.82	4.06
23					5.39	3.83	5.65	4.05	5.81	4.01	6.01	3.97	6.42	4.16	6.83	4.07
25			5.22	4.02	5.44	3.85	5.71	4.08	5.88	4.03	6.07	3.99	6.45	4.17	6.84	4.07
27			5.27	4.04	5.50	3.88	5.78	4.10	5.94	4.06	6.11	4.01	6.44	4.17		
29			5.18	4.00	5.41	3.84	5.69	4.07	5.86	4.03	6.02	3.98	6.36	4.14		
31			5.09	3.96	5.32	3.80	5.60	4.03	5.77	3.99	5.94	3.95	6.27	4.12		
33	4.53	3.60			5.32	3.76	5.52	4.00	5.69	3.96	5.85	3.92	6.19	4.09		
35	4.60	3.64	4.81	3.83	5.15	3.73	5.43	3.97	5.60	3.93	5.77	3.89	6.10	4.06		
37	4.52	3.60	4.73	3.79	5.06	3.69	5.35	3.94	5.51	3.90	5.68	3.86	6.01	4.03		
39	4.44	3.56	4.65	3.76	4.98	3.66	5.26	3.90	5.43	3.87	5.59	3.83	5.92	4.01		
41	4.37	3.52	4.58	3.73	4.90	3.62	5.18	3.87	5.34	3.84	5.51	3.80	5.83	3.98		
43	4.29	3.49	4.50	3.69	4.82	3.59	5.10	3.84	5.26	3.81	5.42	3.77	5.74	3.95		

Outdoor air temp.		Indoor air temperature					
°CDB	°CWB	°CDB					
°CDB	°CWB	16	18	20	22	24	
-19.8	-20	3.26	3.20	3.14	3.07	3.00	
-17.7	-18	3.49	3.43	3.37	3.30	3.24	
-15.7	-16	3.72	3.66	3.61	3.54	3.48	
-13.5	-14	3.97	3.91	3.85	3.79	3.73	
-11.5	-12	4.22	4.16	4.10	4.04	3.98	
-9.5	-10	4.47	4.41	4.35	4.29	4.23	
-7.5	-8	4.72	4.66	4.60	4.54	4.48	
-5.5	-6	4.81	4.76	4.70	4.65	4.60	
-3.0	-4	4.90	4.86	4.81	4.77	4.72	
-1.0	-2	5.00	4.96	4.92	4.88	4.84	
1.0	0	5.09	5.06	5.03	4.99	4.96	
2.0	1	5.14	5.11	5.08	5.05	5.02	
3.0	2	5.47	5.44	5.41	5.37	5.34	
5.0	4	6.12	6.09	6.05	6.01	5.98	
7.0	6	6.78	6.74	6.70	6.66	6.61	
9.0	8	7.12	7.08	7.03	6.98	6.94	
11.5	10	7.47	7.41	7.36	7.31	7.26	
13.5	12	7.89	7.82	7.76	7.65	7.59	
15.5	14	8.31	8.23	8.15	7.99	7.93	
16.5	16	8.53	8.44	8.35	8.16	8.09	

PJF000Z511

(2) Twin type

Model **FDTC71VNXVG** Indoor unit **FDTC40VG (2units)** Outdoor unit **FDC71VNX**

Cooling mode

(kW)

Heating mode : HC

(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					4.87	4.77	6.02	5.90	6.59	6.34	6.79	6.30	7.19	6.72	7.59	6.63
13					5.33	5.22	6.32	6.19	6.82	6.42	7.03	6.39	7.45	6.81	7.88	6.71
15					5.79	5.67	6.63	6.46	7.05	6.51	7.27	6.47	7.71	6.89	8.16	6.80
17					6.26	5.92	6.94	6.58	7.27	6.59	7.51	6.56	7.97	6.97	8.44	6.88
19					6.59	6.06	7.16	6.67	7.44	6.65	7.68	6.62	8.15	7.03	8.63	6.94
21					6.93	6.20	7.38	6.75	7.60	6.71	7.84	6.67	8.33	7.09	8.82	6.99
23					6.91	6.19	7.35	6.74	7.57	6.70	7.81	6.66	8.30	7.08	8.78	6.98
25			6.46	6.33	6.89	6.18	7.32	6.73	7.54	6.69	7.78	6.65	8.26	7.07	8.74	6.97
27			6.45	6.32	6.87	6.18	7.30	6.72	7.52	6.68	7.74	6.64	8.18	7.04		
29			6.34	6.21	6.75	6.13	7.19	6.68	7.41	6.64	7.64	6.60	8.09	7.01		
31			6.23	6.11	6.64	6.08	7.08	6.63	7.31	6.60	7.54	6.57	7.99	6.98		
33	5.77	5.65	6.05	5.93	6.53	6.04	6.97	6.59	7.20	6.56	7.44	6.53	7.90	6.95		
35	5.67	5.56	5.95	5.83	6.42	5.99	6.86	6.55	7.10	6.53	7.34	6.50	7.81	6.92		
37	5.58	5.47	5.85	5.73	6.31	5.95	6.72	6.50	6.95	6.47	7.18	6.44	7.64	6.87		
39	5.49	5.38	5.76	5.64	6.20	5.90	6.59	6.45	6.81	6.42	7.03	6.39	7.46	6.81		
41	5.39	5.28	5.67	5.56	6.09	5.86	6.45	6.32	6.66	6.37	6.87	6.33	7.29	6.76		
43	5.30	5.19	5.57	5.46	5.97	5.81	6.31	6.18	6.51	6.31	6.71	6.28	7.12	6.70		

Outdoor air temp.		Indoor air temperature					
°CDB	°CWB	°CDB					
°CDB	°CWB	16	18	20	22	24	
-19.8	-20	3.95	3.93	3.91	3.88	3.86	
-17.7	-18	4.18	4.16	4.14	4.11	4.09	
-15.7	-16	4.42	4.39	4.37	4.34	4.32	
-13.5	-14	4.68	4.65	4.63	4.60	4.57	
-11.5	-12	4.94	4.91	4.88	4.85	4.82	
-9.5	-10	5.20	5.17	5.14	5.11	5.08	
-7.5	-8	5.46	5.43	5.40	5.36	5.33	
-5.5	-6	5.59	5.55	5.52	5.48	5.44	
-3.0	-4	5.71	5.68	5.64	5.60	5.56	
-1.0	-2	5.84	5.80	5.76	5.72	5.67	
1.0	0	5.97	5.92	5.88	5.83	5.79	
2.0	1	6.03	5.98	5.94	5.89	5.85	
3.0	2	6.45	6.40	6.35	6.30	6.25	
5.0	4	7.29	7.23	7.18	7.12	7.06	
7.0	6	8.13	8.06	8.00	7.93	7.87	
9.0	8	8.42	8.36	8.29	8.23	8.16	
11.5	10	8.72	8.65	8.59	8.52	8.46	
13.5	12	9.20	9.13	9.06	9.00	8.92	
15.5	14	9.69	9.61	9.53	9.47	9.39	
16.5	16	9.93	9.85	9.77	9.71	9.62	

Notes(1) These data show average status.

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)

PJF000Z511

Model **FDTC100VNXPGV** Indoor unit **FDTC50VG (2 units)** Outdoor unit **FDC100VNX**

Cooling mode

(kW)

Heating mode : HC

(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					8.33	6.81	8.84	7.34	9.10	7.30	9.38	7.26	9.94	7.66	10.50	7.54
13					8.63	6.94	9.17	7.48	9.43	7.43	9.73	7.39	10.32	7.79	10.92	7.67
15					8.93	7.07	9.49	7.61	9.77	7.56	10.09	7.52	10.71	7.92	11.34	7.81
17					9.23	7.21	9.82	7.75	10.11	7.70	10.44	7.66	11.10	8.06	11.75	7.94
19					9.44	7.30	10.04	7.84	10.34	7.79	10.68	7.75	11.35	8.15	12.01	8.02
21					9.64	7.39	10.26	7.93	10.57	7.88	10.91	7.84	11.59	8.24	12.28	8.11
23					9.64	7.39	10.28	7.94	10.59	7.89	10.94	7.85	11.63	8.25	12.32	8.13
25			8.95	7.50	9.64	7.39	10.30	7.95	10.62	7.90	10.97	7.86	11.66	8.26	12.36	8.14
27			8.91	7.48	9.64	7.39	10.33	7.96	10.64	7.91	10.96	7.86	11.59	8.24		
29			8.84	7.45	9.51	7.33	10.16	7.89	10.48	7.85	10.80	7.80	11.45	8.19		
31			8.76	7.41	9.37	7.27	10.00	7.82	10.32	7.78	10.65	7.74	11.30	8.13		
33	8.21	6.92	8.58	7.32	9.23	7.21	9.83	7.75	10.16	7.72	10.49	7.68	11.15	8.08		
35	7.77	6.70	8.31	7.19	9.09	7.15	9.66	7.68	10.00	7.65	10.34	7.62	11.01	8.03		
37	7.68	6.65	8.18	7.13	8.92	7.07	9.49	7.61	9.81	7.58	10.13	7.54	10.77	7.95		
39	7.58	6.60	8.04	7.07	8.76	7.00	9.31	7.54	9.62	7.50	9.93	7.46	10.54	7.87		
41	7.49	6.56	7.91	7.01	8.59	6.92	9.14	7.47	9.43	7.43	9.73	7.39	10.31	7.78		
43	7.40	6.51	7.78	6.95	8.42	6.85	8.96	7.39	9.24	7.35	9.52	7.31	10.08	7.71		

Outdoor air temp.	Indoor air temperature					
	°CDB	°CWB	16	18	20	22
-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

PJF000Z511

Model **FDTC100VSXPVG** Indoor unit **FDTC50VG (2 units)** Outdoor unit **FDC100VSX**

Cooling mode

(kW)

Heating mode : HC

(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					8.33	6.81	8.84	7.34	9.10	7.30	9.38	7.26	9.94	7.66	10.50	7.54
13					8.63	6.94	9.17	7.48	9.43	7.43	9.73	7.39	10.32	7.79	10.92	7.67
15					8.93	7.07	9.49	7.61	9.77	7.56	10.09	7.52	10.71	7.92	11.34	7.81
17					9.23	7.21	9.82	7.75	10.11	7.70	10.44	7.66	11.10	8.06	11.75	7.94
19					9.44	7.30	10.04	7.84	10.34	7.79	10.68	7.75	11.35	8.15	12.01	8.02
21					9.64	7.39	10.26	7.93	10.57	7.88	10.91	7.84	11.59	8.24	12.28	8.11
23					9.64	7.39	10.28	7.94	10.59	7.89	10.94	7.85	11.63	8.25	12.32	8.13
25			8.95	7.50	9.64	7.39	10.30	7.95	10.62	7.90	10.97	7.86	11.66	8.26	12.36	8.14
27			8.91	7.48	9.64	7.39	10.33	7.96	10.64	7.91	10.96	7.86	11.59	8.24		
29			8.84	7.45	9.51	7.33	10.16	7.89	10.48	7.85	10.80	7.80	11.45	8.19		
31			8.76	7.41	9.37	7.27	10.00	7.82	10.32	7.78	10.65	7.74	11.30	8.13		
33	8.21	6.92	8.58	7.32	9.23	7.21	9.83	7.75	10.16	7.72	10.49	7.68	11.15	8.08		
35	7.77	6.70	8.31	7.19	9.09	7.15	9.66	7.68	10.00	7.65	10.34	7.62	11.01	8.03		
37	7.68	6.65	8.18	7.13	8.92	7.07	9.49	7.61	9.81	7.58	10.13	7.54	10.77	7.95		
39	7.58	6.60	8.04	7.07	8.76	7.00	9.31	7.54	9.62	7.50	9.93	7.46	10.54	7.87		
41	7.49	6.56	7.91	7.01	8.59	6.92	9.14	7.47	9.43	7.43	9.73	7.39	10.31	7.78		
43	7.40	6.51	7.78	6.95	8.42	6.85	8.96	7.39	9.24	7.35	9.52	7.31	10.08	7.71		

Outdoor air temp.	Indoor air temperature					
	°CDB	°CWB	16	18	20	22
-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

PJF000Z511

Notes(1) These data show average status.

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. (Cooling only)

(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 **FDTC125VNXPGV** Indoor unit **FDTC60VG (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	7.50	11.05	8.01	11.37	7.92	11.72	7.84	12.42	8.19	13.12	7.98
13					10.79	7.66	11.46	8.17	11.79	8.08	12.16	8.00	12.91	8.35	13.65	8.13
15					11.16	7.82	11.87	8.33	12.22	8.24	12.61	8.16	13.39	8.51	14.17	8.28
17					11.54	7.99	12.27	8.49	12.64	8.40	13.05	8.32	13.87	8.67	14.69	8.44
19					11.80	8.10	12.55	8.60	12.93	8.51	13.34	8.43	14.18	8.77	15.02	8.54
21					12.05	8.21	12.83	8.72	13.21	8.62	13.64	8.54	14.49	8.88	15.34	8.63
23					12.05	8.21	12.85	8.73	13.24	8.63	13.67	8.55	14.54	8.89	15.40	8.65
25			11.19	8.38	12.05	8.21	12.88	8.74	13.27	8.65	13.71	8.56	14.58	8.91	15.45	8.67
27			11.14	8.36	12.05	8.21	12.91	8.75	13.30	8.66	13.70	8.56	14.49	8.88		
29			11.05	8.32	11.88	8.13	12.70	8.67	13.10	8.58	13.51	8.49	14.31	8.81		
31			10.95	8.27	11.71	8.06	12.49	8.58	12.90	8.50	13.31	8.41	14.13	8.75		
33	10.26	7.80	10.73	8.17	11.53	7.98	12.29	8.50	12.70	8.42	13.11	8.34	13.94	8.69		
35	9.71	7.52	10.39	8.01	11.36	7.91	12.08	8.41	12.50	8.35	12.92	8.27	13.76	8.63		
37	9.60	7.47	10.22	7.93	11.15	7.82	11.86	8.33	12.26	8.26	12.67	8.18	13.47	8.53		
39	9.48	7.41	10.05	7.85	10.94	7.73	11.64	8.24	12.03	8.17	12.41	8.09	13.18	8.44		
41	9.36	7.35	9.89	7.78	10.74	7.64	11.42	8.15	11.79	8.08	12.16	8.00	12.89	8.34		
43	9.25	7.30	9.72	7.70	10.53	7.55	11.21	8.07	11.55	7.99	11.90	7.90	12.60	8.25		

Heating mode : HC (kW)

Outdoor air temp.	Indoor air temperature					
	°CDB					
	°CDB	°CWB	16	18	20	22
-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 **FDTC125VSPXPGV** Indoor unit **FDTC60VG (2 units)** Outdoor unit **FDC125VXSX**
 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	7.50	11.05	8.01	11.37	7.92	11.72	7.84	12.42	8.19	13.12	7.98
13					10.79	7.66	11.46	8.17	11.79	8.08	12.16	8.00	12.91	8.35	13.65	8.13
15					11.16	7.82	11.87	8.33	12.22	8.24	12.61	8.16	13.39	8.51	14.17	8.28
17					11.54	7.99	12.27	8.49	12.64	8.40	13.05	8.32	13.87	8.67	14.69	8.44
19					11.80	8.10	12.55	8.60	12.93	8.51	13.34	8.43	14.18	8.77	15.02	8.54
21					12.05	8.21	12.83	8.72	13.21	8.62	13.64	8.54	14.49	8.88	15.34	8.63
23					12.05	8.21	12.85	8.73	13.24	8.63	13.67	8.55	14.54	8.89	15.40	8.65
25			11.19	8.38	12.05	8.21	12.88	8.74	13.27	8.65	13.71	8.56	14.58	8.91	15.45	8.67
27			11.14	8.36	12.05	8.21	12.91	8.75	13.30	8.66	13.70	8.56	14.49	8.88		
29			11.05	8.32	11.88	8.13	12.70	8.67	13.10	8.58	13.51	8.49	14.31	8.81		
31			10.95	8.27	11.71	8.06	12.49	8.58	12.90	8.50	13.31	8.41	14.13	8.75		
33	10.26	7.80	10.73	8.17	11.53	7.98	12.29	8.50	12.70	8.42	13.11	8.34	13.94	8.69		
35	9.71	7.52	10.39	8.01	11.36	7.91	12.08	8.41	12.50	8.35	12.92	8.27	13.76	8.63		
37	9.60	7.47	10.22	7.93	11.15	7.82	11.86	8.33	12.26	8.26	12.67	8.18	13.47	8.53		
39	9.48	7.41	10.05	7.85	10.94	7.73	11.64	8.24	12.03	8.17	12.41	8.09	13.18	8.44		
41	9.36	7.35	9.89	7.78	10.74	7.64	11.42	8.15	11.79	8.08	12.16	8.00	12.89	8.34		
43	9.25	7.30	9.72	7.70	10.53	7.55	11.21	8.07	11.55	7.99	11.90	7.90	12.60	8.25		

Heating mode : HC (kW)

Outdoor air temp.	Indoor air temperature					
	°CDB					
	°CDB	°CWB	16	18	20	22
-19.8	-20	11.07	10.99	10.90	10.81	10.72
-17.7	-18	12.32	12.22	12.12	12.02	11.92
-15.7	-16	13.06	12.95	12.85	12.74	12.63
-13.5	-14	13.64	13.52	13.42	13.31	13.20
-11.5	-12	13.98	13.87	13.77	13.66	13.54
-9.5	-10	14.22	14.11	14.00	13.88	13.77
-7.5	-8	14.22	14.11	14.00	13.88	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	13.77
1.0	0	14.22	14.11	14.00	13.88	13.77
2.0	1	14.22	14.11	14.00	13.88	13.77
3.0	2	14.22	14.11	14.00	13.88	13.77
5.0	4	14.22	14.11	14.00	13.88	13.77
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 status.

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.(Cooling only)

(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)

(3) Triple type

Model **FDTC140VNXTVG** Indoor unit **FDTC50VG (3 units)** Outdoor unit **FDC140VNX**
 Cooling mode (kW) Heating mode : **HC** (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	9.86	12.38	10.67	12.73	10.59	13.13	10.54	13.91	11.14	14.70	10.98
13					12.08	10.04	12.83	10.84	13.21	10.78	13.62	10.72	14.45	11.33	15.28	11.16
15					12.50	10.22	13.29	11.03	13.68	10.96	14.12	10.90	14.99	11.51	15.87	11.34
17					12.92	10.40	13.75	11.22	14.16	11.15	14.62	11.09	15.54	11.70	16.45	11.53
19					13.21	10.53	14.06	11.34	14.48	11.27	14.95	11.21	15.88	11.82	16.82	11.65
21					13.50	10.66	14.36	11.47	14.80	11.40	15.28	11.34	16.23	11.95	17.19	11.77
23					13.50	10.66	14.40	11.48	14.83	11.41	15.31	11.35	16.28	11.96	17.25	11.79
25			12.53	10.82	13.50	10.66	14.43	11.49	14.87	11.43	15.35	11.37	16.33	11.98	17.30	11.80
27			12.48	10.80	13.50	10.66	14.46	11.51	14.90	11.44	15.34	11.36	16.23	11.95		
29			12.37	10.75	13.31	10.57	14.23	11.41	14.68	11.35	15.13	11.28	16.03	11.87		
31			12.26	10.70	13.11	10.49	13.99	11.31	14.45	11.26	14.91	11.20	15.82	11.80		
33	11.49	9.97	12.02	10.58	12.92	10.40	13.76	11.22	14.23	11.17	14.69	11.12	15.61	11.73		
35	10.88	9.66	11.63	10.40	12.72	10.32	13.53	11.13	14.00	11.08	14.47	11.03	15.41	11.66		
37	10.75	9.60	11.45	10.32	12.49	10.22	13.29	11.03	13.74	10.98	14.18	10.92	15.08	11.54		
39	10.62	9.53	11.26	10.23	12.26	10.12	13.04	10.93	13.47	10.88	13.90	10.82	14.76	11.43		
41	10.49	9.47	11.07	10.14	12.02	10.01	12.80	10.83	13.21	10.78	13.62	10.72	14.44	11.32		
43	10.35	9.40	10.89	10.06	11.79	9.91	12.55	10.73	12.94	10.67	13.33	10.61	14.11	11.21		

Outdoor air temp.	Indoor air temperature						
	°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 **FDTC140VSXTVG** Indoor unit **FDTC50VG (3 units)** Outdoor unit **FDC140VSX**
 Cooling mode (kW) Heating mode : **HC** (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	9.86	12.38	10.67	12.73	10.59	13.13	10.54	13.91	11.14	14.70	10.98
13					12.08	10.04	12.83	10.84	13.21	10.78	13.62	10.72	14.45	11.33	15.28	11.16
15					12.50	10.22	13.29	11.03	13.68	10.96	14.12	10.90	14.99	11.51	15.87	11.34
17					12.92	10.40	13.75	11.22	14.16	11.15	14.62	11.09	15.54	11.70	16.45	11.53
19					13.21	10.53	14.06	11.34	14.48	11.27	14.95	11.21	15.88	11.82	16.82	11.65
21					13.50	10.66	14.36	11.47	14.80	11.40	15.28	11.34	16.23	11.95	17.19	11.77
23					13.50	10.66	14.40	11.48	14.83	11.41	15.31	11.35	16.28	11.96	17.25	11.79
25			12.53	10.82	13.50	10.66	14.43	11.49	14.87	11.43	15.35	11.37	16.33	11.98	17.30	11.80
27			12.48	10.80	13.50	10.66	14.46	11.51	14.90	11.44	15.34	11.36	16.23	11.95		
29			12.37	10.75	13.31	10.57	14.23	11.41	14.68	11.35	15.13	11.28	16.03	11.87		
31			12.26	10.70	13.11	10.49	13.99	11.31	14.45	11.26	14.91	11.20	15.82	11.80		
33	11.49	9.97	12.02	10.58	12.92	10.40	13.76	11.22	14.23	11.17	14.69	11.12	15.61	11.73		
35	10.88	9.66	11.63	10.40	12.72	10.32	13.53	11.13	14.00	11.08	14.47	11.03	15.41	11.66		
37	10.75	9.60	11.45	10.32	12.49	10.22	13.29	11.03	13.74	10.98	14.18	10.92	15.08	11.54		
39	10.62	9.53	11.26	10.23	12.26	10.12	13.04	10.93	13.47	10.88	13.90	10.82	14.76	11.43		
41	10.49	9.47	11.07	10.14	12.02	10.01	12.80	10.83	13.21	10.78	13.62	10.72	14.44	11.32		
43	10.35	9.40	10.89	10.06	11.79	9.91	12.55	10.73	12.94	10.67	13.33	10.61	14.11	11.21		

Outdoor air temp.	Indoor air temperature						
	°CDB	°CWB	16	18	20	22	24
-19.8	-20	12.09	12.00	11.90	11.80	11.71	
-17.7	-18	13.61	13.51	13.40	13.29	13.18	
-15.7	-16	14.63	14.52	14.40	14.28	14.17	
-13.5	-14	15.24	15.12	15.00	14.88	14.76	
-11.5	-12	15.64	15.53	15.40	15.27	15.15	
-9.5	-10	15.95	15.83	15.70	15.57	15.44	
-7.5	-8	16.15	16.02	15.90	15.77	15.64	
-5.5	-6	16.25	16.13	16.00	15.86	15.73	
-3.0	-4	16.25	16.13	16.00	15.86	15.72	
-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	16.25	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	16.13	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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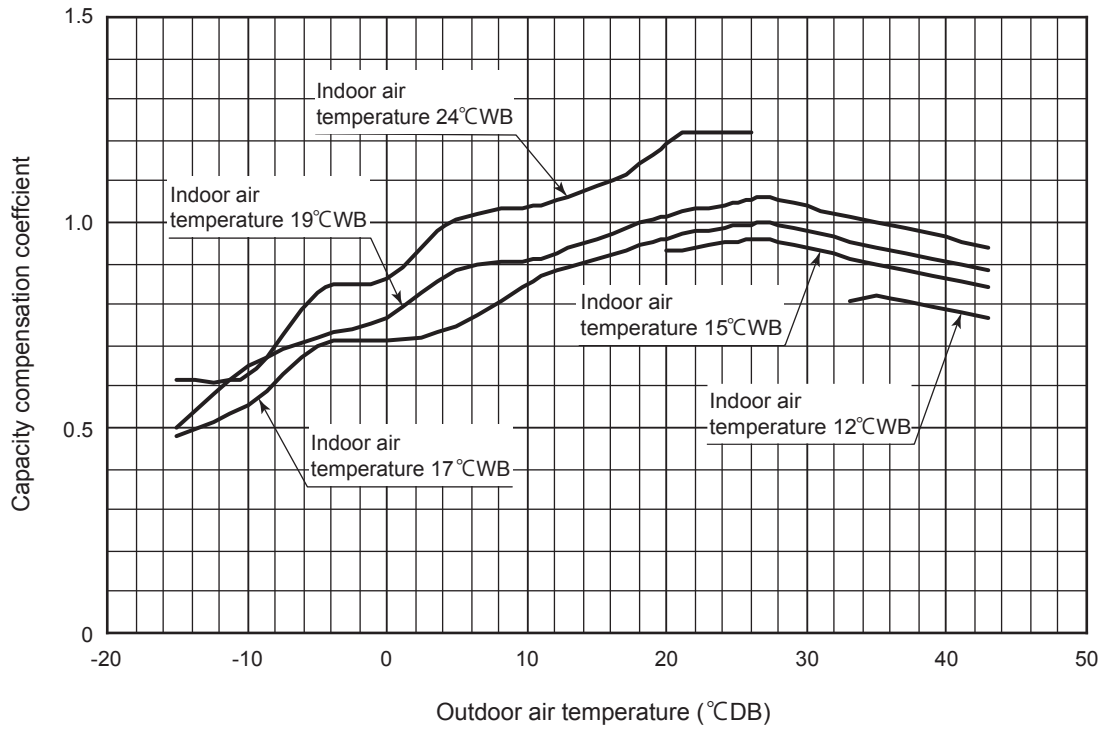
- Notes(1) These data show average status.
 Depending on the system control, there may be ranges where the operation is not conducted continuously.
 These data show the case where the operation frequency of a compressor is fixed.(Cooling only)
 (2) Capacities are based on the following conditions.
 Corresponding 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]

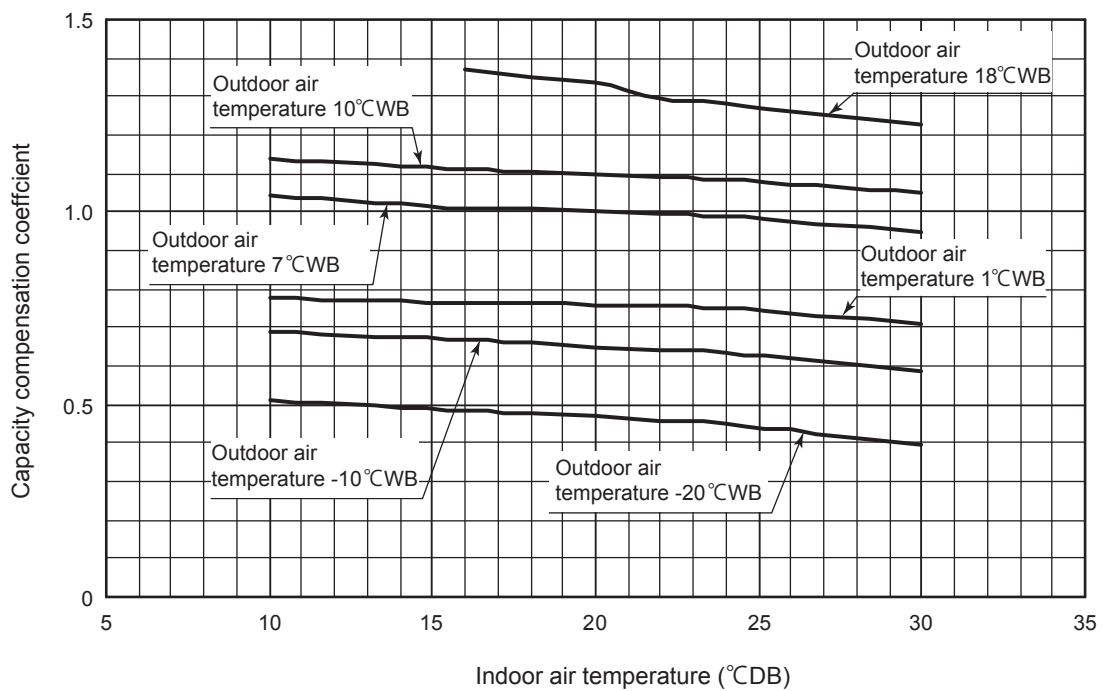
Capacity variation against outdoor and indoor temperature at the maximum compressor speed capacity compensation coefficient shows the ratio to nominal capacity.

(I) Models SRC40, 50, 60ZSX-S

① Cooling

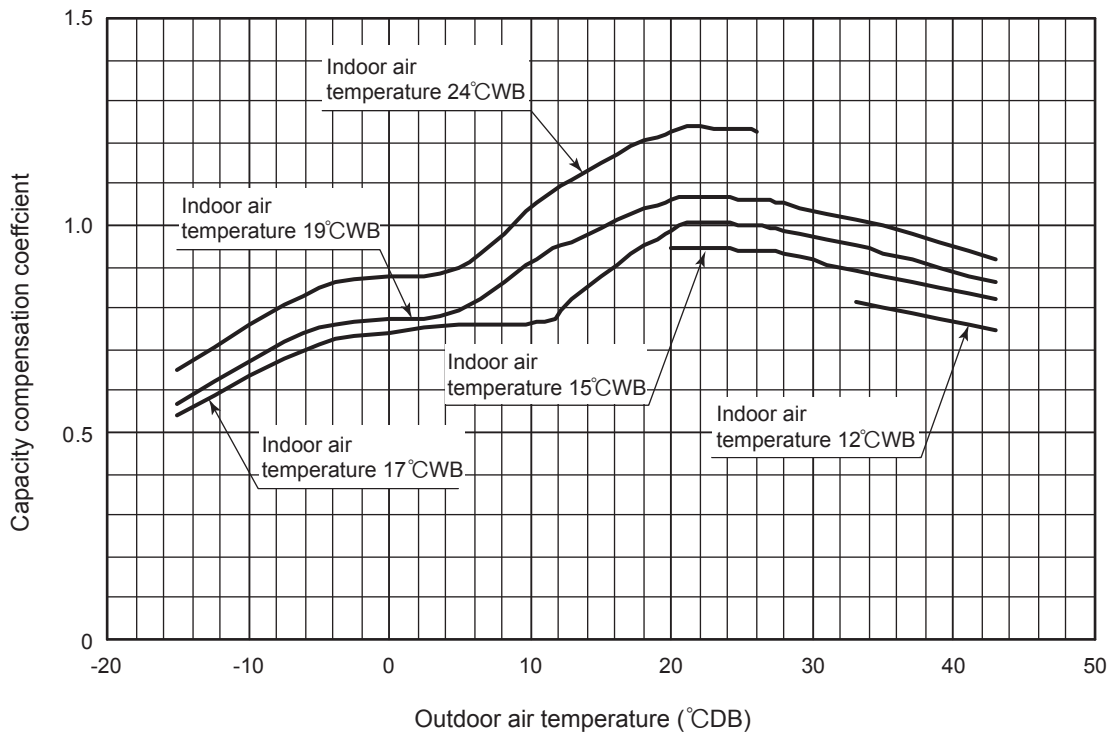


② Heating

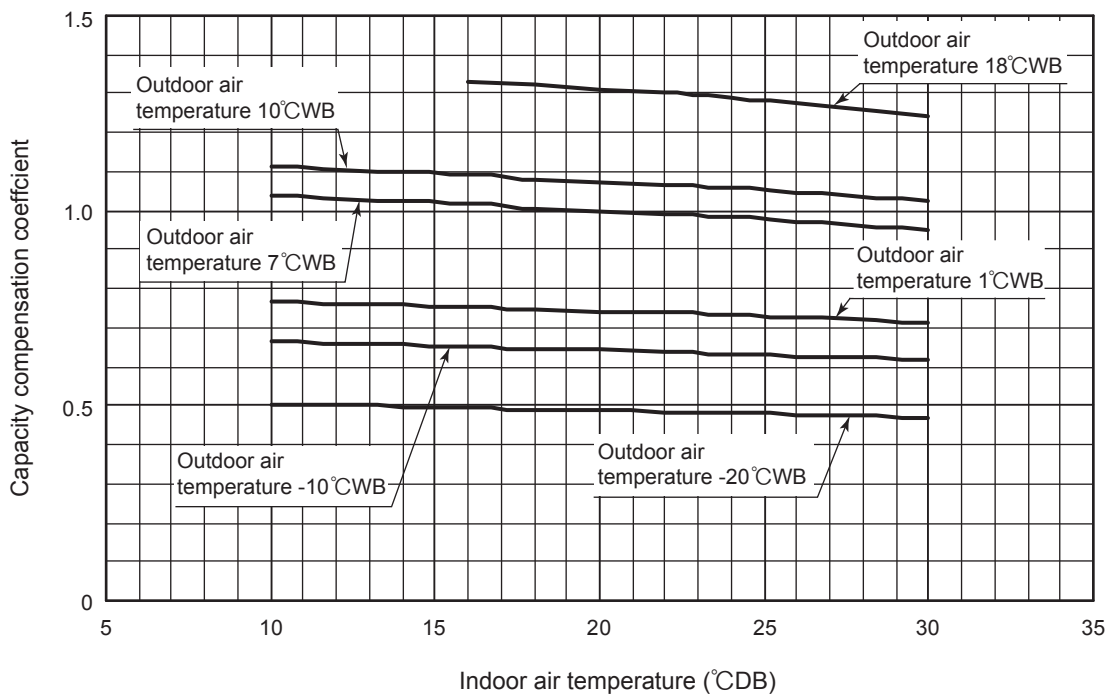


(II) Model FDC71VNX

① Cooling

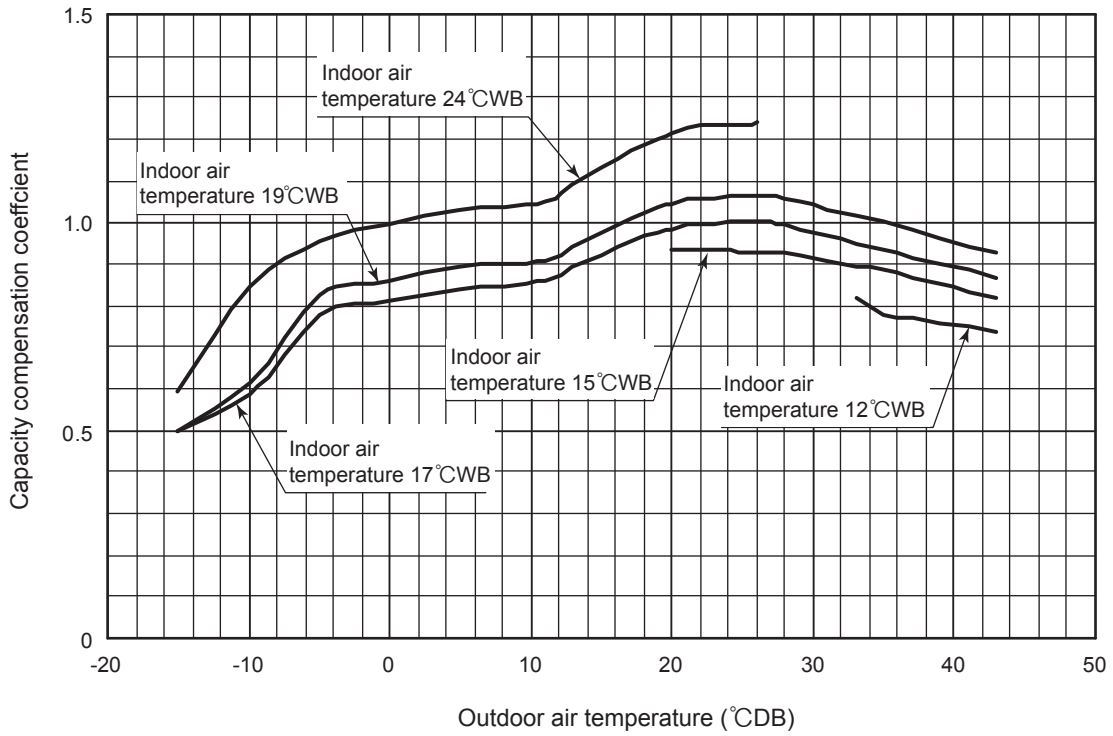


② Heating

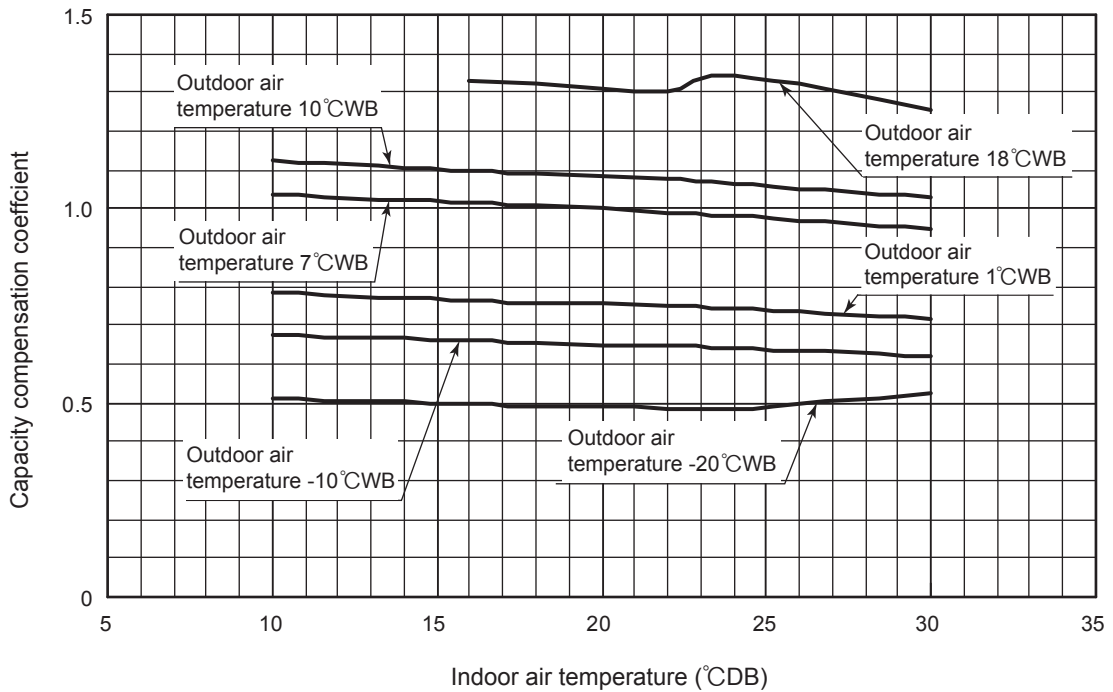


III Models FDC100, 125, 140VNX, 100, 125, 140VSX

① Cooling



② Heating



1.8.2 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

1.8.3 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.

(1) Models SRC40-60

Piping length (m)	7	10	15	20	25	30
Cooling	1	0.99	0.975	0.965	0.95	0.935
Heating	1	1	1	1	1	1

(2) Models FDC71-140

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	FDC71 model	φ 15.88	1	0.996	0.989	0.982	0.975	0.968	0.961	0.954	0.947	0.940	0.933
	FDC100 model		1	0.991	0.978	0.964	0.951	0.937	0.924	0.910	0.897	0.883	0.870
	FDC125 model		1	0.986	0.968	0.950	0.932	0.914	0.896	0.878	0.860	0.842	0.824
	FDC140 model		1	0.985	0.966	0.946	0.927	0.907	0.888	0.868	0.849	0.829	0.810
	FDC71 model	φ 19.05	1.008	1.006	1.003	1	0.997	0.994	0.991	0.988	0.985	0.982	0.979
	FDC100 model		1.016	1.013	1.007	1.002	0.996	0.991	0.985	0.980	0.974	0.969	0.963
	FDC125 model		1.022	1.018	1.009	1.001	0.992	0.984	0.975	0.967	0.958	0.950	0.941
	FDC140 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	FDC71 model	φ 15.88	—	—	—	—	—	—	—	—	—	
	FDC100 model		0.856	0.843	0.829	0.816	0.803	0.789	0.776	0.762	0.749	0.736
	FDC125 model		0.806	0.788	0.770	0.752	0.734	0.716	0.698	0.680	0.662	0.644
	FDC140 model		0.790	0.771	0.751	0.732	0.712	0.693	0.673	0.654	0.634	0.615
	FDC71 model	φ 19.05	—	—	—	—	—	—	—	—	—	
	FDC100 model		0.959	0.955	0.951	0.948	0.944	0.940	0.936	0.932	0.929	0.926
	FDC125 model		0.935	0.929	0.924	0.919	0.912	0.908	0.902	0.897	0.892	0.887
	FDC140 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. (Models FDC71-140 only)

Gas pipe diameter (mm)	φ 12.7	φ 15.88	φ 19.05
Equivalent bend length	0.20	0.25	0.30

1.8.4 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	SRC40, 50, 60	FDC71	FDC100, 125, 140
Max. one way piping length		30m	50m	100m
Max. vertical height difference		Outdoor unit is higher 20m Outdoor unit is lower 20m	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 FDTC100VNXPVG with the air flow “P-Hi”, the piping length of 15m, the outdoor unit located 5m lower than the indoor unit, indoor wet-bulb temperature at 19.0°C and outdoor dry-bulb temperature 35°C is

$$\text{Net cooling capacity} = \frac{10.0}{1} \times \frac{1.00}{1} \times \frac{0.978}{1} \times \frac{0.99}{1} \approx 9.7\text{kW}$$

↑

Net cooling total capacity
of FDTC100VNXPVG
(Outdoor temp. : 35°CDB
Indoor temp. : 19°CWB)
shown in table 1.8.1

↑

Air flow : P-Hi
shown in table 1.8.2

↑

Piping length : 15m
(Gas pipe size is φ15.88)
shown in table 1.8.3

↑

Height diff. : 5m
(Outdoor unit : below)
shown in table 1.8.4

1.9 APPLICATION DATA

1.9.1 Installation of indoor unit

PJF012D501

This manual is for the installation of the indoor unit.
 For electrical wiring work (Indoor unit), refer to the electrical wiring work installation manual. For remote control installation, refer to the installation manual attached to the remote control. For wireless kit installation, refer to the installation manual attached to the wireless kit. For electrical wiring work (Outdoor unit) and refrigerant pipe work installation for outdoor unit, refer to the installation manual attached to the outdoor unit. For motion sensor kit installation, refer to the installation manual attached to the motion sensor kit.
 This unit must always be used with the panel.

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, ⚠ WARNING and ⚡ CAUTION.
⚠ WARNING: Wrong installation would cause serious consequences such as injuries or death.
⚡ CAUTION: Wrong installation might cause serious consequences depending on circumstances.
 Both mentions the important items to protect your health and safety so strictly follow them by any means.
- The meanings of "Marks" used here are as shown on the right:
⊘ Never do it under any circumstances. ⊙ Always do it according to the instruction.
- After completing the installation, do commissioning to confirm there are no abnormalities, and explain to the customers about "SAFETY PRECAUTIONS", correct operation method and maintenance method (air filter cleaning, operation method and temperature setting method) with user's manual of this unit.
 Ask your customers to keep this installation manual together with the user's manual. Also, ask them to hand over the user's manual to the new user when the owner is changed.

⚠ WARNING

- **Installation should be performed by the specialist.**
 If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit. ⚠
- **Install the system correctly according to these installation manuals.**
 Improper installation may cause explosion, injury, water leakage, electric shock, and fire. ⚠
- **Check the density referred by the formula (accordance with ISO5149).**
 If the density exceeds the limit density, please consult the dealer and installate the ventilation system. ⚠
- **Use the genuine accessories and the specified parts for installation.**
 If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit. ⚠
- **Ventilate the working area well in case the refrigerant leaks during installation.**
 If the refrigerant contacts the fire, toxic gas is produced. ⚠
- **Install the unit in a location that can hold heavy weight.**
 Improper installation may cause the unit to fall leading to accidents. ⚠
- **Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes.**
 Improper installation may cause the unit to fall leading to accidents. ⚠
- **Do not mix air in to the cooling cycle on installation or removal of the air-conditioner.**
 If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries. ⊘
- **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
 Power source with insufficient capacity and improper work can cause electric shock and fire. ⚠
- **Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.**
 Loose connections or hold could result in abnormal heat generation or fire. ⚠
- **Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel properly.**
 Improper fitting may cause abnormal heat and fire. ⚠
- **Check for refrigerant gas leakage after installation is completed.**
 If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced. ⚠
- **Use the specified pipe, flare nut, and tools for R410A.**
 Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle. ⚠
- **Tighten the flare nut according to the specified method by with torque wrench.**
 If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period. ⚠
- **Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can occur.**
 Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak. ⊘
- **Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.**
 If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due to abnormal high pressure in the system. ⚠
- **Stop the compressor before removing the pipe after shutting the service valve on pump down work.**
 If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit and it could cause explosion and injuries due to abnormal high pressure in the system. ⚠
- **Only use prescribed optional 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 repair by yourself. And consult with the dealer about repair.**
 Improper repair may cause water leakage, electric shock or fire. ⊘
- **Consult the dealer or a specialist about removal of the air-conditioner.**
 Improper installation may cause water leakage, electric shock or fire. ⚠
- **Turn off the power source during servicing or inspection work.**
 If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan. ⚠
- **Do not run the unit when the panel or protection guard are taken off.**
 Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get burned, or electric shock. ⊘
- **Shut off the power before electrical wiring work.**
 It could cause electric shock, unit failure and improper running. ⚠

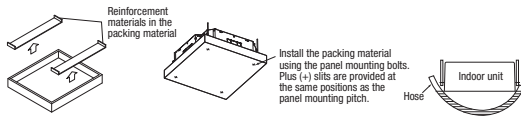
⚠ CAUTION

- **Perform earth wiring surely.**
 Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock due to a short-circuit. ⚠
- **Earth leakage breaker must be installed.**
 If the earth leakage breaker is not installed, it can cause electric shocks. ⚠
- **Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.**
 Using the incorrect one could cause the system failure and fire. ⚠
- **Do not use any materials other than a fuse of correct capacity where a fuse should be used.**
 Connecting the circuit by wire or copper wire could cause unit failure and fire. ⊘
- **Do not install the indoor unit near the location where there is possibility of flammable gas leakages.**
 If the gas leaks and gathers around the unit, it could cause fire. ⊘
- **Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled.**
 It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire. ⊘
- **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. ⚠
- **Do not use the indoor unit at the place where water splashes such as laundry.**
 Indoor unit is not waterproof. It could cause electric shock and fire. ⊘
- **Do not use the indoor unit for a special purpose such as food storage, cooling for precision instrument, preservation of animals, plants, and a work of art.**
 It could cause the damage of the items. ⊘
- **Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics.**
 Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunication equipment might influence the air-conditioner and cause a malfunction and breakdown. Or the air-conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jamming. ⊘
- **Do not install the remote control at the direct sunlight.**
 It could cause breakdown or deformation of the remote control. ⊘
- **Do not install the indoor unit at the place listed below.**
 - Places where flammable gas could leak.
 - Places where carbon fiber, metal powder or any powder is floated.
 - Place where the substances which affect the air-conditioner are generated such as sulfide gas, chloride gas, acid, alkali or ammoniac atmospheres.
 - Places exposed to oil mist or steam directly.
 - On vehicles and ships
 - Places where machinery which generates high harmonics is used.
 - Places where cosmetics or special sprays are frequently used.
 - Highly salted area such as beach.
 - Heavy snow area
 - Places where the system is affected by smoke from a chimney.
 - Altitude over 1000m⊘
- **Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit according to the installation manual for each model because each indoor unit has each limitation)**
 - Locations with any obstacles which can prevent inlet and outlet air of the unit
 - Locations where vibration can be amplified due to insufficient strength of structure.
 - Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam. (in case of the infrared specification unit)
 - Locations where an equipment affected by high harmonics is installed. (TV set or radio receiver is placed within 5m)
 - Locations where drainage cannot run off safely.
 - It can affect performance or function and etc.
 - Do not install the motion sensor mounting panel at following places. It could cause detection error, incapacity of detection, or characteristic degradation.
 - Place where vibration is applied to it for a long period of time.
 - Place where static electricity or electromagnetic wave generates.
 - Place where it is exposed to high temperature or humidity for a long period of time.
 - Dusty place or where the lens face could be fouled or damaged.⊘
- **Do not put any valuables which will break down by getting wet under the air-conditioner.**
 Condensation could drop when the relative humidity is higher than 80% or drain pipe is clogged, and it damages user's valuables. ⊘
- **Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of use.**
 It could cause the unit falling down and injury. ⊘
- **Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit.**
 If sputter entered into the unit during brazing work, it could cause damage (pinhole) of drain pan and leakage of water. To avoid damaging, keep the indoor unit packed or cover the indoor unit. ⚠
- **Install the drain pipe to drain the water surely according to the installation manual.**
 Improper connection of the drain pipe may cause dropping water into room and damaging user's belongings. ⚠
- **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. ⚠
- **For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make traps, and not to make air-bleeding.**
 Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance. ⚠
- **Ensure the insulation on the pipes for refrigeration circuit so as not to condense water.**
 Incomplete insulation could cause condensation and it would wet ceiling, floor, and any other valuables. ⚠
- **Do not install the outdoor unit where is likely to be a nest for insects and small animals.**
 Insects and small animals could come into the electronic components and cause breakdown and fire. Instruct the user to keep the surroundings clean. ⊘
- **Pay extra attention, carrying the unit by hand.**
 Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but the grabbing place, moving the unit by hand. Use protective gloves in order to avoid injury by the aluminum fin. ⚠
- **Make sure to dispose of the packaging material.**
 Leaving the materials may cause injury as metals like nail and woods are used in the package. ⚠
- **Do not operate the system without the air filter.**
 It may cause the breakdown of the system due to clogging of the heat exchanger. ⊘
- **Do not touch any button with wet hands.**
 It could cause electric shock. ⊘
- **Do not touch the refrigerant piping with bare hands when in operation.**
 The pipe during operation would become very hot or cold according to the operating condition, and it could cause a burn or frostbite. ⊘
- **Do not clean up the air-conditioner with water.**
 It could cause electric shock. ⊘
- **Do not turn off the power source immediately after stopping the operation.**
 Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown. ⊘
- **Do not control the operation with the circuit breaker.**
 It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury. ⊘

④ Installation of indoor unit (continued)

Protection of the indoor unit

- If it is not possible to install the panel for a while or if attaching the ceiling board after installing the indoor unit, protect the indoor unit by using upper carton.



Caution

- Do not adjust the unit height by adjusting the upper nuts. Doing so will cause unexpected stress on the indoor unit and cause the unit to become deformed, prevent the panel from being installed, and be generated fan interference noise.
- Make sure that the indoor unit is installed horizontally and set the appropriate gap between the underside of the unit and the ceiling plane. Improper installation may cause air leakage, dew condensation, water leakage and noise.
- Make sure there is no gap between the panel and the ceiling surface, and between the panel and the indoor unit. Any gap may cause air and/or water to leak, or condensation to form.

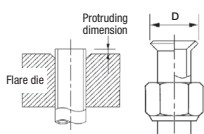
⑤ Refrigerant pipe

Caution

- Be sure to use new pipes for the refrigerant pipes. Use the flare nut attached to the product or a nut compatible with JIS B 8607, Class 2.

Regarding whether existing pipes can be reused or not, and the washing method, refer to the instruction manual of the outdoor unit, catalogue or technical data.

- 1) In case of reuse: Do not use old flare nut, but use the nut attached to the unit or compatible with JIS B 8607, Class 2.
- 2) In case of reuse: Flare the end of pipe replaced partially for R32 or R410A.



Pipe dia. d mm	Min. pipe wall thickness mm	Protruding dimension for flare, mm		Flare O.D. D mm	Flare nut tightening torque N·m
		Rigid (Clutch type) For R32 For R410A	Conventional tool		
6.35	0.8			8.9 - 9.1	14 - 18
9.52	0.8			12.8 - 13.2	34 - 42
12.7	0.8	0 - 0.5	0.7 - 1.3	16.2 - 16.6	49 - 61
15.88	1			19.3 - 19.7	68 - 82
19.05	1.2			23.6 - 24.0	100 - 120

- Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H 3300 for refrigeration pipe installation.

In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes.

- Do not use any refrigerant other than the designated refrigerant.
- Using other refrigerant except the designated refrigerant, may degrade inside refrigeration oil. And air getting into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.
- Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc.
- Use special tools for R32 or R410A refrigerant.

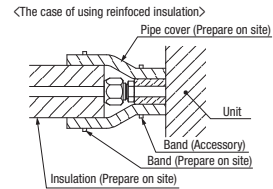
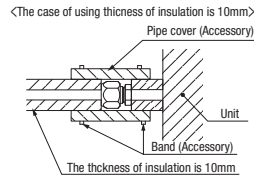
Work procedure

1. Remove the flare nut and blind flanges on the pipe of the indoor unit.
 - ※ Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them. (Gas may come out at this time, but it is not abnormal.)
 - Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
2. Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit.
 - ※ Bend radius of pipe must be 4D or larger. Once a pipe is bent, do not readjust the bending. Do not twist a pipe or collapse to 2/3D or smaller.
 - ※ Do a flare connection as follows:
 - Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
 - When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table above. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
3. Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps.
 - Make sure to insulate both gas pipes and liquid pipes completely.
 - ※ Incomplete insulation may cause dew condensation or water dropping.
 - Use heat-resistant (120 °C or more) insulations on the gas side pipes.
 - In case of using at high humidity condition, reinforce insulation of refrigerant pipes. Surface of insulation may cause dew condition or water dropping, if insulations are not reinforced.
4. Refrigerant is charged in the outdoor unit.
 - As for the additional refrigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit.

⑤ Refrigerant pipe (continued)

Caution:

Refrigerating machine oil should not be applied to the threads of union or external surface of flare. It is because, even if the same tightening torque is applied, the oil is likely to decrease the slide friction force on the threads and increase, in turn, the axial component force so that it could crack the flare by the stress corrosion. Refrigerating machine oil may be applied to the internal surface of flare only.



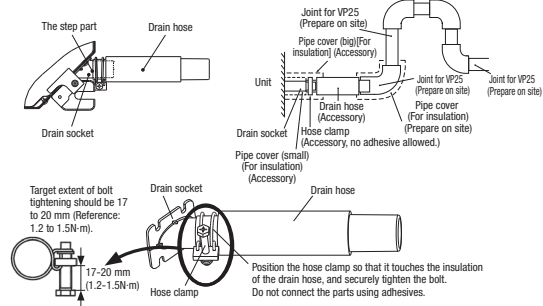
⑥ Drain pipe

Caution

- Install the drain pipe according to the installation manual in order to drain properly. Imperfection in draining may cause flood indoors and wetting the household goods, etc.
- Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and inflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to user's health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell.
- Connect the pipe securely to avoid water leakage from the joint.
- Insulate the pipe properly to avoid condensation drop.
- Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.
- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance.

Work procedure

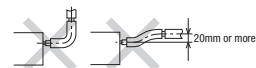
1. Make sure that the drain hose (the soft PVC side) is inserted into the end of the step part of the drain socket.
 - Fix the hose clamp so that its bolt is located on the outside of the indoor unit, and the bolt are fastened in a vertical orientation.
 - Do not apply adhesives on this end.
2. Position the hose clamp so that it touches the insulation of the drain hose, and then tighten the bolt.
3. Turn the bolt several times until it is securely tightened, but do not tighten it excessively.



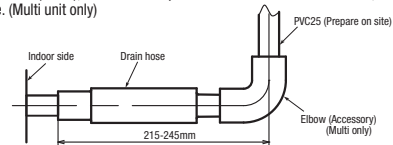
4. Prepare a joint for connecting VP25 pipe, adhere and connect the joint to the drain hose (the rigid PVC side), and adhere and connect VP25 pipe (prepare on site).
 - ※ As for drain pipe, apply VP25 made of rigid PVC which is on the market.

- Make sure that the adhesive will not get into the supplied drain hose.
- It may cause the flexible part broken after the adhesive is dried up and gets rigid.

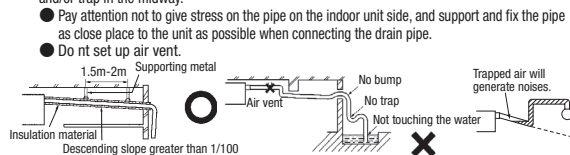
- The flexible drain hose is intended to absorb a small difference at installation of the unit or drain pipes. Intentional bending, expanding may cause the flexible hose broken and water leakage.



- As for drain pipe, apply VP25 (OD32). If apply PVC25 (OD25), connect the expanded connector to the drain hose, with adhesive. (Multi unit only)

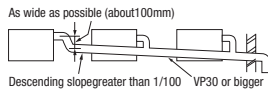


5. Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway.
 - Pay attention not to give stress on the pipe on the indoor unit side, and support and fix the pipe as close place to the unit as possible when connecting the drain pipe.
 - Do not set up air vent.



⑥ Drain pipe (continued)

- When sharing a drain pipe for more than 1 unit, lay the main pipe 100mm below the drain outlet of the unit. In addition, select VP30 or bigger size for main drain pipe.

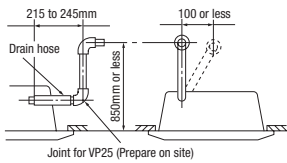


6. Insulate the drain pipe.

- Be sure to insulate the drain socket and rigid PVC pipe installed indoors otherwise it may cause dew condensation and water leakage.
- ※ After drainage test implementation, cover the drain socket part with pipe cover (small size), then use the pipe cover (big size) to cover the pipe cover (small size), clamps and part of the drain hose, and fix and wrap it with tapes to wrap and make joint part gapless.

Drain up

- The position for drain pipe outlet can be raised up to 850mm above the ceiling. Use elbows for installation to avoid obstacles inside ceiling. If the horizontal drain pipe is too long before vertical pipe, the backflow of water will increase when the unit is stopped, and it may cause overflow of water from the drain pan on the indoor unit. In order to avoid overflow, keep the horizontal pipe length and offset of the pipe within the limit shown in the figure below.



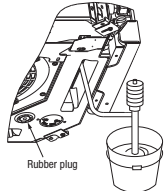
Drain test

- After installing the drain pipe, make sure that drain system works correctly and that no water leaks from the joint and drain pan. Check whether the motor sound of the drain pump is normal.
- Conduct a drain test when installing, even during the heating season.
- In the case of new buildings, be sure to complete the test before fixing the ceiling.

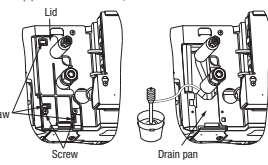
1. Pour about 1,000 cc of test water into the drain pan of the indoor unit. Exercise care not to allow electrical equipment such as the drain pump and other components to become wet while filling water.

Pour test water through the pipe lid using a feed water pump or a similar device, or through the refrigerant pipe joint.

- In case of pouring water from the air outlet



- In case of pouring water from the pipe lid



2. Make sure that water drains out completely and that no water leaks from any joints of the drain pipe during the test.

Test to confirm that the water drains out correctly while listening to the drain pump motor operating sound. At the drain socket (transparent), it is possible to check whether the water drains out correctly.

3. Unplug the rubber plug on the indoor unit so that the remaining water drains from the drain pan after the draining test.

After checking the water drainage, fix the rubber plug correctly. Installation work for the drain pipe must be performed for the entire drain pipe up to the indoor unit. If the pipe lid has been removed in order to pour water, mount the pipe lid again.

Drain pump operation

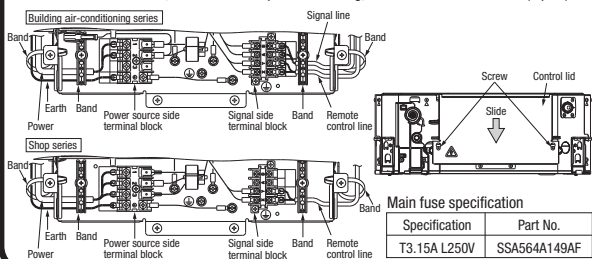
- In case electrical wiring work completed
Drain pump can be operated by the wired remote control.
For the operation method, refer to [Operation for drain pump] in the installation manual for wiring work.
- In case electrical wiring work not completed
Drain pump will run continuously when the dip switch "SW7-1" on the indoor unit PCB is turned ON, the connector CnB is disconnected, and then the power source (230VAC on the terminal block ① and ②) is turned ON. Make sure to turn OFF "SW7-1" and reconnect the connector CnB after the test.

⑦ Wiring-out position and wiring connection

- Electrical installation work must be performed according to the installation manual by an electrical installation service provider qualified by a power provider of the country, and be executed according to the technical standards and other regulations applicable to electrical installation in the country.

- Be sure to use an exclusive circuit.
- Use specified cord, fasten the wiring to the terminal securely, and hold the cord securely in order not to apply unexpected stress on the terminal.
- Do not put both power source line and signal line on the same route. It may cause miscommunication and malfunction.
- Be sure to do D type earth work.
- For the details of electrical wiring work, see attached instruction manual for electrical wiring work.

1. Loosen screws (2 pcs.) on the control box of the unit.
2. Remove the control lid by sliding it in the arrow direction in the figure.
3. Introduce the wiring in the control box, and connect it securely to the terminal block.
4. Fix the wiring with bands as shown below.
5. Install the control lid, with care not to pinch the wiring, and fix the lid with screws (2 pcs.).



⑧ Panel installation

- Install the panel on the indoor unit after electrical wiring work.
- Refer to the attached manual for panel installation for details.

⑨ Check list after installation

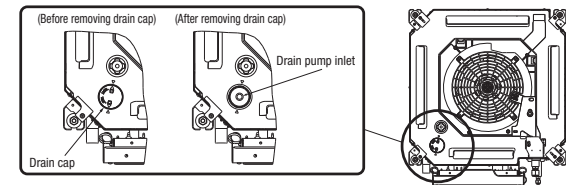
- Check the following items after all installation work completed.

Check if;	Expected trouble	Check
The indoor and outdoor units are fixed securely?	Falling, vibration, noise	
Inspection for leakage is done?	Insufficient capacity	
Insulation work is properly done?	Water leakage	
Water is drained properly?	Water leakage	
Supply voltage is same as mentioned in the model name plate?	PCB burnt out, not working at all	
There is mis-wiring or mis-connection of piping?	PCB burnt out, not working at all	
Earth wiring is connected properly?	Electric shock	
Cable size comply with specified size?	PCB burnt out, not working at all	
Any obstacle blocks airflow on air inlet and outlet?	Insufficient capacity	

⑩ How to check the dirt of drain pan and cleaning the inlet of the drain pump. (Maintenance)

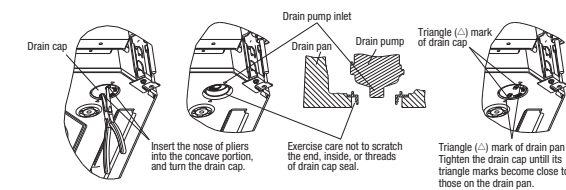
The method of checking the dirt of drain pan

1. Remove the panel according to the installation manual of the panel.
2. Check the dirt on the drain pan from the drain cap, and check the drain pump inlet. If the drain pan is very dirty, remove the drain pan and clean it.



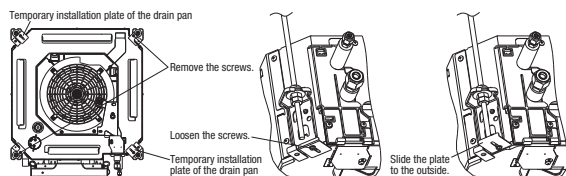
Cleaning of drain pump inlet

- It is possible to clean the drain pump inlet and surrounding area by removing the drain cap only; it is not necessary to remove the drain pan.
 - Before removing the drain cap, remove the rubber plug and drain water from the drain pan.
1. Insert the nose of the pliers into the concave portions (2 places) of the drain cap, and rotate the pliers about 1 turn in the CCW direction. The drain cap is removed.
 2. When cleaning the drain pump inlet, use a soft plastic tool. If a metallic tool is used, the drain cap mounting portion may be scratched and water may leak.
 3. Before mounting the drain cap, rinse it and **remove any foreign material from the inside of the cap**. If the drain cap is installed with foreign material inside it, it may cause water to leak.
 4. Insert the nose of the pliers into the concave portions of the drain cap and rotate the pliers to install the drain cap. Rotate the drain cap about 1 turn in the CW direction until it stops rotating. If the drain cap is not rotated for 1 or more turns, the cap will not have been installed correctly. Remove the drain cap, and then install it again correctly.
 5. After tightening the drain cap, make sure the triangle (△) mark of the drain cap comes close to the triangle mark on the drain pan. If these triangle marks are not close to each other, tighten the drain cap further.
 6. Refix the rubber plug securely. If the cover is not refixed correctly, it may cause condensation to form and/or water to leak.



Notes for removing the drain pan

- Before removing the drain pan, drain water from the drain pan. Remove the rubber plug and drain water.
- The drain pan is installed by the temporary installation plate. Remove the 2 drain pan fixing screws, and loosen the 2 screws of the temporary installation plate. Slide the temporary installation plate to the outside of the drain pan. And then, it is possible to remove the drain pan.
- When reinstalling the drain pan, slide the temporary installation plate to the inside and temporarily fix the drain pan. Then, tighten the 2 drain pan fixing screws and the 2 screws of the temporary installation plate. Also, refix the rubber plug securely.



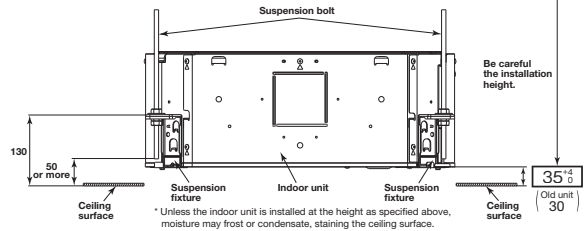
• Panel installation

PJF012D503

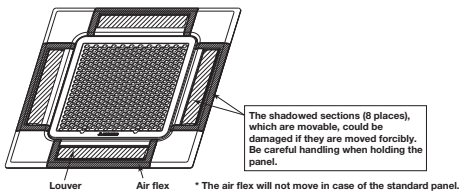
Read this manual together with the indoor unit's installation manual.

* Caution before use

- ① Be careful the installation height when installing the indoor unit. Also note that the installation height of this indoor unit is different from that of current (old) unit.
Installation height from the ceiling surface to the indoor unit.
• Old unit: 30 mm → This unit: 35 mm



- ② Do not attempt to move forcibly the louver and the air flex.



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.

Function

The draft prevention panel has the draft prevention mechanism. If the draft prevention panel is installed and the draft prevention function is set, the draft prevention function will be operated and reduce the draft feeling. (Refer to ⑩ Panel setting for details.)

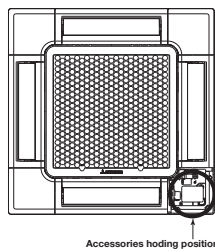
- Standard panel : without the draft prevention mechanism
- Draft prevention panel : with the draft prevention mechanism

① Before installation

- Follow installation manual carefully, and install the panel properly.
- Check the following items.
- Accessories

Accessories		
	4 pieces	For panel installation
	4 pieces	For avoiding the corner panel from falling
	1 piece	For avoiding the grille from falling
	4 pieces	For fixing the corner panel

Note: Accessories are laid in the position removing the corner lid.

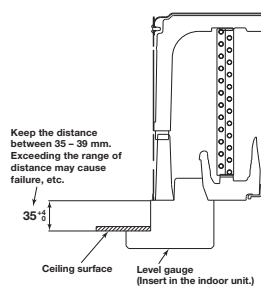


② Checking the indoor unit installation height

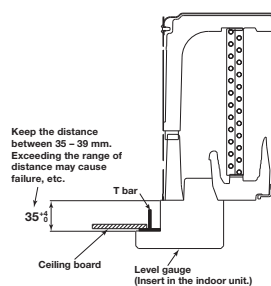
- Read this manual together with the air-conditioner installation manual carefully.
- Check if the opening size for the indoor unit is correct with the level gauge supplied in the indoor unit.
- Check if the gap between the plane and the indoor unit is correct by inserting the level gauge into the air outlet port of the indoor unit. (See below drawing)
- Adjust the installation elevation if necessary.
- Remove the level gauge before installing the panel.

Caution
If there is a height difference beyond the design limit between the installation level of the indoor unit and the panel, the panel may be subject to excessive stress during installation and it may cause distortion and damage.

<In case of other than the system ceiling>

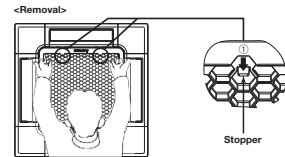


<In case of the system ceiling>



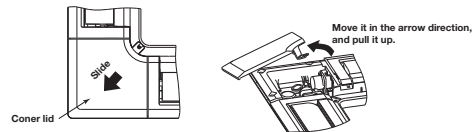
③ Removing the inlet grille

1. While placing a finger behind the stopper (2 places) and pressing it in the direction of arrow ①, pull the grille downward to open the grille.
2. Release the hooks of the inlet grille from the panel while it is in the open position.



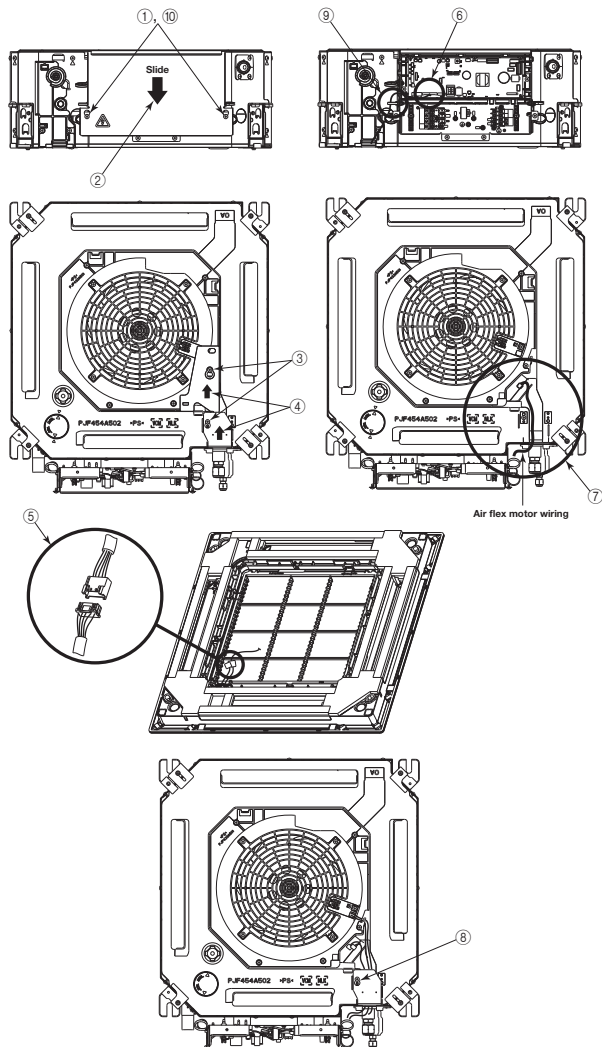
④ Removing the corner lid

- Pull the corner lid toward the direction indicated by the arrow and remove it. (Same way for all 4 corner lids)



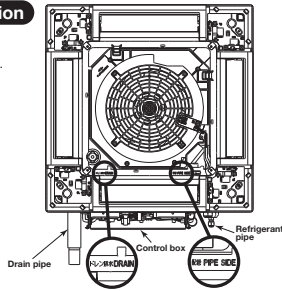
⑤ Before installing the panel <Only Draft prevention panel>

- ① Loosen screws (2 pcs.) on the control lid of the unit.
- ② Slide the control lid in the arrow direction in the figure, and remove it.
- ③ Loosen screws on the wiring cover (2 places).
- ④ Slide the wiring cover (2 places) in the arrow direction in the figure, and remove it.
- ⑤ Disconnect the relay connector of the air flex motor wiring attached to the panel.
- ⑥ Connect the air flex motor wiring to CNJ2 (20 P, gray) on PCB in the control box of the unit.
- ⑦ Pass the air flex motor wiring as shown in the figure.
- ⑧ Install the wiring cover (1 place) with care not to pinch wiring, and fix it with a screw.
- ⑨ Fix the air flex motor wiring with a band as shown in the figure.
- ⑩ Install the control lid with care not to pinch wiring, and fix with screws (2 places).



⑥ Orientation of the panel installation

- Take note that there is an orientation to install the panel.
- Install the panel with the orientation shown on the right.
 - Align the "PIPE SIDE" mark (on the panel) with the refrigerant pipes on the indoor unit.
 - Align the "DRAIN" mark (on the panel) with the drain pipe on the indoor unit.



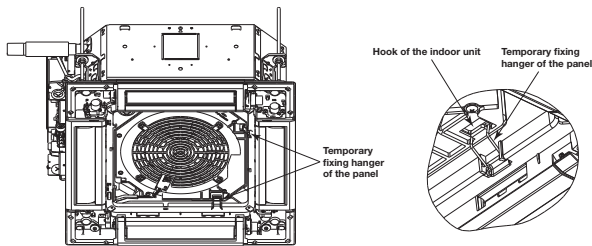
CAUTION

In case the orientation of the panel is not correct, it will lead to air leakage and also it is not possible to connect the motor wiring.

⑦ Installing the panel

1. Temporary hanging

- Lift up the hanger (2 places) on the panel for temporary support.
- Hang the panel on the hook on the indoor unit.



2. Fix the panel on the indoor unit

- Fasten the panel on the indoor unit with the 4 bolts supplied with the panel.

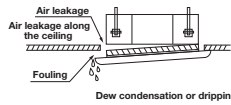
Caution

Be careful not to pinch the motion sensor wiring.

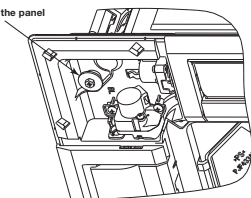
Caution

• Improperly tightened fixing bolts cause the problems listed below, so make sure that bolts are securely tightened.

• If there is a gap between the ceiling and the panel even after the fixing bolts are tightened, adjust the installation level of the indoor unit again.



Bolt for installing the panel



Caution

Do not give any stress on the panel when adjusting the height of the indoor unit to avoid unexpected distortion. It may cause the distortion of panel or failing to close the inlet grille, and the parts of the draft prevention mechanism.

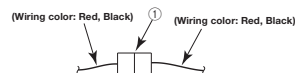
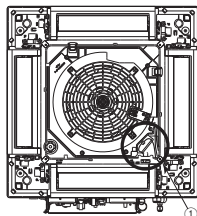
⑧ Electrical wiring

The wiring work varies depending on the panel type. Select the wiring work appropriate for the panel type.

<For the standard panel>

- ① Connect the connector of the lower motor wiring (Wiring color: Red, Black) at the panel side to the connector CnJ3 (20 P, White) of the lower motor wiring (Wiring color: Red, Black) at the unit side.

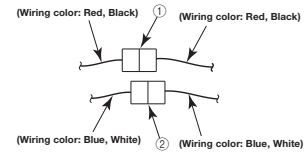
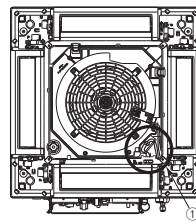
For the Standard panel



<For the draft prevention panel>

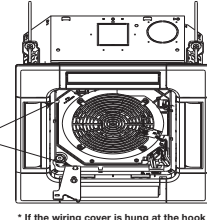
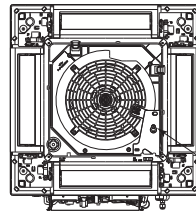
- ① Connect the connector of the lower motor wiring (Wiring color: Red, Black) at the panel side to the connector CnJ3 (20 P, White) of the lower motor wiring (Wiring color: Red, Black) at the unit side.
- ② Connect the connector of the air flex motor wiring (Wiring color: Blue, White) at the panel side to the connector CnJ4 (20 P, White) of the air flex motor wiring (Wiring color: Blue, White) at the unit side.

For the Draft prevention panel



Motor wiring connection - Detail view

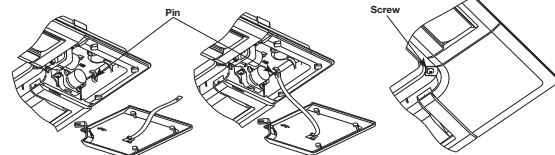
Install the wiring cover with care not to pinch wiring, and fix it with screws.



* If the wiring cover is hung at the hook on panel, it will become easier to work.

⑨ Installing a corner lid

1. To avoid unexpected falling of the corner lid, put the strap onto the corner lid's pin with turning the strap up.
2. Then hang the strap of a corner lid onto the panel's pin.
3. Hook the corner lid claws at 3 places, and fix the corner lid with attached screws.



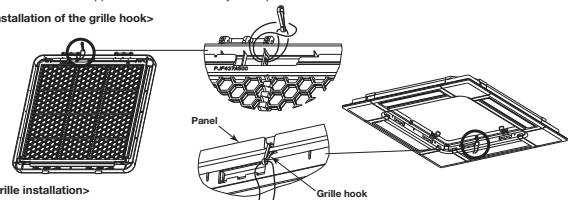
⑩ Installing the inlet grille

The panel and the inlet grille have no directional limitation to install. (Hinges of the inlet grille can be hooked at any side.)

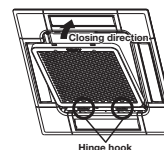
Install the inlet grille in the reverse order of the steps described at **④ Removing the inlet grille**.

- ① Attach the fall grille hook to the panel.
- ② Insert the hinges of inlet grille in the insert holes on the panel.
- Close then the inlet grille while pressing the stoppers (2 places).
Confirm that both stoppers are inserted securely in the panel.

<① Installation of the grille hook>



<② Grille installation>



Caution

- Install the grille hook securely at the panel.
- The inlet grille must be installed starting from the hinge side.
- Install the inlet grille securely. It may drop if it is installed insecurely.
- When the stoppers have been deformed or damaged, repair them immediately. Unless they are repaired properly, the inlet grille may drop off.

⑪ Panel setting

<Louver swing range setting (Individual louver control setting)>

It is possible to change the swing range of the louver by the wired remote control. Once the upper and lower limit positions are set, the louver will swing within the set range. It is also possible to set the different range to each louver.

<Draft prevention setting>

The draft prevention function will not be operated if the draft prevention panel is installed and its wirings are only connected. To operate the draft prevention function, enable the draft prevention setting by using the wired or wireless remote control.

Note: It is not possible to set by the following remote control models or older.

- Wired: RC-EX3, RC-E5, RCH-E3
- Wireless: RCN-E1R

Once you have enabled the settings in this mode, the draft prevention function is operated when the air-conditioner is started, and the parts of the draft prevention mechanism are always open when the air-conditioner is operating. When the air-conditioner is stopped, they are closed. It is possible to enable or disabled the draft prevention function for each air outlet.

For the setting details, refer to the user's manual supplied with the remote control.

FRESH AIR INTAKE (Location for installation) FOR FDTC

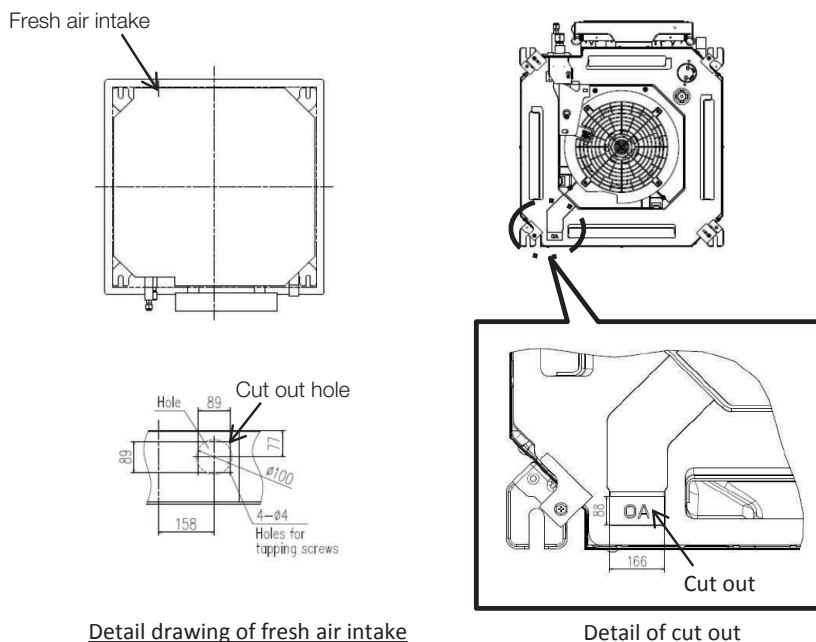
At the time of installation use the duct hole (cut out) located at the positions shown in following diagram, as and when required.

(1) Temperature conditions for OA spacer ⁽¹⁾

- Adjust the temperature conditions of mixed air with outdoor air and indoor air within the usage range of suction air temperature for the air-conditioner.
- The usage temperature conditions of intake outdoor air and indoor air around the ducts are shown in the following table.
- If the temperature conditions of intake outdoor air do not meet, process the outdoor air before intaking.

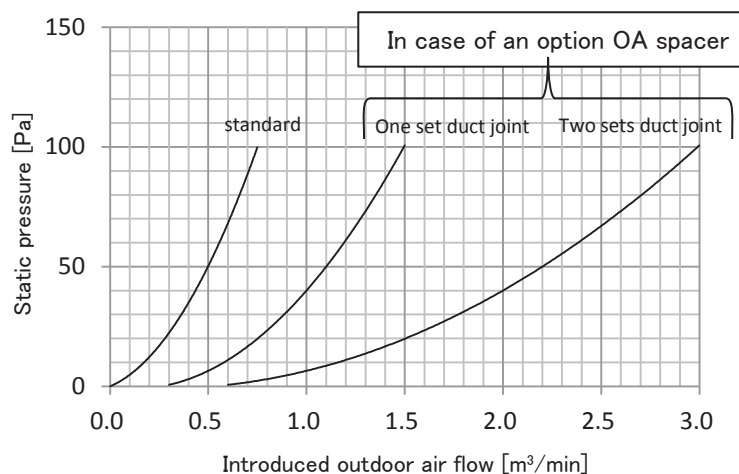
Operation mode	Usage temperature conditions	
	Intake outdoor air	Indoor air around the ducts
In heating	5°C DB or higher	18.5°C WB or lower and 60% RH or lower
In cooling	29°C DB or lower and 80% RH or lower	20°C DB or higher

Note(1) : For the OA spacer, refer to page 167.



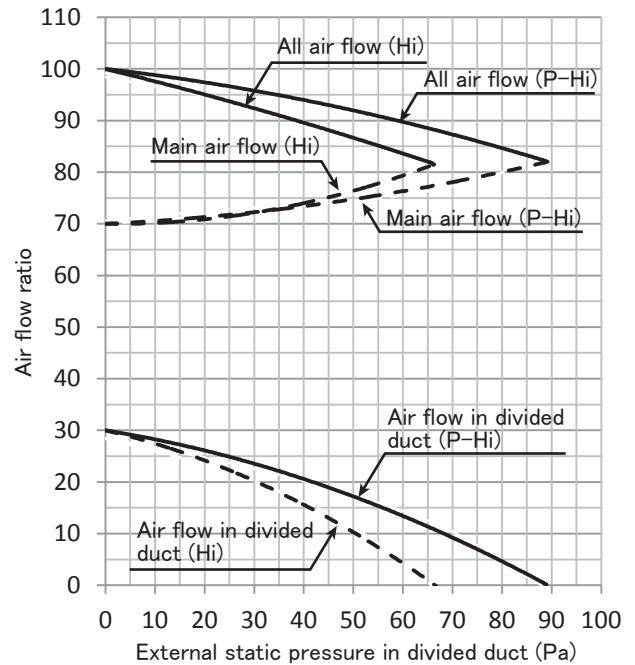
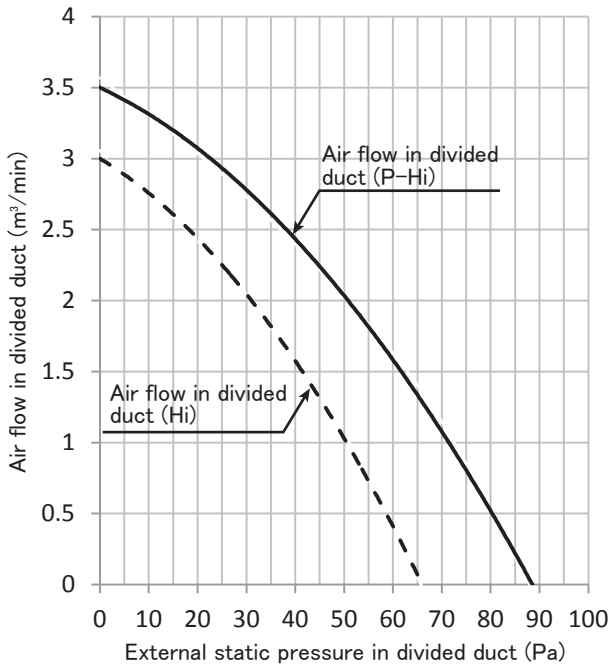
■ Fresh air intake amount & static pressure characteristics

FDTC40, 50, 60VG



CHARACTERISTICS OF AIR FLOW IN DIVIDED DUCT FOR FDTC

Models FDTC40, 50, 60VG



■ Divided duct connection method

1. Open some one during 4 knockout holes, and please connect a divided duct.

It isn't possible to use more than one hole at the same time.

2. Please make the wind shielding a blowout vent or the side where a divided duct was connected.
3. The shortage of the external static pressure by pressure loss for a connected divided duct and blowout unit is made up by a booster fan.

example : When 2.5m³/min of ventilation by divided duct is needed in model FDTC60VG (In case of connection duct ϕ 125 x 5m)

- ① Duct resistance : Pressure loss by a flexible duct =35Pa (7Pa/m x 5m)
 - ② Blowout unit : Pressure loss by a blowout unit =10Pa
 - ③ External static pressure when being 2.5m³/min =17Pa (See upper table.)
- ⇒ Correspondence by a booster fan =①+②-③ =28Pa

PSC012D049

1.9.2 Electric wiring work installation

Electrical wiring work must be performed by an electrician qualified by a local power provider according to the electrical installation technical standards and interior wiring regulations applicable to the installation site.

Security instructions

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, **WARNING** and **CAUTION**.
 - WARNING** : Wrong installation would cause serious consequences such as injuries or death.
 - CAUTION** : Wrong installation might cause serious consequences depending on circumstances. Both mentions the important items to protect your health and safety so strictly follow them by any means.
- The meanings of "Marks" used here are as shown on the right:
 - Never do it under any circumstances.
 - Always do it according to the instruction.
- Accord with following items. Otherwise, there will be the risks of electric shock and fire caused by overheating or short circuit.

WARNING

- Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.

Power source with insufficient capacity and improper work can cause electric shock and fire.
- Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.

Loose connections or hold could result in abnormal heat generation or fire.
- Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel properly.

Improper fitting may cause abnormal heat and fire.
- Use the genuine option parts. And installation should be performed by a specialist.

If you install the unit by yourself, it could cause water leakage, electric shock and fire.
- Do not repair by yourself. And consult with the dealer about repair.

Improper repair may cause water leakage, electric shock or fire.
- Consult the dealer or a specialist about removal of the air-conditioner.

Improper installation may cause water leakage, electric shock or fire.
- Turn off the power source during servicing or inspection work.

If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.
- Shut off the power before electrical wiring work.

It could cause electric shock, unit failure and improper running.

CAUTION

- Perform earth wiring surely.

Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock due to a short circuit.
- Earth leakage breaker must be installed.

If the earth leakage breaker is not installed, it can cause electric shocks.
- Make sure to install earth leakage breaker on power source line. (countermeasure thing to high harmonics.)

Absence of breaker could cause electric shock.
- Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.

Using the incorrect one could cause the system failure and fire.
- Do not use any materials other than a fuse of correct capacity where a fuse should be used.

Connecting the circuit by wire or copper wire could cause unit failure and fire.
- Use power source line of correct capacity.

Using incorrect capacity one could cause electric leak, abnormal heat generation and fire.
- Do not mingle solid cord and stranded cord on power source and signal side terminal block.

In addition, do not mingle difference capacity solid or stranded cord. Inappropriate cord setting could cause losing screw on terminal block, bad electrical contact, smoke and fire.
- Do not turn off the power source immediately after stopping the operation.

Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown.
- Do not control the operation with the circuit breaker.

It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury.

Control mode switching

- The control content of indoor units can be switched in following way. is the default setting)

Switch No.	Control Content	
SW2	Indoor unit address (0-Fh)	
SW5-1	Master/Slave Switching (plural /Slave unit Setting)	
SW5-2		
SW6-1-4	Model capacity setting	
SW7-1	ON	Operation check, Drain motor test run
	OFF	Normal operation

① Electrical Wiring Connection

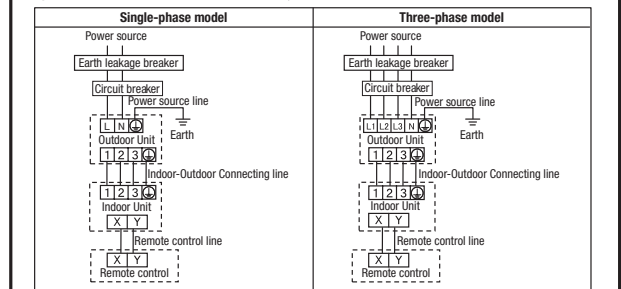
- Electrical wiring work must be performed by an electrician qualified by a local power provider. These wiring specifications are determined on the assumption that the following instructions are observed:
 - ① Do not use cords other than copper ones.
 - Do not use any power source line lighter than one specified in parentheses for each type below.
 - braided cord (code designation 60245 IEC 51), if allowed in the relevant part 2;
 - ordinary tough rubber sheathed cord (code designation 60245 IEC 53);
 - flat twin tinsel cord (code designation 60227 IEC 41);
 - ordinary polyvinyl chloride sheathed cord (code designation 60227 IEC 53);
 - ② Connect the power source to the outdoor unit.
 - ③ Pay extra attention so as not to confuse signal line and power source line connection, because an error in their connection can burn all the boards at once.
- Connect ground wires before connecting wires between the indoor and outdoor units and between indoor units. The ground wires need to be longer than the wires between the indoor and outdoor units, and protected from undue stress.
- Do not turn on the power source before completing the work.
- The ground wires must be connected by the Class D grounding connection.
- Use the round crimp terminals for connections to the terminal block.
- Use dedicated branch circuits, avoiding combination with other devices. Otherwise, it could trip the power source breaker, resulting in secondary accidents.
- Install the overcurrent and earth leakage breakers (sensitivity current: 30 mA) specified to respective models.
- Do not connect indoor and outdoor signal cables to extension cables on the way. If the joint is wetted with intruding water, it could cause a ground insulation failure or poor connection, resulting in communication errors. (If it is inevitable to connect cables on the way, make sure to prevent the water intrusion completely.)
- When running wires (wires for power source, remote control, connecting between indoor and outdoor units, or other) behind the ceiling, protect them using copper or other pipes against assault by rat, or other.
- It is up to 3.5 mm² the size of power source cables connected to indoor units. When using cables of 5.5 mm² or larger, provide a dedicated pull box for branching connection to indoor units.
- If signal and power source cables are connected mistakenly, it could burn down all PCBs.
 - ① Even if the power source of AC 220/240/380/415 V is connected mistakenly to A-B signal cable, it is protected at initial occasion only.
 - ② If the remote control fails to detect the unit No. (address) at 15 minutes after turning the power on, check and repair all signal cables for misconnection.
 - ③ Cut the jumper wire J10SL1 of burnt PCB, and reconnect connectors Crk (yellow) and Crk1 (white) to Crk2 (black).
 - ④ If any anomaly is found on wires between the A-B terminal block and the PCB, replace them.
- At the outside of indoor and outdoor units, take care to avoid direct contacts between remote control and power source cables.
- In no event connect the power source of AC 220/240/380/415 V to the remote control terminal block. It could cause failures.
- Connections of wiring between units, ground wire and remote control cable
 - ① When connecting wires between units, ground wire or remote control wire, connect them according to the number of terminals on the power source terminal block or signal terminal block in the control box. Connect the ground wire to the ground terminal on the power source terminal block.
 - ② Make sure to install an earth leakage breaker for the power source. Select a breaker for inverter circuit.
 - ③ When the earth leakage protection, it is necessary to connect also an isolating switch (Switch + Class B fuse) or wiring circuit breaker in series to the earth leakage breaker.
 - ④ Install the isolating switch close to the unit.
- Connect wires securing by tightening screws firmly. Confirm also no connector or wire (from terminal) is disconnected in the control box.
- When installing an auxiliary electric heater, consult the electric heater manual or technical data.

Cable connection for single unit installation

① As for connecting method of power source, select from following connecting patterns. In principle, do not directly connect power source line to inside unit.

※ As for exceptional connecting method of power source, discuss with the power provider of the country with referring to technical documents, and follow its instruction.

② For cable size and circuit breaker selection, refer to the outdoor unit installation manual.



Cable connection for a V multi configuration installation

- ① Connect the same pairs number of terminal block "①", "②", and "③" and "X" and "Y" between master and slave indoor units.
- ② Do the same address setting of all inside units belong to same refrigerant system by rotary switch SW2 on indoor unit's PCB (Printed circuit board).
- ③ Set slave indoor unit as "slave 1" through "slave 3" by address switch SW5-1, 5-2 on PCB.
- ④ When 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 displayed. 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 indoor unit

(Factory setting: "Master")

Indoor Unit	Master	Slave 1	Slave 2	Slave 3
PCB SW	SW5-1	OFF	OFF	ON
	SW5-2	OFF	ON	OFF

Twin type Triple type Double twin type

② Remote control, wiring and functions

● Do not install it on the following places

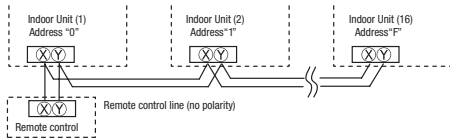
- ① Places exposed to direct sunlight
- ② Places near heat devices
- ③ High humidity places
- ④ Hot surface or cold surface enough to generate condensation
- ⑤ Places exposed to oil mist or steam directly.
- ⑥ Uneven surface

Installation and wiring of remote control

- ① Install remote control referring to the attached installation manual.
- ② Wiring of remote control should use 0.3mm² × 2 core wires or cables.
The insulation thickness is 1mm or more. (on-site configuration)
- ③ 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 0.5mm². Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.
100 - 200m 0.5mm² × 2 cores
Under 300m 0.75mm² × 2 cores
Under 400m 1.25mm² × 2 cores
Under 600m 2.0mm² × 2 cores
- ④ Avoid using multi-core cables to prevent malfunction.
- ⑤ Keep remote control line away from earth (frame or any metal of building).
- ⑥ Make sure to connect remote control line to the remote control and terminal block of indoor unit. (No polarity)

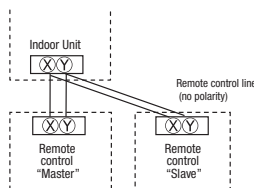
Control plural indoor units by a single remote control

- ① A remote control can control plural indoor units (Up to 16).
- In above setting, all plural indoor units will operate under same mode and temperature setting.
- ② Connect all indoor units with 2 core remote control line.
- ③ Set unique remote control communication address from "0" to "F" to each inside unit by the rotary switch SW2 on the indoor unit's PCB.



Master/ slave setting when more than one remote control unit are used

A maximum of two remote control units can be connected to one indoor unit (or one group of indoor units.)
The air-conditioner operation follows the last operation of the remote control regardless of the master/slave setting of it.
Acceptable combination is "two (2) wired remote controls", "one (1) wired remote control and one (1) wireless kit" or "two (2) wireless kits".
Set one to "Master" and the other to "Slave".
Note: The setting "Remote control unit sensor enabled" is only selectable with the master remote control unit in the position where you want to check room temperature.

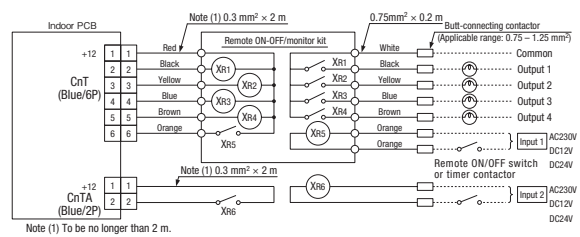


③ Operation and confirmation from remote control

No.	Item	Operation from the eco touch remote control (RC-EX3A)	Operation from the standard remote control (RC-E4, RC-E5)
1	Check the number of units connected in the multi remote control system.	[Menu] ⇒ [Service setting] ⇒ [Service & Maintenance] ⇒ [Service password] ⇒ [IU address]	① Press the [AIR CON No.] button to display the IU address. ② Press the [▲] or [▼] button and check addresses of connected indoor units one by one.
2	Check if each unit is connected properly in the remote control system.	[Menu] ⇒ [Service setting] ⇒ [Service & Maintenance] ⇒ [Service password] ⇒ [IU address] ⇒ [Check run mode]	① Press the [AIR CON No.] button to display the IU address. ② Press the [▲] or [▼] button and select one of IU addresses. ③ Press the [MODE] button. The unit starts to blow air.
3	Setting main/sub remote controls	[Menu] ⇒ [Service setting] ⇒ [R/C function settings] ⇒ [Service password] ⇒ [Main/Sub of R/C]	Set SW1 to "Sub" for the sub remote control unit.
4	Checking operation data	[Menu] ⇒ [Service setting] ⇒ [Service & Maintenance] ⇒ [Service password] ⇒ [Operation data]	Press the [CHECK] button. ⇒ "OPER DATA" is displayed. ⇒ Press the [SET] button. ⇒ "DATA LINKING" is displayed. ⇒ Select one of addresses for connected indoor units by pressing the [▲] or [▼] button. ⇒ Press the [SET] button. ⇒ "DATA LINKING" is displayed. ⇒ Select data by pressing the [▲] or [▼] button.
5	Checking inspection display	[Menu] ⇒ [Service setting] ⇒ [Service & Maintenance] ⇒ [Service password] ⇒ [Error display]	Press the [CHECK] button. ⇒ "OPER DATA" is displayed. ⇒ Press the [▼] button. ⇒ "ERR DATA" is displayed. ⇒ Press the [SET] button. ⇒ "DATA LINKING" is displayed. ⇒ Data is displayed.
6	Cooling test run from remote control	[Menu] ⇒ [Service setting] ⇒ [Installation settings] ⇒ [Service password] ⇒ [Test run] ⇒ [Cooling test run] ⇒ [Start]	① Start the system by pressing the [ON/OFF] button. ② Select "C (Cool)" with the [MODE] button. ③ Press the [TEST] button for 3 seconds or longer. The screen display will switch to "TEST RUN". ④ Pressing the [SET] button, while the "TEST RUN" is displayed, starts the cooling test run. The screen display will switch to "TEST RUN".
7	Trial operation of drain pump from remote control	[Menu] ⇒ [Service setting] ⇒ [Installation settings] ⇒ [Service password] ⇒ [Test run] ⇒ [Drain pump test run] ⇒ [Run]	① Start the system by pressing the [ON/OFF] button. The display will change to "TEST RUN". ② Press the [▼] button once to display "DRAIN PUMP". ③ Pressing the [SET] button starts the drain pump operation. The display will show "DRAIN TO STOP".

The menu configuration may vary depending on models of the remote control. If the model of your remote control is different, refer to the installation manual attached to the remote control.

④ Function of CnT connector of indoor printed circuit board



Note (1) To be no longer than 2 m.

- XR1-4 are DC 12 V relays. (Equivalent to Omron's LY2F)
- XRS is a DC 12 V, 24 V or AC230 V relay. (Equivalent to Omron's MY2F)
- Maker and model of CnT connector (Site side)
Connector : Molex 5264-06
Terminal : Molex 5263T
- CnTA connector is used on FDT, or other. <Check with the specifications.> (Site side) Maker and model
Connector : J.S.T. Mfg. XAP02V-1-E
Terminal : J.S.T. Mfg. SXA-01T-P0.6
- Output 1 - 4 and input1/2 can be selected/set as required from following items.
Factory default is set as shown below.

Output	
① RUN output	⑧ Fan ON output 3
② Heating output	⑨ Defrost/oil return output
③ Compressor ON output	⑩ Ventilation output
④ Inspection (error) output	⑪ Heater output
⑤ Cooling output	⑫ Free cleaning output
⑥ Fan ON output 1	⑬ Indoor overload error output
⑦ Fan ON output 2	

Input	
① RUN/STOP	⑤ Setting temp. shift
② RUN permit prohibition	⑥ Compulsory thermostat OFF
③ Emergency stop	⑦ Temporary stop
④ Cooling/Heating	⑧ Silent mode

Factory default setting					
CnT-2	Output 1	RUN output	CnT-5	Output 4	Inspection (error) output
CnT-3	Output 2	Heating output	CnT-6	Input 1	RUN/STOP
CnT-4	Output 3	Compressor ON output	CnTA	Input 2	RUN/STOP

● For the setting method, refer to the technical data.

⑤ Operation and setting from remote control

A : Refer to the instruction manual for RC-EX series
 B : Refer to the installation manual for RC-EX series
 C : Loading a utility software via Internet

○ : Nearly same function setting and operations are possible.
 △ : Similar function setting and operations are possible.

Setting & display item	Description	RC-EX3A	RC-E5	
1.Remote control network				
1 Control plural indoor units by a single remote control	A remote control can control plural indoor units up to 16 (in one group of remote control network). An address is set to each indoor unit.		○	
2 Main/sub setting of remote controls	A pair of remote controls (including optional wireless remote control) can be connected within the remote control network. Set one to "Main" and the other to "Sub".	B	○	
2.TOP screen, Switch manipulation				
1 Menu	"Control", "State", or "Details" can be selected. (3-8)	A		
2 Operation mode	"Cooling", "Heating", "Fan", "Dry" or "Auto" can be set.	A	○	
3 Set temp.	"Set temperature" can be set by 0.5°C interval.	A	○	
4 Air flow direction	"Air flow direction" (Individual flap control) can be set. Select Enable or Disable for the "3D AUTO" (in case of FDK).	A	△	
5 Fan speed	"Fan speed" can be set.	A	○	
6 Timer setting	"Timer operation" can be set.	A	○	
7 ON/OFF	"On/Off operation of the system" can be done.	A	○	
8 F1 SW	The system operates and is controlled according to the function specified to the F1 switch.	A		
9 F2 SW	The system operates and is controlled according to the function specified to the F2 switch.	A		
3.Useful functions				
1 Individual flap control	The moving range (the positions of upper limit and lower limit) of the flap for individual flap can be set. Set also the left and right limit positions for FDK.	A	△	
2 Anti draft setting When the panel with the anti-draft function is assembled.	When the panel with the anti draft function is assembled, select to Enable or Disable the anti draft setting for each operation mode and for each blow outlet.	A		
3 Timer settings	Set On timer by hour	The period of time to start operation after stopping can be set. • The period of set time can be set within range of 1hour-12hours (1hr interval). • The operation mode, set temp and fan speed at starting operation can be set.	A	△
	Set Off timer by hour	The period of time to stop operation after starting can be set. • The period of set time can be set within range of 1hour-12hours (1hr interval).	A	△
	Set On timer by clock	The clock time to start operation can be set. • The set clock time can be set by 5 minutes interval. • [Once (one time only)] or [Everyday] operation can be switched. • The operation mode, set temp and fan speed at starting operation can be set.	A	△
	Set Off timer by clock	The clock time to stop operation can be set. • The set clock time can be set by 5 minutes interval. • [Once (one time only)] or [Everyday] operation can be switched.	A	△
Confirmation of timer settings	Status of timer settings can be seen.	A		
4 Favorite setting [Administrator password]	Set the operation mode, setting temperature, air flow capacity and air flow direction for the choice setting operations. Set them for the Favorite set 1 and the Favorite set 2 respectively.	A		
5 Weekly timer	On timer and Off timer on weekly basis can be set. • 8-operation patterns per day can be set at a maximum. • The setting clock time can be set by 5 minutes interval. • Holiday setting is available. • The operation mode, set temp and fan speed at starting operation can be set.	A	△	
6 Home leave mode [Administrator password]	When leaving home for a long period like a vacation leave, the unit can be operated to maintain the room temperature not to be hotter in summer or not to be colder in winter. • The judgment to switch the operation mode (Cooling⇄Heating) is done by the both factors of the set temp. and outdoor air temp. • The set temp. and fan speed can be set.	A		
7 External Ventilation When the ventilator is combined.	On/Off operation of the external ventilator can be done. It is necessary to set from [Menu] ⇒ [Service setting] ⇒ [R/C function settings] ⇒ [Ventilation setting]. • If the "Independent" is selected for the ventilation setting, the ventilator can be operated or stopped.	A	○	
8 Select the language	Select the language to display on the remote control. • Select from English, German, French, Spanish, Italian, Dutch, Turkish, Portuguese, Russian, Polish, Japanese and Chinese.	A		
4.Energy-saving setting				
1 Sleep timer	To prevent the timer from keeping ON, set hours to stop operation automatically with this timer. • The selectable range of setting time is from 30 to 240 minutes. (10 minutes interval) • When setting is "Enable", this timer will activate whenever the ON timer is set.	A	△	
2 Peak-cut timer	Power consumption can be reduced by restructuring the maximum capacity. Set the [Start time], the [End time] and the capacity limit % (Peak-cut %). 4-operation patterns per day can be set at maximum. • The setting time can be changed by 5-minutes interval. • The selectable range of capacity limit % (Peak-cut %) is from 0% to 40-80% (20% interval) • Holiday setting is available.	A		
3 Automatic temp set back	After the elapse of the set time period, the current set temp. will be set back to the [Set back time.] • The setting can be done in cooling and heating mode respectively. • Selectable range of the set time is from 20 min. to 120 min. (10 min. interval). • Set the [Set back temp.] by 1°C interval.	A	△	
4 Infrared sensor control (Motion sensor control) When the panel with the infrared sensor (motion sensor) is assembled.	When the infrared sensor (motion sensor) is used, it is necessary to set Enable or Disable for the "Power control" and the "Auto-off".	A		
5.Filter				
1 Filter sign reset	Filter sign reset	A		
	Setting next cleaning date	A		
6.User setting				
1 Internal settings	Clock setting	The current date and time can be set or revised. • If a power failure continues no longer than 80 hours, the clock continues to tick by the built-in power source.	A	△
	Date and time display	[Display] or [Hide] the date and/or time can be set, and [12H] or [24H] display can be set.	A	
	Summer time	When select [Enable], the +1hour adjustment of current time can be set. When select [Disable], the [Summer time] adjustment can be reset.	A	
	Contrast	The contrast of LCD can be adjusted higher or lower.	A	
	Backlight	Switching on/off a light can be set and period of the lighting time can be set within the range of 5sec-90 sec (5sec interval).	A	
	Control sound	It can set with or without [Control sound (beep sound)] at touch panel.	A	
2 Administrator settings [Administrator password]	Operation lamp luminance	This is used to adjust the luminance of operation lamp.	A	
	Permission/Prohibition setting	• Permission/Prohibition setting of operation can be set. [On/Off] [Change set temp] [Change operation mode] [Change flap direction] [Change fan speed] [High power operation] [Energy-saving operation] [Timer] Request for administrator can be set. [Individual flap control] [Weekly timer] [Select the language] [Anti draft setting]	A	△
	Outdoor unit silent mode timer	The period of time to operate the outdoor unit by prioritizing the quietness can be set. • The [Start time] and the [End time] for operating outdoor unit in silent mode can be set. • The period of the operation time can be set once a day by 5 minutes interval.	A	△
	Setting temp. range	The upper/lower limit of temp. setting range can be set. • The limitation of indoor temp. setting range can be set for each operation mode in cooling and heating.	A	△
	Temp increment setting	The temp. increment setting can be changed by 0.5°C or 1.0°C.	A	
Set temp. display	Ways of displaying setting temperatures can be selected.	A		

⑤ Operation and setting from remote control (continued)

Setting & display item		Description	RC-E3A	RC-E5
2 Administrator settings [Administrator password]	R/C display setting	Register [Room name] [Name of I/U] Display [Indoor temp. display] or not. Display [Error code display] or not. Display [Heating stand-by display] [Defrost operation display] [Auto cooling/heating display] [Display temp of R/C, Room, Outdoor] or not	A	△
	Change administrator password	The administrator password can be changed. (Default setting is "0000") The administrator password can be reset.	A B	
	F1/F2 function setting	Functions can be set for F1 and F2. Selectable functions: [High power operation], [Energy-saving operation], [Silent mode cont.], [Home leave mode], [Favorite set 1], [Favorite set 2] and [Filter sign reset].	A	
7. Service setting				
1 Installer settings [Service password]	Installation date	The [Installation date] can be registered. • When registering the [Installation date], the [Next service date] is displayed automatically. (For changing the [Next service date], please refer the item of [Service & Maintenance])	B	
	Company information	The [Company information] can be registered and can be displayed on the R/C. • The [Company] can be registered within 26 characters. • The [Phone No.] can be registered within 13 digits.	B	
	Test run	On/Off operation of the test run can be done.		
	Cooling test run	The [Cooling test run] can be done at 5°C of set temp. for 30 minutes.	B	○
	Drain pump test run	Only drain pump can be operated.		
	Static pressure adjustment	In case of combination with only the ducted indoor unit which has a function of static pressure adjustment, the static pressure is adjustable. • It can be set for each indoor unit individually.	B	
	Change auto-address	The set address of each indoor unit decided by auto-address setting method can be changed to any other address. (For multiple KX units only)	B	△
	Address setting of main IU	Main indoor unit address can be set. • Only the Main indoor unit can change operation mode and the Sub indoor units dominated by the Main indoor shall follow. • The Main indoor unit can domain 10 indoor units at a maximum.	B	△
	IU back-up function	When a pair of indoor units (2 groups) is connected to one unit of remote control, it can be set Enable or Disable for the [IU rotation], [IU capacity back-up] and [IU fault back-up]	B	
	Infrared sensor setting (Motion sensor setting) When the panel with the infrared sensor (motion sensor) is assembled.	Set Enable or Disable for the infrared sensor detectors of indoor units connected to the remote control. If Disable is selected, it cannot be control the infrared sensor control for the energy-saving setting.	B	
2 R/C function setting [Service password]	Main/Sub R/C	The R/C setting of [Main/Sub] can be changed.	B	○
	Return air temp.	When two or more indoor units are connected to one unit of remote control, suction sensors, which are used for the judgement by thermostat, can be selected. • It can be selected from [Individual], [Master IU] and [Average temp].	B	
	R/C sensor	It can be set the mode to switch to the remote control sensor. It can be selected from cooling and heating.	B	△
	R/C sensor adjustment	The offset value of [R/C sensor] sensing temp. can be set respectively in heating and cooling.	B	△
	Operation mode	Enable or Disable can be set for each operation mode.	B	△
	°C / °F	Set the unit for setting temperatures. • °C or °F can be selected.	B	
	Fan speed	Fan speeds can be selected.	B	○
	External input	When two or more indoor units are connected to one unit of remote control, the range to apply CnT inputs can be set.	B	○
	Upper/lower flap control	[Stop at fixed position] or [Stop at any position] can be selected for the upper and lower louvers.	B	○
	Left/right flap control	[Fixed position stop] or [Stop at any position] can be selected for the right and left louvers.	B	
	Ventilation setting	Combination control for ventilator can be set.	B	○
	Auto-restart	The operation control method after recovery of power failure happened during operation can be set.	B	○
	Auto temp setting	[Enable] or [Disable] of [Auto temp setting] can be selected.	B	
	Auto fan speed	[Enable] or [Disable] of [Auto fan speed] can be selected.	B	
3 IU settings [Service password]	Fan speed setting	The fan speed for indoor units can be set.	B	○
	Filter sign	The setting of filter sign display timer can be done from following patterns.	B	○
	External input 1	The connect of control by external input 1 can be changed.	B	○
	External input 1 signal	The type of external input 1 signal can be changed.	B	○
	External input 2	The connect of control by external input 2 can be changed.	B	
	External input 2 signal	The type of external input 2 signal can be changed.	B	
	Heating thermo-OFF temp adjustment	The judgement temp. of heating thermo-off can be adjusted within the range from 0 to +3°C (1°C interval)	B	△
	Return temperature adjustment	The sensing temp. of return air temp. sensor built in the indoor unit can be adjusted within the range of ±2°C.	B	△
	Fan control in cooling thermo-OFF	Fan control, when the cooling thermostat is turned OFF, can be changed.	B	○
	Fan control in heating thermo-OFF	Fan control, when the heating thermostat is turned OFF, can be changed.	B	○
	Anti-frost temp.	Judgment temperature for the anti-frost control during cooling can be changed.	B	○
	Anti-frost control	When the anti-frost control of indoor unit in cooling is activated, the fan speed can be changed.	B	○
	Drain pump operation	In any operation mode in addition to cooling and dry mode, the setting of drain pump operation can be done.	B	○
	Keep fan operating after cooling is stopped	The time period residual fan operation after stopping or thermo-off in cooling mode can be set.	B	○
	Keep fan operating after heating is stopped	The time period residual fan operation after stopping or thermo-off in heating mode can be set.	B	○
	Intermittent fan operation in heating	The fan operation rule following the residual fan operation after stopping or thermo-off in heating mode can be set.	B	○
	Fan circulator operation	In case that the fan is operated as the circulator, the fan control rule can be set.	B	
	Control pressure adjust	When only the OA processing units are operated, control pressure value can be changed.	B	
	Auto operation mode	The [Auto rule selection] for switching the operation mode automatically can be selected from 3 patterns.	B	
	Thermo. rule setting	When selecting [Outdoor air temp. control], the judgment temp. can be offset by outdoor temp..	B	
Auto fan speed control	Auto switching range for the auto fan speed control can be set.	B		
IU overload alarm	If the difference between the setting temperature and the suction temperature becomes larger than the temperature difference set for the overload alarm, at 30 minutes after the start of operation, the overload alarm signal is transmitted from the external output (CnT-5).	B		
External output setting	Functions assigned to the external outputs 1 to 4 can be changed.	B		
4 Service & Maintenance [Service password]	IU address	Max 16 indoor units can be connected to one remote control, and all address No. of the connected indoor units can be displayed. • The indoor unit conforming to the address No. can be identified by selecting the address No. and tapping [Check] to operate the indoor fan.	B	○
	Next service date	The [Next service date] can be registered. • The [Next service date] and [Company information] is displayed on the message screen.	A B	○
	Operation data	The [Operation data] for indoor unit and outdoor unit can be displayed.	B	○
	Error display			
	Error history	The error history can be displayed.		
	Display anomaly data	The operation data just before the latest error stop can be displayed.	B	△
	Erase anomaly data	Anomaly operation data can be erased.		
	Reset periodical check	The timer for the periodical check can be reset.		
Saving IU settings	The IU settings memorized in the indoor PCB connected to the remote control can be saved in the memory of the remote control.	B		
Special settings	[Erase IU address] [CPU reset] [Restore of default setting] [Touch panel calibration]	B	△	
Indoor unit capacity display	Address No. and capacities of indoor units connected to the remote control are displayed.	B		
8. Contact company				
9. Inspection				
Confirmation of Inspection	This is displayed when any error occurs.	A	△	
10. PC connection				
[USB connection]	Weekly timer setting and etc., can be set from PC.	C		



◆ Listed items may not function depending on the specifications of indoor and outdoor units which are combined.

1.9.3 Installation of wired remote control (Option parts)

(1) Model RC-EX3A

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 mm². 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

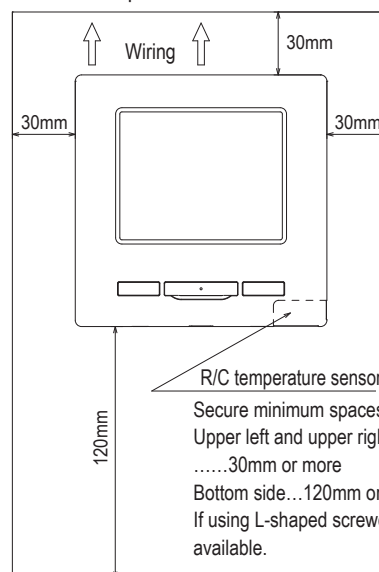
Secure the installation space shown in the figure.

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



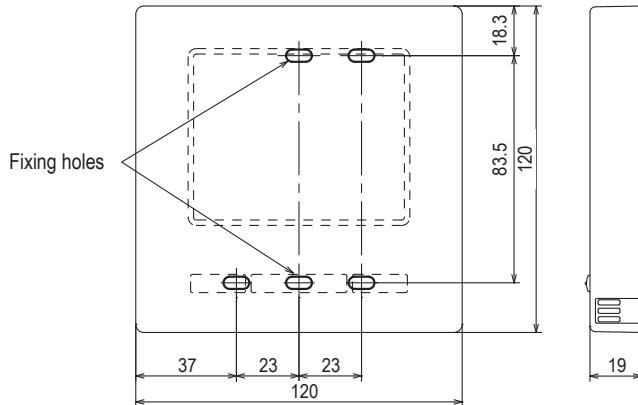
R/C temperature sensor

Secure minimum spaces for disassembling the case.
 Upper left and upper right sides
30mm or more
 Bottom side...120mm or more
 If using L-shaped screwdriver, 50mm or more is available.

4 . Installation procedure

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

Dimensions (Viewed from front)



To disassemble the R/C case into the upper and lower pieces after assembling them once

- Insert the tip of flat head screwdriver 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 screwdriver be wrapped with tape to avoid damaging the case.

Take care to protect the removed upper case from moisture or dust.

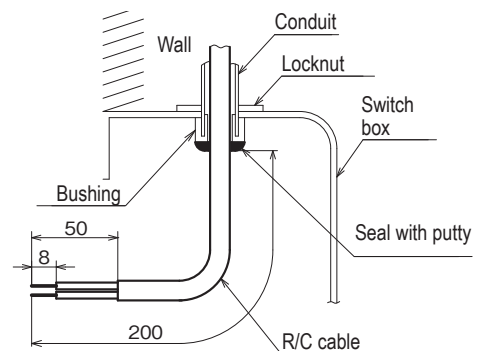
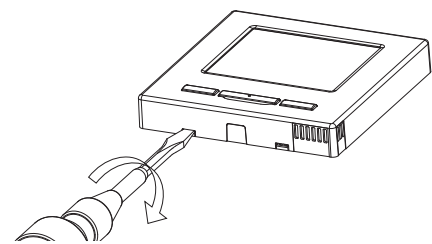
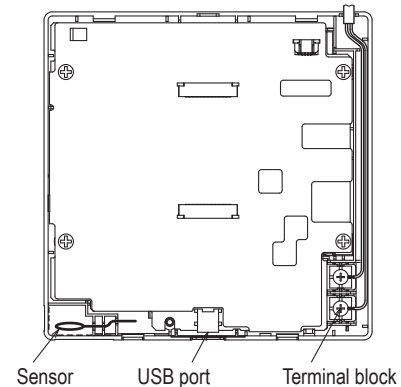
In case of embedding wiring

(When the wiring is retrieved "Backward")

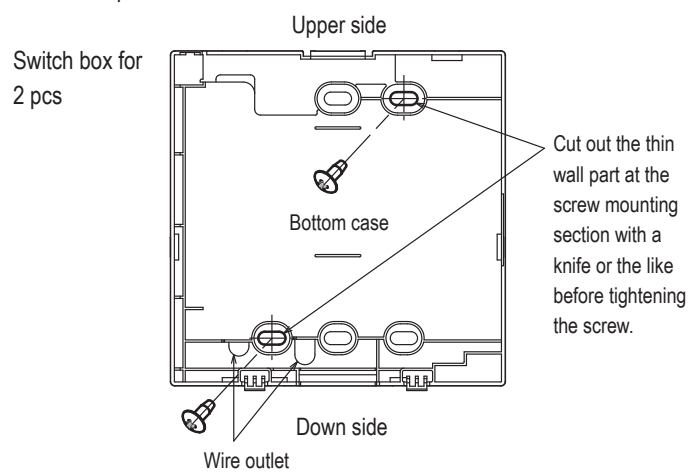
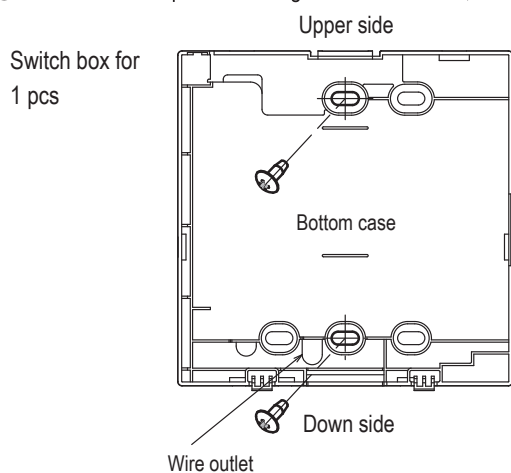
① Embed the switch box and the R/C wires beforehand.

Seal the inlet hole for the R/C wiring with putty.

PCB side (Viewed from rear)



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



- 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

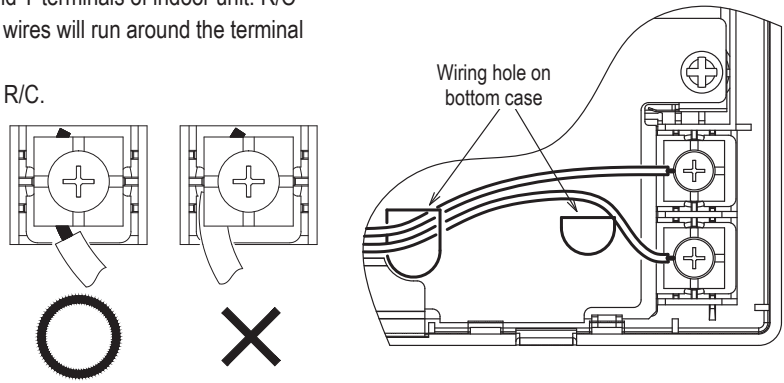
Use wires of no larger than 0.5 mm² for wiring running through the remote control case. Take care not to pinch the sheath.

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.

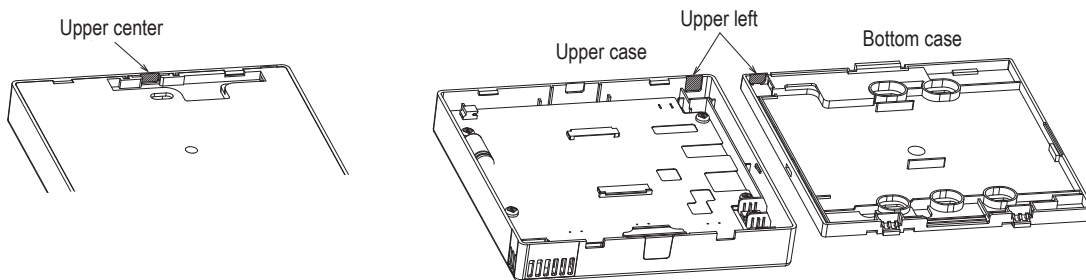
In case of exposing wiring

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

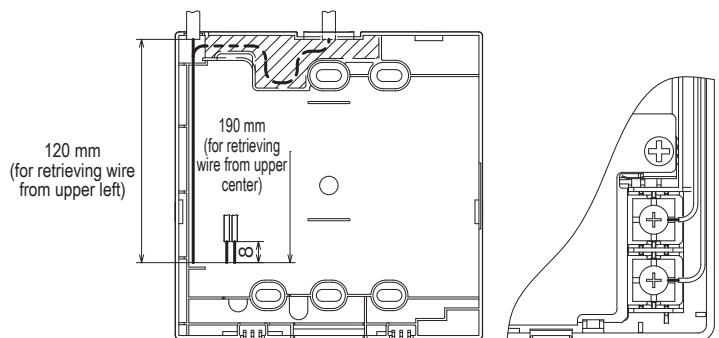
- ① Cut out the thin wall sections on the cases for the size of wire.



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.

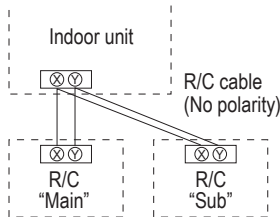


5 . Main/Sub setting when more than one remote control are used

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.



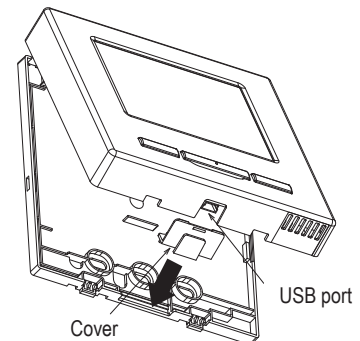
R/C operations		Main	Sub	
Run/Stop, Change set temp., Change flap direction, Auto swing, Change fan speed operations		○	○	
High power operation, Energy-saving operation		○	○	
Silent mode control		○	×	
Useful functions	Individual flap control	○	×	
	Anti draft setting	○	×	
	Timer	○	○	
	Favorite setting	○	○	
	Weekly timer	○	×	
	Home leave mode	○	×	
	External ventilation	○	○	
	Select the language	○	○	
	Silent mode control	○	×	
	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	○	○		

○ : operable × : not operable

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	○	×	
		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	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.



Advice: Initializing of password

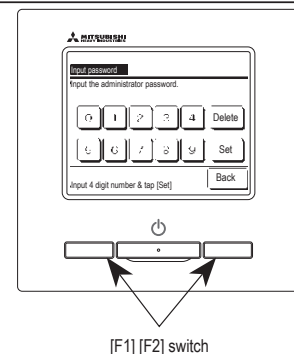
Administrator password (for daily setting items) and service password (for installation, test run and maintenance) are used.

○ 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.



Advice



When connecting two or more FDT/FDTC to one R/C, unify the panel type either to a panel with anti draft function or a standard panel.

PJA012D730 

(2) Model RC-E5

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.

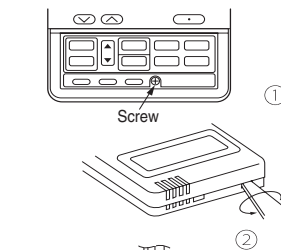
(1) Places exposed to direct sunlight	(4) Hot surface or cold surface enough to generate condensation
(2) Places near heat devices	(5) Places exposed to oil mist or steam directly
(3) High humidity places	(6) Uneven surface


- Do not leave the remote control without the upper case.
In case the upper case 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 (ø3.5x16) 2 pieces
Prepare on site	Remote control cord (2 cores) the insulated thickness in 1mm or more. [In case of embedding cord] Electrical box, M4 screw (2 pieces) [In case of exposing cord] Cord clamp (if needed)

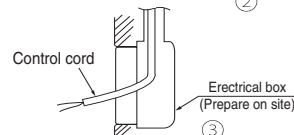
Installation procedure

- 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.

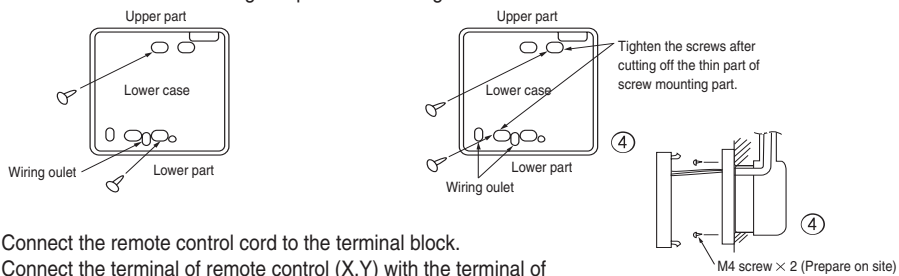


[In case of embedding cord]

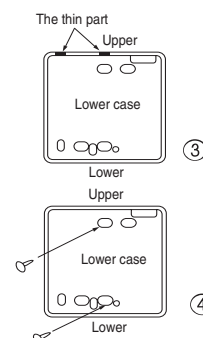
- ③ Embed the electrical box and remote control cord beforehand.



- ④ Prepare two M4 screws (recommended length is 12-16mm) on site, and install the lower case to electrical box. Choose either of the following two positions in fixing it with screws.



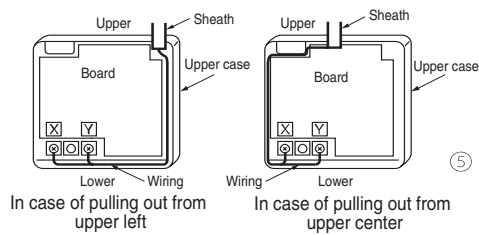
- ⑤ Connect the remote control cord to the terminal block.
Connect the terminal of remote control (X,Y) with the terminal of indoor unit (X,Y). (X and Y are no polarity)
- ⑥ Install the upper case as before so as not to catch up the remote control cord, and tighten with the screws.



[In case of exposing cord]

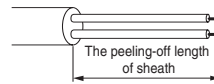
- ③ You can pull out the remote control cord from left upper part or center upper part.
Cut off the upper thin part of remote control lower case with a nipper or knife, and grind burrs with a file etc.
- ④ Install the lower case to the flat wall with attached two wooden screws.

- 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.



The wiring inside the remote control case should be within 0.3mm² (recommended) to 0.5mm².
 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	X wiring : 170mm
Y wiring : 195mm	Y wiring : 190mm



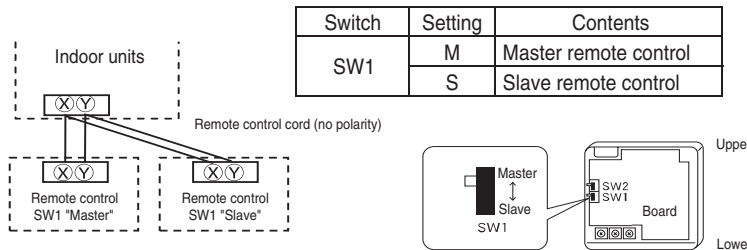
- ⑥ Install the upper case as before so as not to catch up the remote control cord, and tighten with the screws.
 ⑦ In case of exposing cord, fix the cord on the wall with cord clamp so as not to slack.

Installation and wiring of remote control

- ① Wiring of remote control should use 0.3mm² × 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, 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.
- | | |
|------------|-------------------------------|
| 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.)



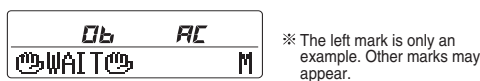
Set SW1 to "Slave" for the slave remote control. It was factory set to "Master" for shipment.
 Note: The setting "Remote control sensor enabled" is only selectable with the master remote control in the position where you want to check room temperature.
 The air-conditioner operation follows the last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



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.

- When ⑫ TEMP 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.

- When ⑫ TEMP 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**

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

The indication changes to "FUNCTION SET ▼".

- Press button once, and change to the "TEMP RANGE ▲" indication.

- Press (SET) button, and enter the temperature range setting mode.

- Select "UPPER LIMIT ▼" or "LOWER LIMIT ▲" by using button.

- Press (SET) button to fix.

- 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 ▼".

- 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)

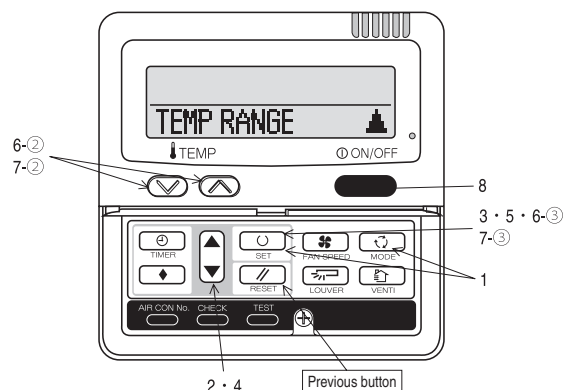
③ Press (SET) button to fix. Indication for example: "LOWER 24°C" (Displayed for two seconds)

After the fixed lower limit value displayed for two seconds, the indication will return to "LOWER LIMIT ▼".

- Press button to finish.

• It is possible to finish by pressing button on the way, but unfinished change of setting is unavailable.

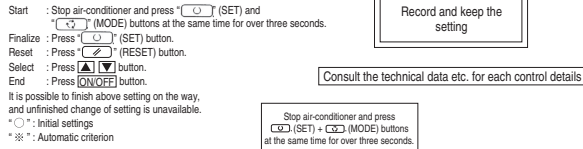
• During setting, if you press (RESET) button, you return to the previous screen.



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]



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	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	INVALID	Indoor unit with only one of air flow setting
Remote control function07	LOUVER SW	VALID	Indoor unit with automatically swing louver
	INVALID	INVALID	Indoor unit without automatically swing louver
Remote control function13	1/1 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	Indoor unit with only one of air flow setting
Remote control function15	MODEL TYPE	HEAT PUMP	Heat pump unit
	COOLING ONLY	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 / PROHIBITION".

Function	setting	Function	setting
01 ESP SET	VALID ○ INVALID ※	02 FAN SPEED SET	STANDARD ※ HIGH SPEED 1 ※ HIGH SPEED 2 ※
02 AUTO RUN SET	AUTO RUN ON ※ AUTO RUN OFF ※	03 FILTER SIGN SET	INDICATION OFF ○ TYPE 1 ○ TYPE 2 ○ TYPE 3 ○ TYPE 4 ○
03 TEMP SW	VALID ○ INVALID ○	04 POSITION	POSITION STOP ○ FREE STOP ○
04 MODE SW	VALID ○ INVALID ○	05 EXTERNAL INPUT	LEVEL INPUT ○ PULSE INPUT ○
05 ON/OFF SW	VALID ○ INVALID ○	06 PERMISSION/PROHIBITION	INVALID ○ VALID ○
06 FAN SPEED SW	VALID ※ INVALID ※	07 EMERGENCY STOP	INVALID ○ VALID ○
07 LOUVER SW	VALID ○ INVALID ※	08 SP OFFSET	OFFSET +3.0℃ ○ OFFSET +2.0℃ ○ OFFSET +1.0℃ ○ NO OFFSET ○
08 TIMER SW	VALID ○ INVALID ○	09 RETURN AIR TEMP	OFFSET +2.0℃ ○ OFFSET +1.5℃ ○ NO OFFSET ○ OFFSET -1.0℃ ○ OFFSET -1.5℃ ○ OFFSET -2.0℃ ○
09 SENSOR SET	SENSOR OFF ○ SENSOR ON ○ SENSOR +3.0℃ ○ SENSOR +2.0℃ ○ SENSOR +1.0℃ ○ SENSOR -1.0℃ ○ SENSOR -2.0℃ ○ SENSOR -3.0℃ ○	10 FAN CONTROL	LOW FAN SPEED ○ SET FAN SPEED ○ INTERMITTENCE ○ FAN OFF ○
10 AUTO RESTART	INVALID ○ VALID ○	11 FROST PREVENTION TEMP	TEMP HIGH ○ TEMP LOW ○
11 VENT LINK SET	NO VENT ○ VENT LINK ○ NO VENT LINK ○	12 FROST PREVENTION CONTROL	FAN CONTROL ON ○ FAN CONTROL OFF ○
12 TEMP RANGE SET	INDEN CHANGE ○ NO INDEN CHANGE ○	13 DRAIN PUMP LINK	○ ○ ○ AND ○ ○ ○ AND ○ AND ○ ○
13 1/1 FAN	HI-MID-LO ※ HI-LO ※ HI-MID ※ 1 FAN SPEED ※	14 SP FAN REMAINING	NO REMAINING ○ 0.5 HOUR ○ 1 HOUR ○ 2 HOUR ○ 6 HOUR ○
14 POSITION	POSITION STOP ○ FREE STOP ○	15 SP FAN REMAINING	NO REMAINING ○ 0.5 HOUR ○ 1 HOUR ○ 2 HOUR ○ 6 HOUR ○
15 MODEL TYPE	HEAT PUMP ※ COOLING ONLY ※	16 SP FAN INTERMITTENCE	NO REMAINING ○ 5min/OFF 5min/ON ○ 5min/OFF 10min/ON ○ 5min/OFF 15min/ON ○
16 EXTERNAL CONTROL SET	INDIVIDUAL ○ FOR ALL UNITS ○	17 PRESSURE CONTROL	STANDARD ※ LOW ※
17 ROOM TEMP INDICATION SET	INDICATION OFF ○ INDICATION ON ○		
18 SIGN INDICATION	INDICATION ON ○ INDICATION OFF ○		
19 SET SET	℃ ○ ℉ ○		

Note2: Fan setting of "HIGH SPEED"

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

[Initial function setting of some indoor unit is "HIGH SPEED".

The filter sign is indicated after running for 180 hours.
The filter sign is indicated after running for 600 hours.
The filter sign is indicated after running for 1000 hours.
The filter sign is indicated after running for 1000 hours, then the indoor unit will be stopped by computation after 24 hours.

If you change the indoor function "04 POSITION", you must change the remote control function "14 POSITION" accordingly. You can select the lower stop position in the four. The lower can stop at any position.

With the VRF series, it is used to stop all indoor units connected with the same outdoor unit immediately. When stop signal is inputted from remote on-off terminal "CNT-6", all indoor units are stopped immediately.

To be reset for producing +3.0℃ increase in temperature during heating.
To be reset for producing +2.0℃ increase in temperature during heating.
To be reset for producing +1.0℃ increase in temperature during heating.

To be reset producing +2.0℃ increase in return air temperature of indoor unit.
To be reset producing +1.5℃ increase in return air temperature of indoor unit.
To be reset producing +1.0℃ increase in return air temperature of indoor unit.

To be reset producing -1.0℃ increase in return air temperature of indoor unit.
To be reset producing -1.5℃ increase in return air temperature of indoor unit.
To be reset producing -2.0℃ increase in return air temperature of indoor unit.

When heating thermostat is OFF, fan speed is low speed.
When heating thermostat is OFF, fan speed is set speed.

When heating thermostat is OFF, fan speed is operated intermittently.
When heating thermostat is OFF, the fan is stopped.
When the remote thermostat is working, "FAN OFF" is set automatically.
Do not set "FAN OFF" when the indoor unit's thermostat is working.

Change of indoor heat exchanger temperature to start frost prevention control.

Working only with the Single split series.
To control frost prevention, the indoor fan tap is raised.

Drain pump is run during cooling and dry.
Drain pump is run during cooling, dry and heating.
Drain pump is run during cooling, dry, heating and fan.
Drain pump is run during cooling, dry and fan.

After cooling is stopped is OFF, the fan does not perform extra operation.
After cooling is stopped is OFF, the fan perform extra operation for half an hour.
After cooling is stopped is OFF, the fan perform extra operation for an hour.
After cooling is stopped is OFF, the fan perform extra operation for two hours.
After cooling is stopped is OFF, the fan perform extra operation for six hours.

After heating is stopped or heating thermostat is OFF, the fan does not perform extra operation.
After heating is stopped or heating thermostat is OFF, the fan perform extra operation for half an hour.
After heating is stopped or heating thermostat is OFF, the fan perform extra operation for two hours.
After heating is stopped or heating thermostat is OFF, the fan perform extra operation for six hours.

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.
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.

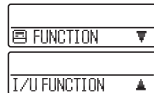
Connected "OA Processing" type indoor unit, and is automatically defined.

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.
Select "FUNCTION ▼" (remote control function) or "I/U FUNCTION ▲" (indoor unit function).



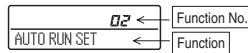
5. Press (SET) button.

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

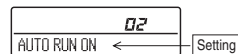
- ① "DATA LOADING" (Indication with blinking)

↓
Display is changed to "01 ESP SET".

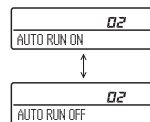
- ② Press or button.
"No. and function" are indicated by turns on the remote control function table, then you can select from them.
(For example)



- ③ Press (SET) button.
The current setting of selected function is indicated.
(for example) "AUTO RUN ON" ← If "02 AUTO RUN SET" is selected



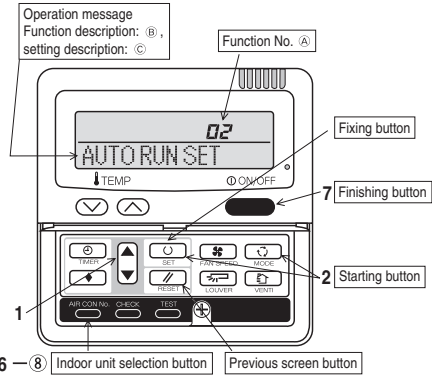
- ④ Press or button.
Select the setting.



- 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.



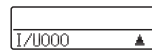
【On the occasion of indoor unit function selection】

- ① "DATA LOADING" (Blinking for 2 to 23 seconds to read the data)

↓
Indication is changed to "02 FAN SPEED SET".
Go to ②.

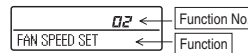
[Note]

- (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.

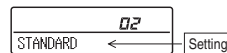


- (2) Press or button.
Select the number of the indoor unit you are to set
If you select "ALL UNIT ▼", you can set the same setting with all unites.
- (3) Press (SET) button.

- 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 function" 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.)

1.9.4 Installation of outdoor unit

(1) Models SRC40-60ZSX-S

RWC012A060 

Model SRC20,25,35,40,50,60ZSX-S
SRC20,25,35ZSX-SA
R410A REFRIGERANT USED

• This installation manual deals with an outdoor unit installation only. For an indoor unit installation, refer to page 45.

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.



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 outdoor unit)	Q'ty	Locally procured parts	Tools for installation work		
(1) Drain grommet 	4	(a) Anchor bolt(M10-M12)×4 pcs	Plus headed driver	Spanner wrench	Vacuum pump*
(2) Drain elbow 	1	(b) Putty	Knife	Torque wrench [14.0-62.0N·m(1.4-6.2kg* <i>m</i>)]	Gauge manifold *
		(c) Electrical tape	Saw	Wrench key (Hexagon) [4mm]	Charge hose *
		(d) Connecting pipe	Tape measure	Flaring tool set *	Vacuum pump adapter* (Anti-reverse flow type)
		(e) Connecting cable	Pipe cutter	Flare adjustment gauge	Gas leak detector *
		(f) Power cable			
		(g) Clamp and screw (for finishing work)			

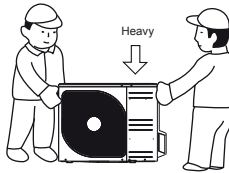
*Not included for SRC20, 25, or 35ZSX-SA.

*Designed specifically for R410A

2. OUTDOOR UNIT INSTALLATION

1. Haulage

- Always carry or move the unit with two or more persons.
 - The right hand side of the unit as viewed from the front (outlet side) is heavier.
- A person carrying the right hand side must take care of this fact. A person carrying the left hand side must hold the handle provided on the front panel of the unit with his right hand and the corner column section of the unit with his left hand.



CAUTION

When a unit is hauled, take care of its gravity center position which is shifted towards right hand side. If the unit is not hauled properly, it can go off balance and fall resulting in serious injury.

2. Selecting the installation location

Select the suitable installation location where:

- Unit will be stable, horizontal and free of any vibration transmission.
- There is no obstacle which can prevent smooth air circulation from inlet and outlet side of the unit.
- There is enough space for service and maintenance of unit.
- Neighbours are not bothered by noise or air generating from the unit.
- Outlet air of the unit does not blow directly to animals or plants.
- Drain water can be discharged properly.
- There is no risk of flammable gas leakage.
- There are no other heat sources nearby.
- Unit is not directly exposed to rain or sunlight.
- Unit is not directly exposed to oil mist and steam.
- Chemical substances like ammonia (organic fertilizer), calcium chloride (snow melting agent) and acid (sulfurous acid etc.), which can harm the unit, will not generate or accumulate.
- Unit is not directly exposed to corrosive gases (like sulphide gas, chloride gas), sea breeze or salty atmosphere.
- No TV set or radio receiver is placed within 1m.
- Unit is not affected by electromagnetic waves and/or high-harmonic waves generated by other equipments.
- Strong wind does not blow against the unit outlet.
- Heavy snowfalls do not occur (If installed, provide proper protection to avoid snow accumulation).

NOTE

If the unit is installed in the area where there is a possibility of strong wind or snow accumulation, the following measures are required.

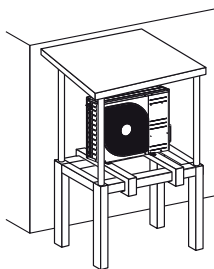
(1) Location of strong wind

- Place the unit with its outlet side facing the wall.
- Place the unit such that the direction of air from the outlet gets perpendicular to the wind direction.



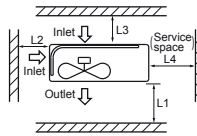
(2) Location of snow accumulation

- Install the unit on the base so that the bottom is higher than snow cover surface.
- Install the unit under eaves or provide the roof on site.



3. Installation space

- There must be 1 meter or larger space between the unit and the wall in at least 1 of the 4 sides. Walls surrounding the unit from 4 sides is not acceptable. The wall height on the outlet side should be 1200 mm or less. Refer to the following figure and table for details.



		(mm)			
Example installation		I	II	III	IV
Size	L1	Open	280	280	180
	L2	100	75	Open	Open
	L3	100	80	80	80
	L4	250	Open	250	Open

NOTE

When more than one unit are installed side by side, provide a 250mm or wider interval between them as a service space.

CAUTION

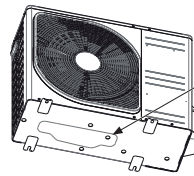
When more than one unit are installed in parallel directions, provide sufficient inlet space so that short-circuiting may not occur.

4. Drain piping work (If necessary)

Carry out drain piping work by using a drain elbow and a drain grommet supplied separately as accessories if condensed water needs to be drained out.

- Install drain elbow and drain grommet.
- Seal around the drain elbow and drain grommet with putty or adequate caulking material.

<SRC20/25/35/40/50/60ZSX-S>

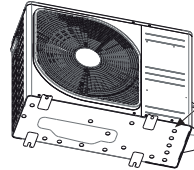


Do not put a grommet on this hole. This is a supplementary drain hole to discharge drain water, when a large amount of it is gathered.

CAUTION

Do not use drain elbow and drain grommet if there is a possibility to have several consecutive days of sub zero temperature. (There is a risk of drain water freezing inside and blocking the drain.)

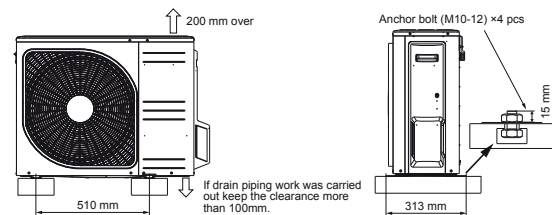
<SRC20/25/35ZSX-SA>



Do not block the drain holes when installing the outdoor unit.

5. Installation

- Install the unit on a flat level base.
- While installing the unit, keep space and fix the unit's legs with 4 anchor bolts as shown in the figure below. The protrusion of an anchor bolt from the foundation surface must be kept within 15mm.



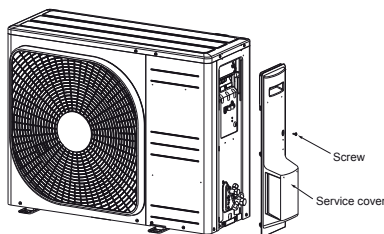
CAUTION

- Install the unit properly so that it does not fall over during earthquake, strong wind, etc.
- Make sure that unit is installed on a flat level base. Installing unit on uneven base may result in unit malfunction.

3. PREPARATION FOR WORK

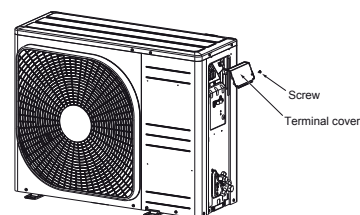
1. Removing service cover

Remove the screw. Slide service cover downwards and remove it.



2. Removing terminal cover

Remove the screw and take out terminal cover.

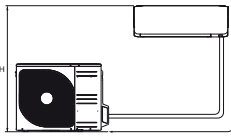


4. CONNECTING PIPING WORK

1. Restrictions on unit installation

Abide by the following restrictions on unit installation. Improper installation can cause compressor failure or performance degradation.

	Dimensional restrictions	
	Model SRC20/25/35	Model SRC40/50/60
Connecting pipe length(L)	25m or less	30m or less
Elevation difference between indoor and outdoor units(H)*	15m or less	20m or less



* Outdoor unit installation position can be higher as well as lower than the indoor unit installation position.

2. Preparation of connecting pipe

2.1. Selecting connecting pipe

Select connecting pipe according to the following table.

	Model SRC20/25/35	Model SRC40/50/60
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).

NOTE

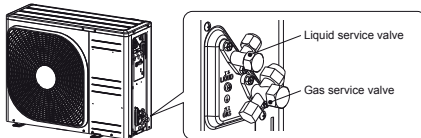
If it is required to reuse the existing connecting pipe system, refer to 5. UTILIZATION OF EXISTING PIPE.

2.2. 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.

3. Piping work

Check that both liquid and gas service valves are fully closed. Carry out the piping work with service valves fully closed.



3.1. Flaring pipe

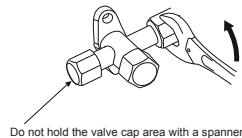
- (1) Take out flare nuts from the service valves of outdoor unit and engage them onto connecting pipes.
- (2) Flare the pipes according to table and figure shown below. Flare dimensions for R410A are different from those for conventional refrigerant. Although it is recommended to use the flaring tools 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	Rigid (clutch) type	
		R410A	Conventional
ø6.35	9.1		
ø9.52	13.2	0-0.5	1.0-1.5
ø12.7	16.6		

3.2. Connecting pipes

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

Service 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



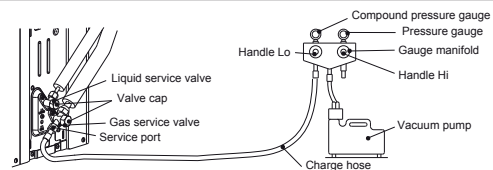
CAUTION

- 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.

4. Evacuation

- (1) Connect vacuum pump to gauge manifold. Connect charge hose of gauge manifold to service port of outdoor unit.
- (2) Run the vacuum pump for at least one hour after the vacuum gauge shows -0.1MPa (-76cm Hg).
- (3) Confirm that the vacuum gauge indicator does not rise even if the system is left for 15 minutes or more. Vacuum gauge indicator will rise if the system has moisture left inside or has a leakage point. Check the system for the leakage point. If leakage point is found, repair it and return to (1) again.
- (4) Close the Handle Lo and stop the vacuum pump. Keep this state for a few minutes to make sure that the compound pressure gauge pointer does not swing back.
- (5) Remove valve caps from liquid service valve and gas service valve.
- (6) Turn the liquid service valve's rod 90 degree counterclockwise with a hexagonal wrench key to open valve. Close it after 5 seconds, and check for gas leakage. Using soapy water, check for gas leakage from indoor unit's flare and outdoor unit's flare and valve rods. Wipe off all the water after completing the check.
- (7) Disconnect charging hose from gas service valve's service port and fully open liquid and gas service valves. (Do not attempt to turn valve rod beyond its stop.)
- (8) Tighten service valve caps and service port cap to the specified torque shown in the table below.

Service valve size (mm)	Service valve cap tightening torque (N·m)	Service port cap tightening torque (N·m)
ø6.35 (1/4")	20-30	10-12
ø9.52 (3/8")		
ø12.7 (1/2")	25-35	



CAUTION

- To prevent the entering of different oil into the refrigeration system, do not use tools designed for any other refrigerant type (R22, R407C, etc.).
- To prevent vacuum pump oil from entering into the refrigerant system, use a counterflow prevention adapter.

5. Additional refrigerant charge

Additional refrigerant charge is required only when connecting pipe length exceeds 15 m.

5.1 Calculating additional refrigerant charge

Additional refrigerant charge can be calculated using the formula given below. Additional refrigerant charge (g) = { Connecting pipe length (m) - Factory charged length 15 (m) } x 20 (g/m)

NOTE

- If additional refrigerant charge calculation result is negative, there is no need to remove the refrigerant.
- If refrigerant recharge is required for the unit with connecting pipe length 15m or shorter, charge the factory charged volume as shown in the table below.

	Model SRC 20/25/35	Model SRC40/50/60
Factory charged volume(kg)	1.45	1.50

5.2 Charging refrigerant

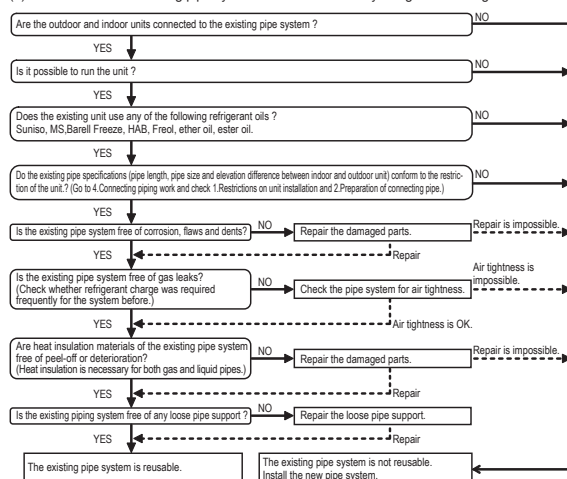
- (1) Charge the R410A refrigerant in liquid phase from service port with both liquid and gas service valves shut. Since R410A refrigerant must be charged in the liquid phase, make sure that refrigerant is discharged from the cylinder in the liquid phase all the time.
- (2) When it is difficult to charge a required refrigerant volume, fully open both liquid and gas service valves and charge refrigerant, while running the unit in the cooling mode. When refrigerant is charged with the unit being run, complete the charge operation within 30 minutes.
- (3) Write the additional refrigerant charge calculated from the connecting pipe length on the label attached on the service cover.

CAUTION

Running the unit with an insufficient quantity of refrigerant for a long time can cause unit malfunction.

5. UTILIZATION OF EXISTING PIPE

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



NOTE

- Consult with our distributor in the area, if you need to recover refrigerant and charge it again.
- (2) Clean the existing pipe system according to the procedure given below.
 - (a) Carry out forced cooling operation of existing unit for 30 minutes. For "Forced cooling operation" refer to the indoor unit installation manual.
 - (b) Stop the indoor fan and carry out forced cooling operation for 3 minutes (Liquid return).
 - (c) Close the liquid service valve of the outdoor unit and carry out pump down operation (Refer to 6. PUMP DOWN).
 - (d) Blow with nitrogen gas. If discolored refrigeration oil or any foreign matter is discharged by the blow, wash the pipe system or install a new pipe system.
- (3) Remove the flare nuts from the existing pipe system. Go back to 4. Connecting Piping work and proceed to step 2.2 Cutting connecting pipe.

CAUTION

Do not use the old flare nuts (of existing unit). Make sure that the flare nuts supplied with the (new) outdoor unit are used.

* If the existing piping is specified as liquid pipe ø9.52 or gas pipe ø12.7, refer to the following. (SRC40.50 and 60 only)

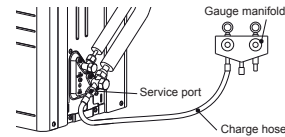
<Table of pipe size restrictions>

Additional charge volume per meter of pipe		0.06kg/m
Pipe size	Liquid pipe	ø9.52
	Gas pipe	ø12.7
Maximum one-way pipe length		10
Length covered without additional charge		5

Additional charge volume (kg) = (Main pipe length (m) - Length covered without additional charge shown in the table (m)) X Additional charge volume per meter of pipe shown in the table (kg/m)

6. PUMP DOWN

- Connect charge hose of gauge manifold to service port of outdoor unit.
- Close the liquid service valve with hexagonal wrench key.
- Fully open the gas service valve with hexagonal wrench key.
- Carry out forced cooling operation (For forced cooling operation procedure, refer to indoor unit installation manual).
- When the low pressure gauge becomes 0.01MPa, close the gas service valve and stop forced cooling operation.



7. ELECTRICAL WIRING WORK

⚠ WARNING

- Make sure that all the electrical work is carried out in accordance with the national or regional electrical standards.
- Make sure that the earth leakage breaker and circuit breaker of appropriate capacities are installed (Refer to the table given below).
- Do not turn on the power until the electrical work is completed.
- Do not use a condensive capacitor for power factor improvement under any circumstances. (It does not improve power factor. Moreover, it can cause an abnormal overheat accident).

Breaker specifications

Model	Phase	Earth leakage breaker	Circuit breaker
SRC20/25/35	Single phase	Leakage current: 30mA, 0.1sec or less	Over current: 16A
SRC40/50/60			Over current: 20A

Main fuse specification

Model	Specification	Parts No.	Code on LABEL,WIRING
SRC20/25/35	250V 15A	SSA564A136	F7
SRC40/50/60	250V 20A	SSA564A136A	F4

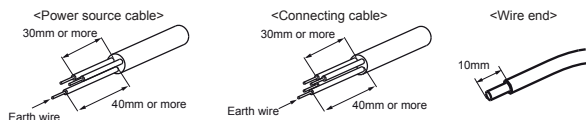
1.Preparing cable

- Selecting cable
Select the power source cable and connecting cable in accordance with the specifications mentioned below.

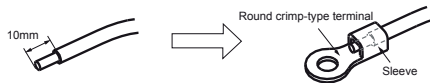
- Power source cable
3-core* 2.0mm² or more, conformed with 60245 IEC57(CENELEC H05RN-F)
When selecting the power source cable length, make sure that voltage drop is less than 2%.
If the wire length gets longer, increase the wire diameter.

- Connecting cable
4-core* 1.5mm², conformed with 60245 IEC57(CENELEC H05RN-F)
* 1 Earth wire is included (Yellow/Green)

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



- 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.



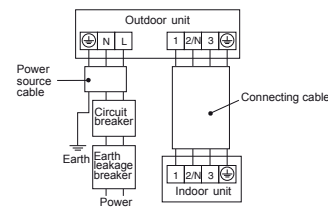
⚠ CAUTION

Power source cable and connecting cable must conform to the specifications mentioned in the manual. Using cables with wrong specifications may result in unit malfunction.

2.Connecting cable

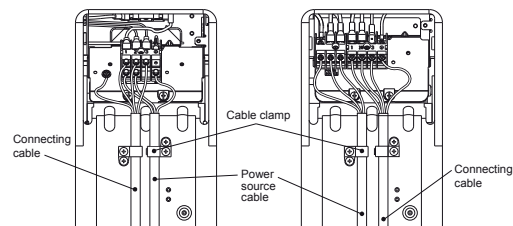
- Remove the service cover.
- Connect the cables according to the instructions and figures given below.
 - Connect the earth wire of power source cable.
An earth wire must be connected before connecting the other wires of power source cable. Keep the earth wire longer than the remaining two wires of power source cable.
 - Connect the remaining two wires (N and L) of power source cable.
 - Connect the wires of connecting cable. Make sure that for each wire, outdoor and indoor side terminal numbers match.
- Fasten the cables properly with cable clamps so that no external force may work on terminal connections.
Moreover, make sure that cables do 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.

<Circuit diagram>



<SRC20/25/35>

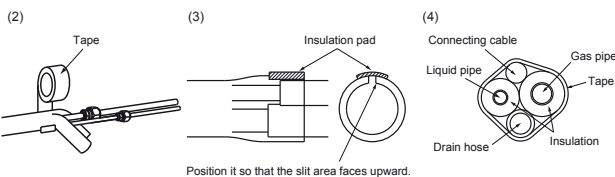
<SRC40/50/60>



8. FINISHING WORK

1. Heating and condensation prevention

- 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.
- Wrap the refrigerant pipings of indoor unit with indoor unit heat insulation using tape.
- 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).
- Wrap the connecting pipes, connecting cable and drain hose with the tape.



NOTE

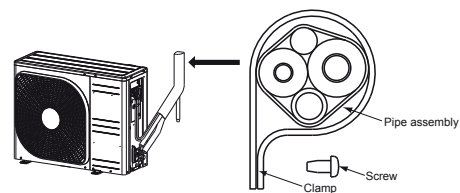
Locations where relative humidity exceeds 70%, both liquid and gas pipes need to be dressed with 20mm or thicker heat insulation materials.

⚠ 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.

2.Finishing work

- 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.
- 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.
- 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.

9. INSTALLATION TEST CHECK POINTS

After finishing the installation work, check the following points again before turning on the power. Conduct test run (Refer to indoor unit installation manual) and ensure that the unit operates properly.

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.	
Drain hose (if installed) is fixed properly.	
Screw of the service cover is tightened properly.	

PSC012D062F

Inverter driven single split PAC
71V
Designed for R410A refrigerant



Check before installation work

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

(2) Model FDC71VNX

- This installation manual deals with outdoor units and general installation specifications only. For indoor units, refer to page 45.
- 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
- 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



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 the instruction manual.**
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.**
Unstable 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.**
Unstable 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.

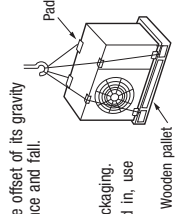
- **Do not perform brazing work in the airtight room**
It can cause lack of oxygen.
- **Use the prescribed pipes, flare nuts and tools for R410A.**
Using existing parts (for R22 or R407C) can cause the unit failure and serious accidents due to burst of the refrigerant circuit.
- **Tighten the flare nut 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 evaporator 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 optional 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
	<ul style="list-style-type: none"> ● Do not use the base frame for outdoor unit which is corroded or damaged due to long periods of operation. Using an old and damaged base frame can cause the unit falling down and cause personal injury. ● Do not install the unit in the locations listed below <ul style="list-style-type: none"> • 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 with insecticides or special sprays are often used • Locations with heat recovery or hot water system 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 frame 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 ammoniac atmospheres • Locations where heat radiation from other heat source can affect the unit • Locations with any obstacles which can prevent intake and outlet air of the unit • Locations where there are short-circuiting can occur (such as electric cable insulation) • Locations where there are short-circuiting in the 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. <ul style="list-style-type: none"> • Locations where discharged hot air or operating sound of the outdoor unit can bother neighborhood • Locations where the unit is installed in a place where the unit is not intended to be installed. The unit may affect adversely to the plant etc. • Locations where vibration can be amplified and transmitted due to insufficient strength of structure. • Locations where vibration and operating 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 damage cannot run off safely. • Locations where damage surrounding environment and cause a claim It can affect surrounding environment and cause a claim ● Do not use fire 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 injury from a fall of the article. ● Do not step onto the outdoor unit You may incur injury from a drop or fall.
	<ul style="list-style-type: none"> ● 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 it 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 accordance with EN61820-1-1 ● Take care when carrying the unit by hand. If the unit weighs 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 enters 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 packaging 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 sulfuric 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, leakage 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 an 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.
	<ul style="list-style-type: none"> ● Notabilia as a unit designed for R410A <ul style="list-style-type: none"> ● 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)	Protusion 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

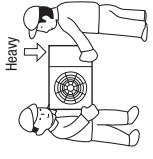


When a unit is hoisted with slings for haulage, take into consideration the offset of its gravity center position. If not properly balanced, the unit can be thrown off-balance and fall.

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.

2) Determination of pipe size

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

		Model 7TV	
Outdoor unit connected	Gas pipe	φ15.88	φ9.52
	Liquid pipe	φ9.52	φ9.52
Refrigerant piping (branch pipe/L)			
In the case of a single type	Indoor unit connected	φ15.88	φ9.52
	Capacity of indoor unit	Model 7TV	
In the case of a twin type	Branching pipe set	DIS-WA1	
	Refrigerant piping (branch pipe L1, L2)	φ12.7	φ9.52
	Indoor unit connected	φ12.7	φ6.35
Capacity of indoor unit		Model 40V×2	

CAUTION

- When the 40V 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 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.

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.

Pipe diameter [mm]	6.35	9.52	12.7	15.88
Minimum pipe wall thickness [mm]	0.8	0.8	0.8	1.0
Pipe material*	O-type pipe	O-type pipe	O-type pipe	O-type pipe

- Select pipes having a wall thickness larger than the specified minimum pipe thickness.
- *Phosphorus deoxidized seamless copper pipe C1220T, JIS H 3300

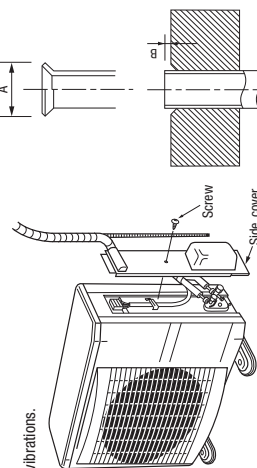
4) On-site piping work

- 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.

IMPORTANT

How to remove the side cover

Please remove the screw of a side cover and remove to the front.



- 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.
- Band 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 1.3m or less to isolate the vibration.
- Tighten a flare joint securely with a double spanner.

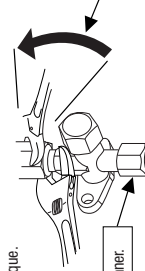
Do not apply force beyond proper fastening torque in tightening the flare nut.

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

CAUTION

Use a torque wrench. If a torque wrench is not available, fasten the flare nut manually first and then tighten it further, using the left table as a guide.

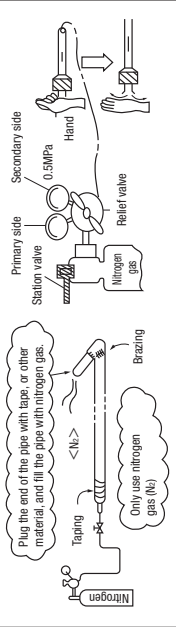


Do not hold the valve cap area with a spanner.

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.



Flared pipe end: A (mm)	0	9.1	13.2	16.6	19.7
Copper pipe outer diameter	φ6.35	φ9.52	φ12.7	φ15.88	

Copper pipe protrusion for flaring: B (mm)

Copper pipe outer diameter	With an R410A tool	With a conventional tool
φ6.35	0-0.5	0.7-1.3
φ9.52		
φ12.7		
φ15.88		

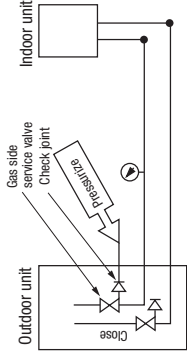
Use a torque wrench. If a torque wrench is not available, fasten the flare nut manually first and then tighten it further, using the left table as a guide.



Do not hold the valve cap area with a spanner.

5) Air tightness test

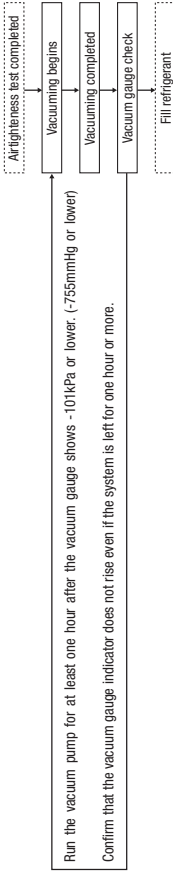
- ① Although outdoor and indoor units themselves have been tested for air tightness at the factory, check the connecting pipes after the installation work for air tightness from the service valve's check joint equipped on the outdoor unit side. While conducting a test, keep the service valve shut all 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°C, 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.



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.

Model	Standard refrigerant charge volume (kg)	Pipe length for standard refrigerant charge volume (m)	Additional charge volume (kg) per meter of refrigerant piping (liquid pipe, φ6.35)	Refrigerant volume charged for shipment at the factory (kg)	Installation's pipe length (m) covered without additional refrigerant charge
Model 7TV	2.35	20	0.06	2.95	30

- This unit contains factory charged refrigerant covering 30m of refrigerant piping and additional refrigerant charge on the installation site is not required for an installation with up to 30m refrigerant piping. When refrigerant piping exceeds 30m, additionally charge an amount calculated from the pipe length and the above table for the portion in excess of 30m.
- When refrigerant piping is shorter than 3m, reduce refrigerant by 1kg from the factory charge volume and adjust to 1.95kg.

If an existing pipe system is used, a required refrigerant charge volume will vary depending on the liquid pipe size. For further information, please see "6. UTILIZATION OF EXISTING PIPING."

Formula to calculate the volume of additional refrigerant required

$$\text{Additional charge volume (kg)} = \{ \text{Main pipe length (m)} - \text{Length covered without additional charge (30 m)} \} \times 0.06 \text{ (kg/m)} + \text{Total length of branch pipes (m)} \times 0.06 \text{ (kg/m)}$$

- For an installation measuring 3m or longer, but not more than 20m, in pipe length, please charge the standard refrigerant charge volume, when you recharge refrigerant after servicing etc.
- When refrigerant piping is shorter than 3m, recharge 1.95kg of refrigerant.

Ex.) For a 10m installation, charge 2.35 kg of refrigerant.
For a 25m installation, charge "2.35 + (25-20) x 0.06 = 2.65 kg."

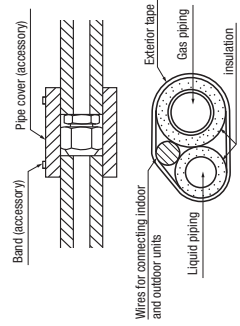
(2) Charging refrigerant

- 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

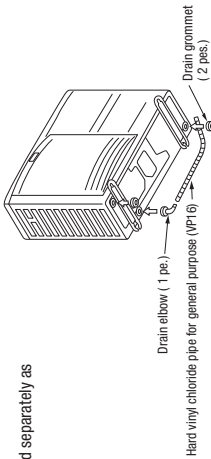
- (1) Dress refrigerant pipes (both gas and liquid pipes) for heat insulation and prevention of dew condensation.
 - Improper heat insulation/anti-dew dressing can result in a water leak or dripping causing damage to household effects, etc.
- (2) Use a heat insulating material that can withstand 120°C or a higher temperature. Poor heat insulating capacity can cause heat insulation problems or cable deterioration.
 - 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%.**



*When an additional charge volume calculation result is negative, it is not necessary to charge refrigerant additionally.

3. DRAIN PIPING WORK

- Execute drain piping by using a drain elbow and drain grommets supplied separately as optional parts, where water drained from the outdoor unit is a problem.



- There are 3 drain holes provided on the bottom plate of an outdoor unit to discharge condensed water.
- When condensed water needs to be led to a drain, etc., install the unit on a flat base (supplied separately as an optional part) or concrete blocks.
- Connect a drain elbow as shown in the illustration and close the other two drain holes with grommets.

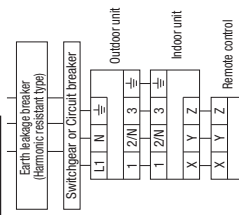
4. ELECTRICAL WIRING WORK For details of electrical cabling, refer to the indoor unit installation manual.

- 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 tinned 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 improper grounded, an electric shock or malfunction may result.
 - A grounding wire must be connected before connecting 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 accident such as an electric shock or a fire.
 - Do not turn on the power until the electrical work is completed.
 - Do not use a condensive capacitor for power factor improvement under any circumstances. (It does 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 they 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.

Power cable, indoor-outdoor connecting wires

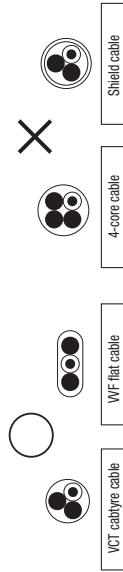
- Always perform grounding system installation work with the power cord unplugged.

CAUTION Always use an earth leakage circuit breaker designed for inverter circuits to prevent a faulty operation.

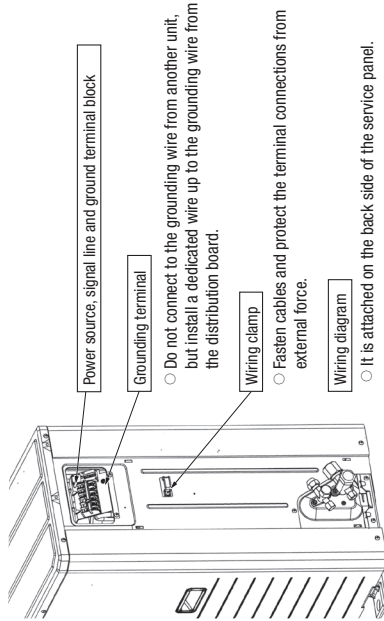


Model	Power source	Power cable thickness (mm ²)	MAX. over current (A)	Cable length (m)	Grounding wire thickness	Indoor-outdoor wire thickness X number
71V	Single phase 3 wire 220-240V 50Hz	3.5	17	21	φ1.6mm	φ1.6mm x 3

- 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.



- 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.



- Do not connect to the grounding wire from another unit, but install a dedicated wire up to the grounding wire from the distribution board.
- Fasten cables and protect the terminal connections from external force.
- It is attached on the back side of the service panel.

PSC012D066H
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 45.
 Ⓞ 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.

<p> Never do it under any circumstance.</p> <p>● For 3 phase power source outdoor unit, ENG1000-3-2 is not applicable if consent by the utility company or notification to the utility company is given before usage.</p> <p>● 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.</p> <p>● 5 and 6 HP units of single phase power source are equipment complying with IEC 61000-3-12.</p> <p>● 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.</p> <p>● 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</p>	<p> Always do it according to the instruction</p>
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Check before installation work

[Accessory]

 Edging	 1 piece	knock-out hole protection
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- Model name and power source
- Refrigerant piping length
- Piping, wiring and miscellaneous small parts
- Indoor unit installation manual

WARNING

<p> 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.</p> <p>● Install the system in full accordance with the instruction manual. Incorrect installation may cause bursts, personal injury, water leaks, electric shocks and fire.</p> <p>● 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.</p> <p>● When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the event of leakage according with ISO5148. Once the expert safety 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.</p> <p>● 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.</p> <p>● After completed installation, check that no refrigerant leaks from the system. If refrigerant leaks into the room and comes into contact with an open or other hot surface, poisonous gas is produced.</p> <p>● Hang up the unit at the specified points with ropes which can support the weight in wiring for portage. Avoid to avoid pulling out or 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.</p> <p>● 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.</p> <p>● 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.</p> <p>● 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.</p> <p>● 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.</p> <p>● Be sure to use the cables conforming to safety standard and cable assembly for power distribution work. Unconformable cables can cause electric leak, anomalous heat production or fire.</p> <p>● Use the prescribed cables for electrical connection, tighten the cables securely in terminal block and relieve the cables correctly to prevent loose connections or cable routings can cause anomalous heat production or fire.</p> <p>● 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.</p>	<p> Do not perform brazing work in the airtight room It can cause lack of oxygen.</p> <p>● Use the prescribed pipes, flare nuts and tools for R410A. Using existing parts (for R22 or R407D) can cause the unit failure and serious accidents due to burst of the refrigerant circuit.</p> <p>● 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.</p> <p>● 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 personal injury from an operation and air can be sucked into refrigerant circuit, which can cause burst or personal injury due to anomalously high pressure in the refrigerant.</p> <p>● Only use prescribed optional 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.</p> <p>● Do not perform any change of protective device itself or its setup condition The forced operation by short-circuiting, protective device or pressure switch and temperature controller or the use of non specified component can cause fire or burst.</p> <p>● 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.</p> <p>● Consult the dealer or an expert regarding removal of the unit. Incorrect installation can cause water leaks, electric shocks or fire.</p> <p>● 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.</p> <p>● 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.</p> <p>● 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.</p> <p>● Be sure to fix up the service panels. Incorrect fixing can cause electric shocks or fire due to intrusion of dust or water.</p> <p>● 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.</p>
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CAUTION



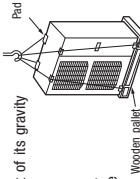
	<p>● Carry out the electrical work for ground lead with care Do not connect the ground lead to the gas line, water line, lightning conductor or telephone line's ground lead. Incorrect grounding can cause unit faults such as electric shocks due to short-circuiting. Never connect the grounding wire to a gas pipe because it gas leaks, it could cause explosion or fire.</p>
	<p>● Use the circuit breaker for all jobs with correct capacity. Using the incorrect circuit breaker, it can cause the unit malfunction and fire.</p>
	<p>● Do not use the base frame for outdoor unit which is corroded or damaged due to long periods of operation. Using an old and damaged base frame can cause the unit falling down and cause personal injury.</p> <p>● Do not install the unit in the locations listed below</p> <ul style="list-style-type: none"> Locations where carbon fiber, metal powder or any powder is floating. Locations where any substances that can affect the unit such as sulphide gas, chlorine gas, acid and alkaline can occur. Vehicles and ships. Locations where cosmetic or special sprays are often used. Locations where 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 heavy snow (if installed, be sure to provide base frame 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 ammonia, atmospheres (e.g. organic fertilizer). Locations where the unit is exposed to direct sunlight or strong ultraviolet light. 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 flows against the air outlet of outdoor unit. Locations where the unit is exposed to rain. Locations where drainage cannot run off safely. Locations where drainage cannot run off safely. <p>It can affect surrounding environment and cause a claim</p> <p>● Do not install the outdoor unit in the locations listed below.</p> <ul style="list-style-type: none"> Locations where outdoor unit can bother neighborhood Locations where outer air of the outdoor unit blows directly to animal or plants. The outer 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) <p>It can affect surrounding environment and cause a claim</p> <p>● Do not use the unit for special purposes such as storing tools, cooling precision instruments and preservation of animals, plants or art. It can cause the damage of the items.</p> <p>● Do not touch any buttons with wet hands It can cause electric shocks</p> <p>● 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.</p> <p>● Do not clean up the unit with water It can cause electric shocks</p> <p>● Do not operate the outdoor unit with any article placed on it. You may incur property damage or personal injury from a fall of the article.</p> <p>● Do not step onto the outdoor unit. You may incur injury from a drop or fall.</p>
	<p>● Do not install the unit near the location where leakage of combustible gases can occur. Combustible gas can cause corrosion of heat exchanger, leakage of plastic parts and etc. And combustible gas can cause fire.</p> <p>● 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.</p> <p>● When the outdoor units 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.</p> <p>● Do not install nor use the system close to the equipment that generates electromagnetic fields or high frequency harmonics Equipment such as inverters, sanitary 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.</p> <p>● Do not install the outdoor unit in a location where insects and small animals can invade. Insects and small animals can enter the electric parts and cause damage of fire. Instruct the user to keep the surroundings clean.</p>

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)

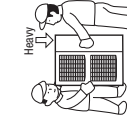
Dedicated R410A tools	
a)	Gauge manifold
b)	Charge hose
c)	Electronic scale for refrigerant charging
d)	Torque wrench
e)	Flare tool
f)	Profusion control copper pipe gauge
g)	Vacuum pump adapter
h)	Gas leak detector

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.)



1) Delivery

- 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.
- 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 reduce the unit weight and will not allow vibration transmission of the unit.
 - A place where it can be free from possibility of both noise neighbors due to noise or exhaust air from the unit.
 - A place where it can be free from exposure to oil splashes.
 - A place where drain water can be disposed without any trouble.
 - A place where snow will not accumulate.
 - 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 chemical substances like sulfuric gas, chlorine gas, acid and alkali (including ammonia), which can harm the unit, are not present.
 - 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.

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 provide the roof on site.

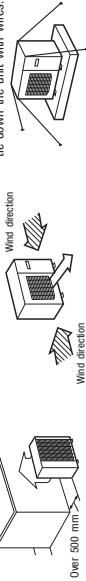


Since drain water generated by defrost control may freeze, following measures are required.

- Don't execute drain piping work by using a drain elbow and drain grommets (option 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 meet the material of drainage paths with heat.

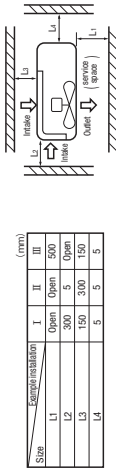
(2) If the unit can be affected by strong wind, following measures are required.

1. 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.
2. Install the outlet air blow side of the unit in a position perpendicular to face a wall of building, or provide a fence or a windbreak screen.
3. The unit should be installed on the stable and level foundation. If the foundation is not level, tie down the unit with wires.



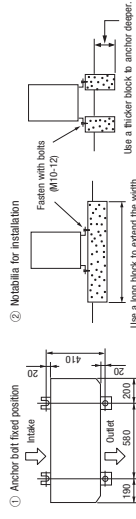
5) Installation space

- Walls surrounding the unit in the four sides are not acceptable.
- The clearance between the unit and the wall must be 150 mm or more.
- Where a space of short-circuiting exists, install guide lowers.
- Where 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.



Size	Example installation (mm)				
	I	II	III	Open	500
L1	300	300	300	5	5
L2	150	150	300	150	150
L3	5	5	5	5	5
L4	5	5	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.

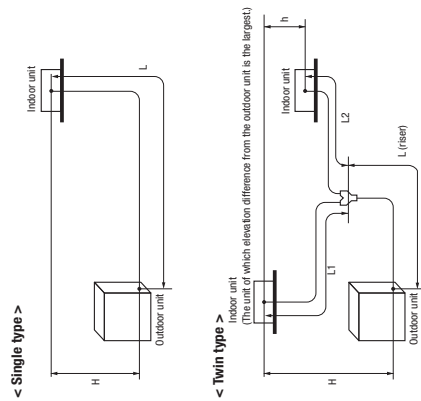
- When the outdoor air temperature is -5°C or lower, provide a snow hood to the outdoor unit on site.
- So that strong wind will not blow against the outdoor heat exchanger directly. Regarding outline of a snow hood, refer to our technical manual.

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	Max. separating in the piping	
	Single type	Twin type
One-way pipe length of refrigerant piping	Model for outdoor units	Type Type A
	140W/L, 125W/L, 100W/S, 125/S	---
	140W/L, 140/S	L-1+L1+L2+L3
	100W/L, 125W/L, 100W/S, 125/S, 95/S	L+L1+L1+L2+L3
Main pipe length	140W/L, 140/S	L
	100W/L, 140/S	L
	100W/L, 125W/L, 100W/S, 125/S	L
	140W/L, 125/S	L
One-way pipe length between the first branching point from the first branching point to the second branching point	140W/L, 140/S	La
	140W/L, 140/S	---
	140W/L, 125W/L, 100W/S, 125/S	L1, L2, L3
	140W/L, 140/S	L1 (1)
One-way pipe length after the first branching point	140W/L, 140/S	---
	140W/L, 140/S	---
	140W/L, 125W/L, 100W/S, 125/S	La+L2, La+L3 (1)
	140W/L, 140/S	---
One-way pipe length after the first branching point and second branching point	140W/L, 140/S	---
	140W/L, 140/S	---
	140W/L, 125W/L, 100W/S, 125/S	L1+L2+L3 L3-L1
	140W/L, 140/S	---
One-way pipe length difference between the indoor unit and the second branching point	140W/L, 140/S	---
	140W/L, 140/S	---
	140W/L, 125W/L, 100W/S, 125/S	L1+L2+L3 L3-L1
	140W/L, 140/S	---
One-way pipe length difference between the indoor unit and the second branching point	140W/L, 140/S	---
	140W/L, 140/S	---
	140W/L, 125W/L, 100W/S, 125/S	L1+L2+L3 L3-L1+L2+L3 (1)
	140W/L, 140/S	---
Elevation difference between indoor and outdoor units	When the outdoor unit is installed higher	H
	When the outdoor unit is installed lower	H
Elevation difference between indoor units	h	h
	h1, h2, h3	h1, h2, h3



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 "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 L₁ + L₂ or (L₁ + L₃) becomes the longest one-way pipe. Keep the pipe length difference between L₁ and (L₁ + L₂) or (L₁ + 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	Flare	Flare	Flare	Flare	Flare	Flare
	Φ15.88	Φ9.52	Φ15.88	Φ9.52	Φ15.88	Φ9.52
	Φ15.88	Φ9.52	Φ15.88	Φ9.52	Φ15.88	Φ9.52
Indoor unit connected	Flare	Flare	Flare	Flare	Flare	Flare
	Φ15.88	Φ9.52	Φ15.88	Φ9.52	Φ15.88	Φ9.52
	Φ15.88	Φ9.52	Φ15.88	Φ9.52	Φ15.88	Φ9.52
In the case of a single type	Capacity of indoor unit		Capacity of indoor unit		Capacity of indoor unit	
	Model 100V	Model 125V	Model 100V	Model 125V	Model 140V	Model 160V
	DS-10A1	DS-12A1	DS-10A1	DS-12A1	DS-14A1	DS-16A1
In the case of a two type	Branching pipe size		Branching pipe size		Branching pipe size	
	Refrigerant piping (branch type L1, L2)	Refrigerant piping (branch type L1, L3)	Refrigerant piping (branch type L1, L2)	Refrigerant piping (branch type L1, L3)	Refrigerant piping (branch type L1, L2)	Refrigerant piping (branch type L1, L3)
	Φ12.7	Φ9.52	Φ12.7	Φ9.52	Φ12.7	Φ9.52
In the case of a triple type A	Branching pipe size		Branching pipe size		Branching pipe size	
	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)
	Φ12.7	Φ9.52	Φ12.7	Φ9.52	Φ12.7	Φ9.52
In the case of a triple type B	Branching pipe size		Branching pipe size		Branching pipe size	
	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)	Refrigerant piping (branch type L1, L2, L3)
	Φ12.7	Φ9.52	Φ12.7	Φ9.52	Φ12.7	Φ9.52

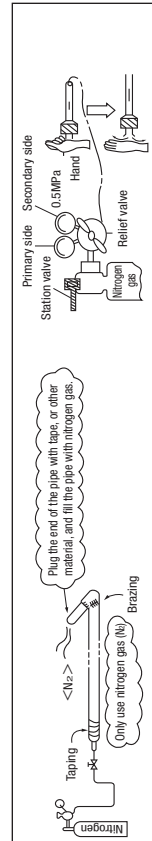
CAUTION

- 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 pipe for the main. If the main pipe is Φ12.7, use a Φ12.7 liquid pipe for the main. 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 fail 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		L-type pipe		O-type pipe		L-type pipe

*Phosphorous deoxidized seamless copper pipe C1220T-JIS H 3300

4) On-site piping work

- 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.

IMPORTANT

First remove the five screws (X 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.

How to remove the service panel

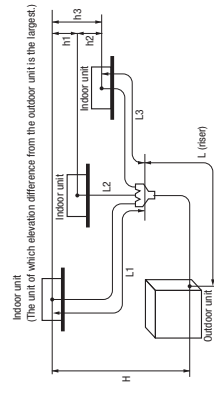
- The pipe can be laid in any of the following directions: side right, front, rear, and downward.
- Remove a knock-out plate provided on the pipe penetration to open a minimum necessary area and attach an edging material supplied as an accessory by cutting it to an appropriate length before laying a 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.
- The pipe should be anchored every 1.5m or less to isolate the vibration.
- The pipe should be anchored every 1.5m or less to isolate the vibration.
- Tighten a flare joint securely with a double spanner.

CAUTION

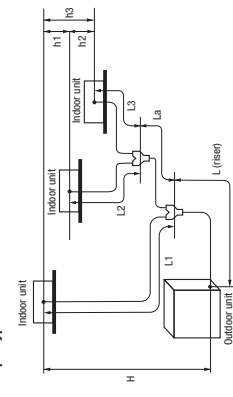
Do not apply force beyond proper fastening torque in tightening the flare nut.

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.

< Triple type A >



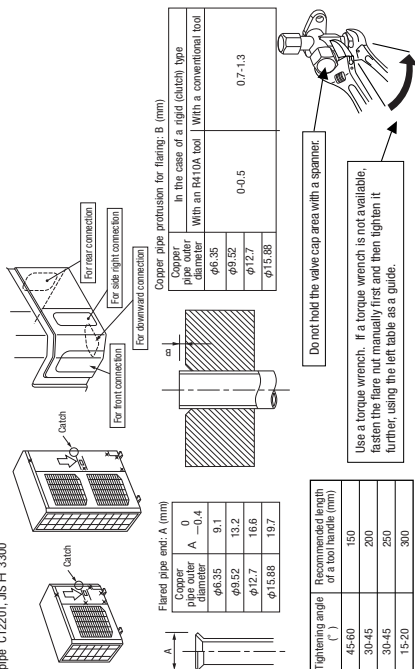
< Triple type B >



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

NOTE

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



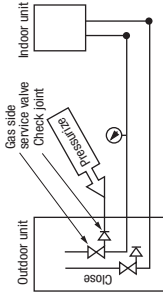
Flare pipe end, A (mm)	Flare pipe outer diameter	Flare pipe inner diameter	Recommended length of a tool handle (mm)
0	Φ6.35	9.1	150
0.4	Φ6.35	9.1	200
1.3	Φ9.52	13.2	30-42
1.6	Φ12.7	16.6	30-45
1.9	Φ15.88	19.7	15-20
2.0	Φ15.88 (SPT)	19.7	68-82

Do not hold the valve cap area with a spanner.

Use a torque wrench. If a torque wrench is not available, fasten the flare nut manually first and then tighten it further, using the left table as a guide.

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°C, 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.

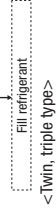


6) Evacuation

- <<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.
1. Run the vacuum pump for at least one hour after the vacuum gauge shows -101kPa or lower. (-755mmHg or lower)
 2. 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.

Item	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
Capacity					
100W~140W	2.0	0	0.06	3.8	30
100S~140S	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 charge 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

$$\text{Additional charge volume (kg)} = (\text{Main pipe length (m)} - \text{Length covered without additional charge 30 (m)}) \times 0.06 \text{ (kg/m)} + \text{Total length of branch pipes (m)} \times 0.06 \text{ (kg/m)}$$

*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 charge liquid-phase refrigerant into mist is used to protect the compressor, however, adjust charge conditions so that refrigerant will gassy 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.

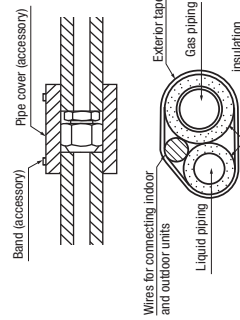
NOTE Put down the refrigerant volume calculated from the pipe length onto the caution label attached on the back side of the service panel.

8) Heating and condensation prevention

(1) Dress refrigerant pipes (both gas and liquid pipes) for heat insulation and prevention of dew condensation.

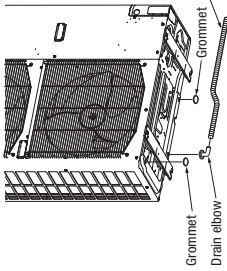
(2) Use a heat insulating material that can withstand 120°C or a higher temperature. Poor heat insulating capacity can cause heat insulation problems or cable deterioration.

- 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%.

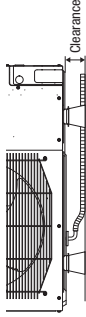


3. DRAIN PIPING WORK

- 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.

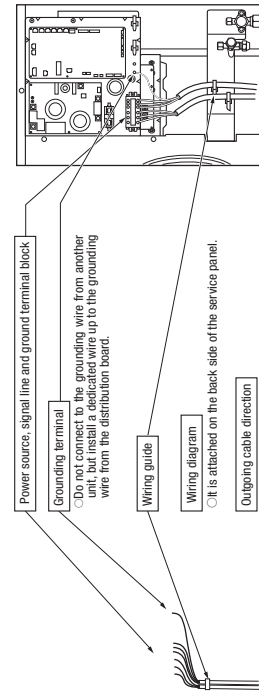


- When condensed water needs to be led to a drain, etc., install the unit on a flat base (supplied separately as an option part) or concrete blocks.
- Then, please secure space for the drain elbow and the drain hose.



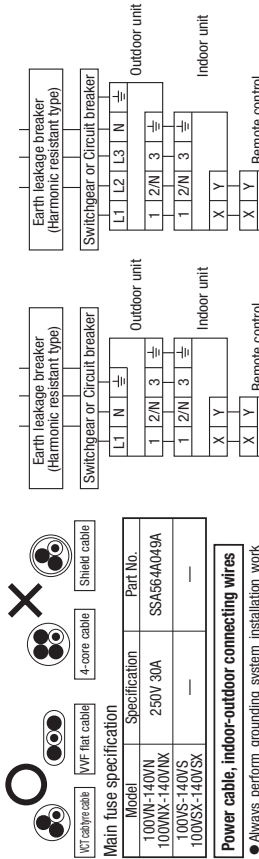
4. ELECTRICAL WIRING WORK For details of electrical cabling, refer to the indoor unit installation manual.

- 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);
 - flat twin tinsel cord (code designation 60245 IEC 57) 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 improper grounding, 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 accident such as an electric shock or a fire.



Model 100WN-140WN
100VS-140VS
Model 100VNX - 140VNX
100VSX - 140VSX

- Do not turn on the power until the electrical work is completed.
- Do not use a condensive capacitor for power factor improvement under any circumstances. (It does not improve power factor, while it can cause an abnormal overheating 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 they 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.



Model 100WN - 140WN
100VNX - 140VNX
Model 100VS - 140VS
100VSX - 140VSX

CAUTION Always use an earth leakage circuit breaker designed for inverter circuits to prevent a faulty operation.

※At the connection with the duct type indoor unit.

Model	Power source	Power cable thickness(mm ²)	MAX. over current (A)	Cable length (m)	Grounding wire thickness	In-door-outdoor wire thickness X number
100WN-140WN	Single phases 3 wire 220-240V 50Hz	5.5	25	24	φ1.6mm	φ1.6mm x 3
100VNX				26		
100VS-140VS	3 phase 4 wire 380-415V 50Hz	3.5	15	23	φ1.6mm	φ1.6mm x 3
100VSX-140VSX				27		

- 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.

Model	Power source	Power cable thickness(mm ²)	MAX. over current (A)	Cable length (m)	Grounding wire thickness	In-door-outdoor wire thickness X number
100WN-100WN	Single phases 3 wire 220-240V 50Hz	5.5	25	24	φ1.6mm	φ1.6mm x 3
123M				22		
140WN	220V 60Hz	8	27	28	φ1.6mm	φ1.6mm x 3
123MX				32		
140VNX	220V 60Hz	8	29	29	φ1.6mm	φ1.6mm x 3
140VNX				31		
100VS-100VS	3 phase 4 wire 380-415V 50Hz	3.5	16	30	φ1.6mm	φ1.6mm x 3
100VSX-100VSX				26		
140VS-140VS	380V 60Hz	3.5	18	18	φ1.6mm	φ1.6mm x 3
140VSX-140VSX				21		

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.

⚠ 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 (2DS) 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.

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.

Operation	Check joint of the pipe	Change part of the
Cooling operation	Discharge pressure (High pressure)	gas service valve
Heating operation	Suction pressure (Low pressure)	Suction pressure (Low pressure)
	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°C 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	Primer/circuit board LED (The cycles of 5 seconds)	Failure event	Action
E34	Red LED Blinking once	Open phase	Check power cables for loose contact or disconnection
E40	Blinking once	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 5 minutes have elapsed, check whether the service valves are fully open and the unit is effecting Check Reset from the remote control unit.
E49	Blinking once	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
Valve for a cooling operation Complete shut position Full open position	During a cooling operation Complete shut position Full open position	During a cooling operation Full open position Full open position
Valve for a heating operation Full open position	Complete shut position Full open 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.

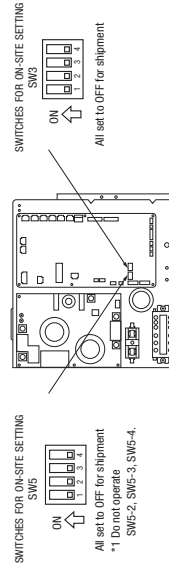
A failure to observe these instructions can result in a compressor breakdown.

● 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? 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?	
4	Electric wiring	Doesn't cabling cross-connect between units, where more than one unit are installed? Are indoor-outdoor signal wires connected to remote control wires? Do indoor-outdoor connecting cables connect between the same terminal numbers? Are either VCT cabletype cables or VFF 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 held down with cable clamps at their connection points? Are cables held down with cable clamps so that no external force works onto terminal connections? 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?	
—	Indoor unit		

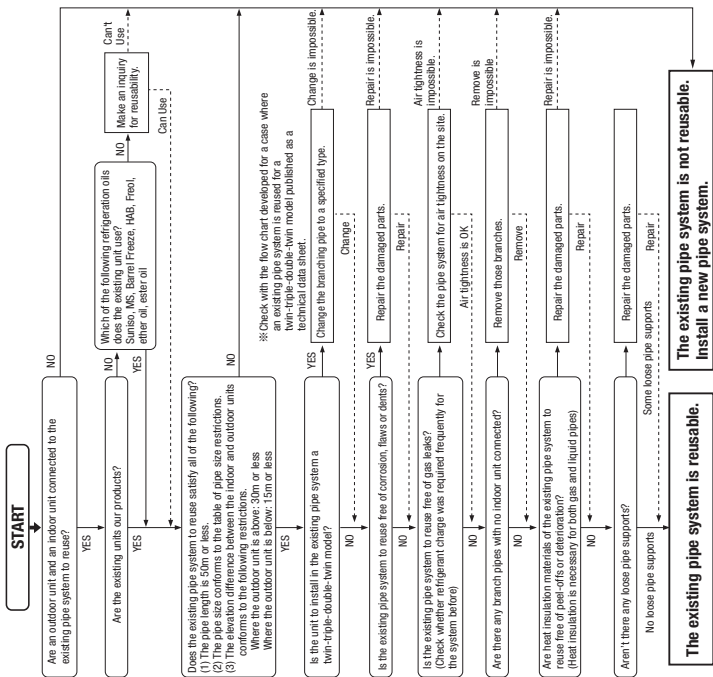
● Always carry out a test run and check the following in order as listed.

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. SW3-3 ON / SW3-4 OFF: the unit will start a cooling operation.	
⑤	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 existing 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.
 - **Turn on-site setting switch SW5-1** to the ON position. (Where the gas pipe size is φ 19.05)

<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
△: Restricted to shorter pipe length limits
×: Not usable

Pipe size	Additional charging amount of refrigerant per 1m		Additional charging amount of refrigerant per 1m	
	φ 9.52	φ 12.7	φ 9.52	φ 12.7
Liquid pipe	φ 9.52	φ 12.7	φ 9.52	φ 12.7
Gas pipe	φ 15.88	φ 19.05	φ 15.88	φ 19.05
Usability	○	△	○	△
Maximum one-way pipe length	50	25	20	100
Length covered without additional charge	30	15	10	30
Usability	○	△	○	△
Maximum one-way pipe length	50	25	20	100
Length covered without additional charge	30	15	10	30
Usability	○	△	○	△
Maximum one-way pipe length	50	25	20	100
Length covered without additional charge	30	15	10	30
Usability	○	△	○	△
Maximum one-way pipe length	50	25	20	100
Length covered without additional charge	30	15	10	30

<Pipe system after the branching pipe>

Pipe size	Additional charging amount of refrigerant per 1m		Additional charging amount of refrigerant per 1m	
	φ 9.52	φ 12.7	φ 9.52	φ 12.7
Liquid pipe	φ 9.52	φ 12.7	φ 9.52	φ 12.7
Gas pipe	φ 15.88	φ 19.05	φ 15.88	φ 19.05
Usability	○	△	○	△
Maximum one-way pipe length	50	25	20	100
Length covered without additional charge	30	15	10	30
Usability	○	△	○	△
Maximum one-way pipe length	50	25	20	100
Length covered without additional charge	30	15	10	30
Usability	○	△	○	△
Maximum one-way pipe length	50	25	20	100
Length covered without additional charge	30	15	10	30

※1 Because of its intrinsic pressure resistance, turn the dip switch SW5-1 provided on the outdoor unit board to the ON position for φ 19.05 × 11.0. (In the case of a twin-triple-double-twin model, this also applies to the case where φ 19.05 × 11.0 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 bearing 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 φ 12.7 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 φ 9.52 (Liquid) / φ 12.7 (Gas).

● When refrigerant piping is shorter 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.>

- FDC * * * 8 □ □ □ □
- FDCP * * * 8 □ □ □ □

Models later than Type 8.

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

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.

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) + (Branch pipe length (m) - Length covered without additional charge shown in the table (kg/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 φ 12.7, gas φ 19.05), the quantity of refrigerant to charge additionally should be (20m-15m) × 0.08kg/m = 0.4 kg.

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

For R410A

PSB012D865 

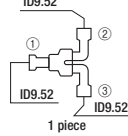
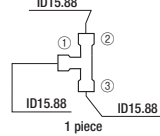

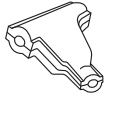

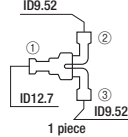
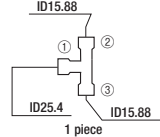

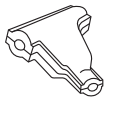
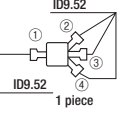
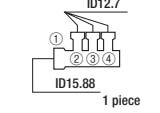


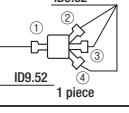
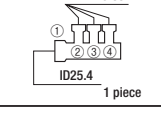




WARNING / CAUTION

- 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."

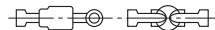
Branching pipe set type	Supported outdoor/indoor unit combinations		Part lists			
	Outdoor unit model	Indoor unit model	Branching pipe set for a liquid pipe	Branching pipe set for a gas pipe	Different diameter pipe joint	Heat insulation material
DIS-WA1 (Two-way branching set)	3HP	1.5HP + 1.5HP			Joint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

- (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.

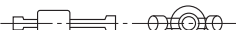
< Posture to install into >

Two-way branching

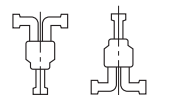


Install it to make the _____ part lie parallel to the floor.

Three-way branching

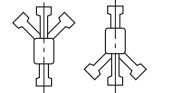


Floor surface

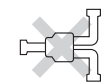


Floor surface

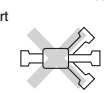
Install it to make the _____ part lie perpendicular to the floor.



Floor surface



Floor surface



Floor surface

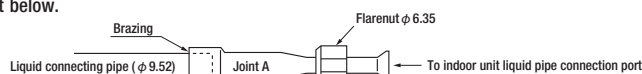
2. Pipe connecting procedure

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 $\phi 9.52$ liquid pipe to connect to the branching pipe (branching pipe – indoor unit).
 In connecting to an indoor unit (liquid pipe side: $\phi 6.35$), use the different diameter pipe joint A supplied with the set and follow the procedure set out below.



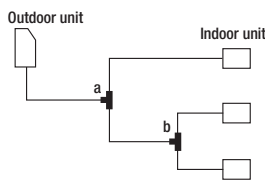
2-1 DIS-WA1

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		
5HP	2.5HP + 2.5HP		
	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

2-5. 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		

2-2 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

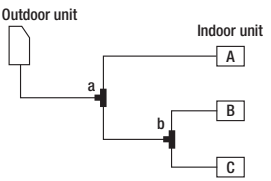
Applicable to the difference in length of pipes after the branch being less than 3 m
* Connection is not allowed when the difference in length of pipes is larger than 3 m.

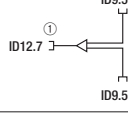
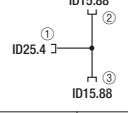
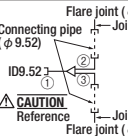
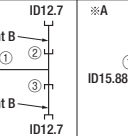
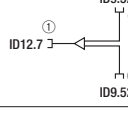
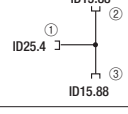
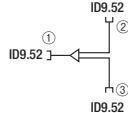
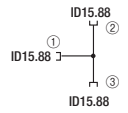
Supported combinations		Liquid branching pipe	Gas branching pipe
Outdoor unit model	Indoor unit model		
8HP	3HP + 3HP + 3HP		

2-6. 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.



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		
		b	DIS-WA1		
10HP	3HP+3HP+4HP	a	DIS-WB1		
		b	DIS-WA1		

Connecting position

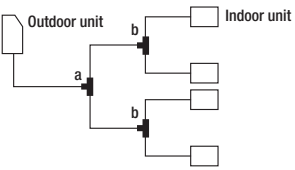
Outdoor unit model	Indoor unit model	A	B	C
10HP	2.5HP+2.5HP+5HP	5HP	2.5HP	2.5HP
	3HP+3HP+4HP	4HP	3HP	3HP

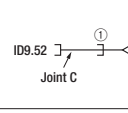
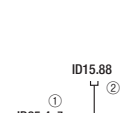
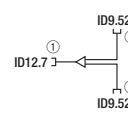
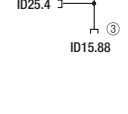
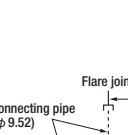
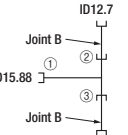
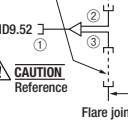
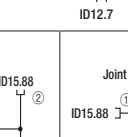
Note When connect the indoor unit of an old model that is shown in the model list, use the joint supplied with the branch piping set like ※ A.

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

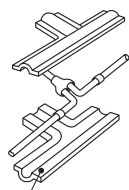


Branching pipe	Branching pipe set type	Outdoor unit model	Liquid branching pipe	Gas branching pipe
a	DIS-WB1	8HP		
		10HP		
b	DIS-WA1	8HP		
		10HP		

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.

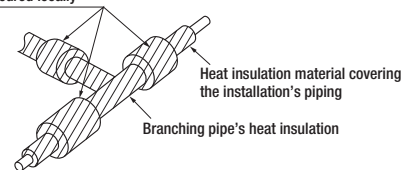
3. Heat insulation work

- (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.

Heat insulation material (for pipe insulation, etc.) to be procured locally



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.

1.10 TECHNICAL INFORMATION

FDTC40ZSXVG

Information to identify the model(s) to which the information relates to:		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'.	
Indoor unit model name	FDTC40VG		
Outdoor unit model name	SRC40ZSX-S		
Function(indicate if present)		Average(mandatory)	
cooling	Yes	Warmer(if designated)	No
heating	Yes	Colder(if designated)	No
Item	symbol	value	unit
Design load			
cooling	Pdesignc	4.0	kW
heating / Average	Pdesignh	4.0	kW
heating / Warmer	Pdesignh	-	kW
heating / Colder	Pdesignh	-	kW
Seasonal efficiency and energy efficiency class			
cooling	SEER	6.93	A++
heating / Average	SCOP/A	4.37	A+
heating / Warmer	SCOP/W	-	-
heating / Colder	SCOP/C	-	-
unit			
Declared capacity at outdoor temperature Tdesignh			
heating / Average (-10°C)	Pdh	4.0	kW
heating / Warmer (2°C)	Pdh	-	kW
heating / Colder (-22°C)	Pdh	-	kW
Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10°C)	elbu	0	kW
heating / Warmer (2°C)	elbu	-	kW
heating / Colder (-22°C)	elbu	-	kW
Declared capacity for cooling, at indoor temperature 27(19)°C and outdoor temperature Tj			
Tj=35°C	Pdc	4.00	kW
Tj=30°C	Pdc	2.95	kW
Tj=25°C	Pdc	1.90	kW
Tj=20°C	Pdc	1.42	kW
Declared energy efficiency ratio, at indoor temperature 27(19)°C and outdoor temperature Tj			
Tj=35°C	EERd	4.08	-
Tj=30°C	EERd	5.67	-
Tj=25°C	EERd	8.44	-
Tj=20°C	EERd	13.52	-
Declared capacity for heating / Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C	Pdh	3.53	kW
Tj=2°C	Pdh	2.15	kW
Tj=7°C	Pdh	1.38	kW
Tj=12°C	Pdh	0.90	kW
Tj=bivalent temperature	Pdh	2.90	kW
Tj=operating limit	Pdh	4.00	kW
Declared coefficient of performance / Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C	COPd	2.92	-
Tj=2°C	COPd	4.39	-
Tj=7°C	COPd	5.52	-
Tj=12°C	COPd	5.63	-
Tj=bivalent temperature	COPd	2.23	-
Tj=operating limit	COPd	2.55	-
Declared capacity for heating / Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=2°C	Pdh	-	kW
Tj=7°C	Pdh	-	kW
Tj=12°C	Pdh	-	kW
Tj=bivalent temperature	Pdh	-	kW
Tj=operating limit	Pdh	-	kW
Declared coefficient of performance / Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=2°C	COPd	-	-
Tj=7°C	COPd	-	-
Tj=12°C	COPd	-	-
Tj=bivalent temperature	COPd	-	-
Tj=operating limit	COPd	-	-
Declared capacity for heating / Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C	Pdh	-	kW
Tj=2°C	Pdh	-	kW
Tj=7°C	Pdh	-	kW
Tj=12°C	Pdh	-	kW
Tj=bivalent temperature	Pdh	-	kW
Tj=operating limit	Pdh	-	kW
Tj=-15°C	Pdh	-	kW
Declared coefficient of performance / Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C	COPd	-	-
Tj=2°C	COPd	-	-
Tj=7°C	COPd	-	-
Tj=12°C	COPd	-	-
Tj=bivalent temperature	COPd	-	-
Tj=operating limit	COPd	-	-
Tj=-15°C	COPd	-	-
Bivalent temperature			
heating / Average	Tbiv	-10	°C
heating / Warmer	Tbiv	-	°C
heating / Colder	Tbiv	-	°C
Operating limit temperature			
heating / Average	Tol	-15	°C
heating / Warmer	Tol	-	°C
heating / Colder	Tol	-	°C
Cycling interval capacity			
for cooling	Pcycc	-	kW
for heating	Pcyhc	-	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	10	W
standby mode	Psb	8	W
thermostat-off mode	Pto	10	W
crankcase heater mode	Pck	0	W
Annual electricity consumption			
cooling	Qce	202	kWh/a
heating / Average	Qhe	1281	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	63	dB(A)
Global warming potential	GWP	2088	kgCO2eq.
Rated air flow(indoor)	-	780	m3/h
Rated air flow(outdoor)	-	2160	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. 5 The Square, Stockley Park, Uxbridge, Middlesex, UB11 1ET, United Kingdom		

FDTC50ZSXVG

Information to identify the model(s) to which the information relates to:				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'.			
Indoor unit model name		FDTC50VG		Average (mandatory)		Yes	
Outdoor unit model name		SRC50ZSX-S		Warmer (if designated)		No	
Function (indicate if present)				Colder (if designated)			
cooling		Yes					
heating		Yes					
Item				Item			
		symbol value unit				symbol value class	
Design load				Seasonal efficiency and energy efficiency class			
cooling		Pdesignc 5.0 kW		cooling		SEER 6.49 A++	
heating / Average		Pdesignh 4.3 kW		heating / Average		SCOP/A 4.30 A+	
heating / Warmer		Pdesignh - kW		heating / Warmer		SCOP/W - -	
heating / Colder		Pdesignh - kW		heating / Colder		SCOP/C - -	
				unit			
Declared capacity at outdoor temperature Tdesignh				Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10°C)		Pdh 4.3 kW		heating / Average (-10°C)		elbu 0 kW	
heating / Warmer (2°C)		Pdh - kW		heating / Warmer (2°C)		elbu - kW	
heating / Colder (-22°C)		Pdh - kW		heating / Colder (-22°C)		elbu - kW	
Declared capacity for cooling, at indoor temperature 27(19)°C and outdoor temperature Tj				Declared energy efficiency ratio, at indoor temperature 27(19)°C and outdoor temperature Tj			
Tj=35°C		Pdc 5.00 kW		Tj=35°C		EERd 3.50 -	
Tj=30°C		Pdc 3.69 kW		Tj=30°C		EERd 5.02 -	
Tj=25°C		Pdc 2.37 kW		Tj=25°C		EERd 7.52 -	
Tj=20°C		Pdc 1.42 kW		Tj=20°C		EERd 13.52 -	
Declared capacity for heating / Average season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		Pdh 3.81 kW		Tj=-7°C		COPd 2.82 -	
Tj=2°C		Pdh 2.31 kW		Tj=2°C		COPd 4.28 -	
Tj=7°C		Pdh 1.49 kW		Tj=7°C		COPd 5.52 -	
Tj=12°C		Pdh 0.90 kW		Tj=12°C		COPd 5.63 -	
Tj=bivalent temperature		Pdh 3.20 kW		Tj=bivalent temperature		COPd 2.19 -	
Tj=operating limit		Pdh 4.30 kW		Tj=operating limit		COPd 2.44 -	
Declared capacity for heating / Warmer season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=2°C		Pdh - kW		Tj=2°C		COPd - -	
Tj=7°C		Pdh - kW		Tj=7°C		COPd - -	
Tj=12°C		Pdh - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		Pdh - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		Pdh - kW		Tj=operating limit		COPd - -	
Declared capacity for heating / Colder season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		Pdh - kW		Tj=-7°C		COPd - -	
Tj=2°C		Pdh - kW		Tj=2°C		COPd - -	
Tj=7°C		Pdh - kW		Tj=7°C		COPd - -	
Tj=12°C		Pdh - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		Pdh - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		Pdh - kW		Tj=operating limit		COPd - -	
Tj=-15°C		Pdh - kW		Tj=-15°C		COPd - -	
Bivalent temperature				Operating limit temperature			
heating / Average		Tbiv -10 °C		heating / Average		Tol -15 °C	
heating / Warmer		Tbiv - °C		heating / Warmer		Tol - °C	
heating / Colder		Tbiv - °C		heating / Colder		Tol - °C	
Cycling interval capacity				Cycling interval efficiency			
for cooling		Pcycc - kW		for cooling		EERcyc - -	
for heating		Pcyhc - kW		for heating		COPcyc - -	
Degradation coefficient				Degradation coefficient			
cooling		Cdc 0.25 -		heating		Cdh 0.25 -	
Electric power input in power modes other than 'active mode'				Annual electricity consumption			
off mode		Poff 10 W		cooling		Qce 270 kWh/a	
standby mode		Psb 8 W		heating / Average		Qhe 1402 kWh/a	
thermostat-off mode		Pto 10 W		heating / Warmer		Qhe - kWh/a	
crankcase heater mode		Pck 0 W		heating / colder		Qhe - kWh/a	
Capacity control (indicate one of three options)				Other items			
fixed		No		Sound power level (indoor)		Lwa 59 dB(A)	
staged		No		Sound power level (outdoor)		Lwa 63 dB(A)	
variable		Yes		Global warming potential		GWP 2088 kgCO2eq.	
				Rated air flow (indoor)		- 780 m3/h	
				Rated air flow (outdoor)		- 2400 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. 5 The Square, Stockley Park, Uxbridge, Middlesex, UB11 1ET, United Kingdom					

FDTC60ZSXVG


Information to identify the model(s) to which the information relates to:				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'.			
Indoor unit model name		FDTC60VG		Average(mandatory)		Yes	
Outdoor unit model name		SRC60ZSX-S		Warmer(if designated)		No	
Function(indicate if present)				Colder(if designated)			
cooling		Yes					
heating		Yes					
Item				Item			
		symbol value unit				symbol value class	
Design load				Seasonal efficiency and energy efficiency class			
cooling		Pdesignc 5.6 kW		cooling		SEER 6.39 A++	
heating / Average		Pdesignh 5.4 kW		heating / Average		SCOP/A 4.09 A+	
heating / Warmer		Pdesignh - kW		heating / Warmer		SCOP/W - -	
heating / Colder		Pdesignh - kW		heating / Colder		SCOP/C - -	
				unit			
Declared capacity at outdoor temperature Tdesignh				Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10°C)		Pdh 5.4 kW		heating / Average (-10°C)		elbu 0 kW	
heating / Warmer (2°C)		Pdh - kW		heating / Warmer (2°C)		elbu - kW	
heating / Colder (-22°C)		Pdh - kW		heating / Colder (-22°C)		elbu - kW	
Declared capacity for cooling, at indoor temperature 27(19)°C and outdoor temperature Tj				Declared energy efficiency ratio, at indoor temperature 27(19)°C and outdoor temperature Tj			
Tj=35°C		Pdc 5.60 kW		Tj=35°C		EERd 3.18 -	
Tj=30°C		Pdc 4.13 kW		Tj=30°C		EERd 4.98 -	
Tj=25°C		Pdc 2.65 kW		Tj=25°C		EERd 7.36 -	
Tj=20°C		Pdc 1.45 kW		Tj=20°C		EERd 13.18 -	
Declared capacity for heating / Average season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		Pdh 4.78 kW		Tj=-7°C		COPd 2.58 -	
Tj=2°C		Pdh 2.91 kW		Tj=2°C		COPd 3.99 -	
Tj=7°C		Pdh 1.87 kW		Tj=7°C		COPd 5.50 -	
Tj=12°C		Pdh 0.94 kW		Tj=12°C		COPd 5.70 -	
Tj=bivalent temperature		Pdh 3.90 kW		Tj=bivalent temperature		COPd 2.00 -	
Tj=operating limit		Pdh 5.40 kW		Tj=operating limit		COPd 2.25 -	
Declared capacity for heating / Warmer season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=2°C		Pdh - kW		Tj=2°C		COPd - -	
Tj=7°C		Pdh - kW		Tj=7°C		COPd - -	
Tj=12°C		Pdh - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		Pdh - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		Pdh - kW		Tj=operating limit		COPd - -	
Declared capacity for heating / Colder season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		Pdh - kW		Tj=-7°C		COPd - -	
Tj=2°C		Pdh - kW		Tj=2°C		COPd - -	
Tj=7°C		Pdh - kW		Tj=7°C		COPd - -	
Tj=12°C		Pdh - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		Pdh - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		Pdh - kW		Tj=operating limit		COPd - -	
Tj=-15°C		Pdh - kW		Tj=-15°C		COPd - -	
Bivalent temperature				Operating limit temperature			
heating / Average		Tbiv -10 °C		heating / Average		Tol -15 °C	
heating / Warmer		Tbiv - °C		heating / Warmer		Tol - °C	
heating / Colder		Tbiv - °C		heating / Colder		Tol - °C	
Cycling interval capacity				Cycling interval efficiency			
for cooling		Pcycc - kW		for cooling		EERcyc - -	
for heating		Pcyhc - kW		for heating		COPcyc - -	
Degradation coefficient				Degradation coefficient			
cooling		Cdc 0.25 -		heating		Cdh 0.25 -	
Electric power input in power modes other than 'active mode'				Annual electricity consumption			
off mode		Poff 8 W		cooling		Qce 307 kWh/a	
standby mode		Psb 8 W		heating / Average		Qhe 1848 kWh/a	
thermostat-off mode		Pto 10 W		heating / Warmer		Qhe - kWh/a	
crankcase heater mode		Pck 0 W		heating / colder		Qhe - kWh/a	
Capacity control(indicate one of three options)				Other items			
fixed		No		Sound power level(indoor)		Lwa 60 dB(A)	
staged		No		Sound power level(outdoor)		Lwa 65 dB(A)	
variable		Yes		Global warming potential		GWP 2088 kgCO2eq.	
				Rated air flow(indoor)		- 840 m3/h	
				Rated air flow(outdoor)		- 2490 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. 5 The Square, Stockley Park, Uxbridge, Middlesex, UB11 1ET, United Kingdom					

FDTC71VNXPVG

Information to identify the model(s) to which the information relates to:				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'.			
Indoor unit model name		FDTC40VG (x2 units)		Average (mandatory)		Yes	
Outdoor unit model name		FDC71VNX		Warmer (if designated)		No	
Function (indicate if present)				Colder (if designated)			
cooling		Yes					
heating		Yes					
Item	symbol	value	unit	Item	symbol	value	class
Design load				Seasonal efficiency and energy efficiency class			
cooling	Pdesignc	7.1	kW	cooling	SEER	5.50	A
heating / Average	Pdesignh	6.0	kW	heating / Average	SCOP/A	4.05	A+
heating / Warmer	Pdesignh	-	kW	heating / Warmer	SCOP/W	-	-
heating / Colder	Pdesignh	-	kW	heating / Colder	SCOP/C	-	-
				unit			
Declared capacity at outdoor temperature Tdesignh				Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10°C)	Pdh	6.0	kW	heating / Average (-10°C)	elbu	0	kW
heating / Warmer (2°C)	Pdh	-	kW	heating / Warmer (2°C)	elbu	-	kW
heating / Colder (-22°C)	Pdh	-	kW	heating / Colder (-22°C)	elbu	-	kW
Declared capacity for cooling, at indoor temperature 27(19)°C and outdoor temperature Tj				Declared energy efficiency ratio, at indoor temperature 27(19)°C and outdoor temperature Tj			
Tj=35°C	Pdc	7.10	kW	Tj=35°C	EERd	3.50	-
Tj=30°C	Pdc	5.23	kW	Tj=30°C	EERd	5.62	-
Tj=25°C	Pdc	3.37	kW	Tj=25°C	EERd	8.64	-
Tj=20°C	Pdc	3.20	kW	Tj=20°C	EERd	11.23	-
Declared capacity for heating / Average season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C	Pdh	5.31	kW	Tj=-7°C	COPd	2.89	-
Tj=2°C	Pdh	3.23	kW	Tj=2°C	COPd	3.89	-
Tj=7°C	Pdh	2.08	kW	Tj=7°C	COPd	5.14	-
Tj=12°C	Pdh	2.46	kW	Tj=12°C	COPd	6.34	-
Tj=bivalent temperature	Pdh	4.37	kW	Tj=bivalent temperature	COPd	2.19	-
Tj=operating limit	Pdh	6.00	kW	Tj=operating limit	COPd	2.59	-
Declared capacity for heating / Warmer season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=2°C	Pdh	-	kW	Tj=2°C	COPd	-	-
Tj=7°C	Pdh	-	kW	Tj=7°C	COPd	-	-
Tj=12°C	Pdh	-	kW	Tj=12°C	COPd	-	-
Tj=bivalent temperature	Pdh	-	kW	Tj=bivalent temperature	COPd	-	-
Tj=operating limit	Pdh	-	kW	Tj=operating limit	COPd	-	-
Declared capacity for heating / Colder season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C	Pdh	-	kW	Tj=-7°C	COPd	-	-
Tj=2°C	Pdh	-	kW	Tj=2°C	COPd	-	-
Tj=7°C	Pdh	-	kW	Tj=7°C	COPd	-	-
Tj=12°C	Pdh	-	kW	Tj=12°C	COPd	-	-
Tj=bivalent temperature	Pdh	-	kW	Tj=bivalent temperature	COPd	-	-
Tj=operating limit	Pdh	-	kW	Tj=operating limit	COPd	-	-
Tj=-15°C	Pdh	-	kW	Tj=-15°C	COPd	-	-
Bivalent temperature				Operating limit temperature			
heating / Average	Tbiv	-10	°C	heating / Average	Tol	-20	°C
heating / Warmer	Tbiv	-	°C	heating / Warmer	Tol	-	°C
heating / Colder	Tbiv	-	°C	heating / Colder	Tol	-	°C
Cycling interval capacity				Cycling interval efficiency			
for cooling	Pcyc	-	kW	for cooling	EERcyc	-	-
for heating	Pcyc	-	kW	for heating	COPcyc	-	-
Degradation coefficient				Degradation coefficient			
cooling	Cdc	0.25	-	heating	Cdh	0.25	-
Electric power input in power modes other than 'active mode'				Annual electricity consumption			
off mode	Poff	20	W	cooling	Qce	453	kWh/a
standby mode	Psb	20	W	heating / Average	Qhe	2077	kWh/a
thermostat-off mode	Pto	20	W	heating / Warmer	Qhe	-	kWh/a
crankcase heater mode	Pck	23	W	heating / colder	Qhe	-	kWh/a
Capacity control (indicate one of three options)				Other items			
fixed		No		Sound power level (indoor)	Lwa	59	dB(A)
staged		No		Sound power level (outdoor)	Lwa	66	dB(A)
variable		Yes		Global warming potential	GWP	2088	kgCO2eq.
				Rated air flow (indoor)	-	780	m3/h
				Rated air flow (outdoor)	-	3600	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. 5 The Square, Stockley Park, Uxbridge, Middlesex, UB11 1ET, United Kingdom					


FDTC100VNXPVG

Information to identify the model(s) to which the information relates to:				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'.			
Indoor unit model name		FDTC50VG (x2 units)		Average (mandatory)		Yes	
Outdoor unit model name		FDC100VNX		Warmer (if designated)		No	
Function (indicate if present)				Colder (if designated)			
cooling		Yes					
heating		Yes					
Item				Item			
		symbol value unit				symbol value class	
Design load				Seasonal efficiency and energy efficiency class			
cooling		Pdesignc 10.0 kW		cooling		SEER 5.56 A	
heating / Average		Pdesignh 10.8 kW		heating / Average		SCOP/A 3.87 A	
heating / Warmer		Pdesignh - kW		heating / Warmer		SCOP/W - -	
heating / Colder		Pdesignh - kW		heating / Colder		SCOP/C - -	
				unit			
Declared capacity at outdoor temperature Tdesignh				Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10°C)		PdH 10.8 kW		heating / Average (-10°C)		elbu 0 kW	
heating / Warmer (2°C)		PdH - kW		heating / Warmer (2°C)		elbu - kW	
heating / Colder (-22°C)		PdH - kW		heating / Colder (-22°C)		elbu - kW	
Declared capacity for cooling, at indoor temperature 27(19)°C and outdoor temperature Tj				Declared energy efficiency ratio, at indoor temperature 27(19)°C and outdoor temperature Tj			
Tj=35°C		Pdc 10.00 kW		Tj=35°C		EERd 3.57 -	
Tj=30°C		Pdc 7.37 kW		Tj=30°C		EERd 5.34 -	
Tj=25°C		Pdc 5.17 kW		Tj=25°C		EERd 7.83 -	
Tj=20°C		Pdc 5.38 kW		Tj=20°C		EERd 10.25 -	
Declared capacity for heating / Average season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		PdH 9.56 kW		Tj=-7°C		COPd 2.66 -	
Tj=2°C		PdH 5.81 kW		Tj=2°C		COPd 3.63 -	
Tj=7°C		PdH 4.08 kW		Tj=7°C		COPd 5.30 -	
Tj=12°C		PdH 4.85 kW		Tj=12°C		COPd 6.14 -	
Tj=bivalent temperature		PdH 7.60 kW		Tj=bivalent temperature		COPd 2.11 -	
Tj=operating limit		PdH 10.80 kW		Tj=operating limit		COPd 2.32 -	
Declared capacity for heating / Warmer season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=2°C		PdH - kW		Tj=2°C		COPd - -	
Tj=7°C		PdH - kW		Tj=7°C		COPd - -	
Tj=12°C		PdH - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		PdH - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		PdH - kW		Tj=operating limit		COPd - -	
Declared capacity for heating / Colder season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		PdH - kW		Tj=-7°C		COPd - -	
Tj=2°C		PdH - kW		Tj=2°C		COPd - -	
Tj=7°C		PdH - kW		Tj=7°C		COPd - -	
Tj=12°C		PdH - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		PdH - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		PdH - kW		Tj=operating limit		COPd - -	
Tj=-15°C		PdH - kW		Tj=-15°C		COPd - -	
Bivalent temperature				Operating limit temperature			
heating / Average		Tbiv -10 °C		heating / Average		Tol -20 °C	
heating / Warmer		Tbiv - °C		heating / Warmer		Tol - °C	
heating / Colder		Tbiv - °C		heating / Colder		Tol - °C	
Cycling interval capacity				Cycling interval efficiency			
for cooling		Pcyc 0 kW		for cooling		EERcyc - -	
for heating		Pcyc 0 kW		for heating		COPcyc - -	
Degradation coefficient				Degradation coefficient			
cooling		Cdc 0.25 -		heating		Cdh 0.25 -	
Electric power input in power modes other than 'active mode'				Annual electricity consumption			
off mode		Poff 20 W		cooling		Qce 630 kWh/a	
standby mode		Psb 20 W		heating / Average		Qhe 3910 kWh/a	
thermostat-off mode		Pto 20 W		heating / Warmer		Qhe - kWh/a	
crankcase heater mode		Pck 23 W		heating / colder		Qhe - kWh/a	
Capacity control (indicate one of three options)				Other items			
fixed		No		Sound power level (indoor)		Lwa 59 dB(A)	
staged		No		Sound power level (outdoor)		Lwa 70 dB(A)	
variable		Yes		Global warming potential		GWP 2088 kgCO2eq.	
				Rated air flow (indoor)		- 780 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. 5 The Square, Stockley Park, Uxbridge, Middlesex, UB11 1ET, United Kingdom					

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FDTC100VSPVG

Information to identify the model(s) to which the information relates to:				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'.			
Indoor unit model name		FDTC50VG (x2 units)		Average (mandatory)		Yes	
Outdoor unit model name		FDC100VSX		Warmer (if designated)		No	
Function (indicate if present)				Colder (if designated)			
cooling		Yes					
heating		Yes					
Item				Item			
		symbol value unit				symbol value class	
Design load				Seasonal efficiency and energy efficiency class			
cooling		Pdesignc 10.0 kW		cooling		SEER 5.56 A	
heating / Average		Pdesignh 10.8 kW		heating / Average		SCOP/A 3.87 A	
heating / Warmer		Pdesignh - kW		heating / Warmer		SCOP/W - -	
heating / Colder		Pdesignh - kW		heating / Colder		SCOP/C - -	
				unit			
Declared capacity at outdoor temperature Tdesignh				Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10°C)		Pdh 10.8 kW		heating / Average (-10°C)		elbu 0 kW	
heating / Warmer (2°C)		Pdh - kW		heating / Warmer (2°C)		elbu - kW	
heating / Colder (-22°C)		Pdh - kW		heating / Colder (-22°C)		elbu - kW	
Declared capacity for cooling, at indoor temperature 27(19)°C and outdoor temperature Tj				Declared energy efficiency ratio, at indoor temperature 27(19)°C and outdoor temperature Tj			
Tj=35°C		Pdc 10.00 kW		Tj=35°C		EERd 3.57 -	
Tj=30°C		Pdc 7.37 kW		Tj=30°C		EERd 5.34 -	
Tj=25°C		Pdc 5.17 kW		Tj=25°C		EERd 7.83 -	
Tj=20°C		Pdc 5.38 kW		Tj=20°C		EERd 10.25 -	
Declared capacity for heating / Average season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		Pdh 9.56 kW		Tj=-7°C		COPd 2.66 -	
Tj=2°C		Pdh 5.81 kW		Tj=2°C		COPd 3.63 -	
Tj=7°C		Pdh 4.08 kW		Tj=7°C		COPd 5.30 -	
Tj=12°C		Pdh 4.85 kW		Tj=12°C		COPd 6.14 -	
Tj=bivalent temperature		Pdh 7.60 kW		Tj=bivalent temperature		COPd 2.11 -	
Tj=operating limit		Pdh 10.80 kW		Tj=operating limit		COPd 2.32 -	
Declared capacity for heating / Warmer season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=2°C		Pdh - kW		Tj=2°C		COPd - -	
Tj=7°C		Pdh - kW		Tj=7°C		COPd - -	
Tj=12°C		Pdh - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		Pdh - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		Pdh - kW		Tj=operating limit		COPd - -	
Declared capacity for heating / Colder season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		Pdh - kW		Tj=-7°C		COPd - -	
Tj=2°C		Pdh - kW		Tj=2°C		COPd - -	
Tj=7°C		Pdh - kW		Tj=7°C		COPd - -	
Tj=12°C		Pdh - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		Pdh - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		Pdh - kW		Tj=operating limit		COPd - -	
Tj=-15°C		Pdh - kW		Tj=-15°C		COPd - -	
Bivalent temperature				Operating limit temperature			
heating / Average		Tbiv -10 °C		heating / Average		Tol -20 °C	
heating / Warmer		Tbiv - °C		heating / Warmer		Tol - °C	
heating / Colder		Tbiv - °C		heating / Colder		Tol - °C	
Cycling interval capacity				Cycling interval efficiency			
for cooling		Pcycc - kW		for cooling		EERcyc - -	
for heating		Pcyhc - kW		for heating		COPcyc - -	
Degradation coefficient				Degradation coefficient			
cooling		Cdc 0.25 -		heating		Cdh 0.25 -	
Electric power input in power modes other than 'active mode'				Annual electricity consumption			
off mode		Poff 20 W		cooling		Qce 630 kWh/a	
standby mode		Psb 20 W		heating / Average		Qhe 3910 kWh/a	
thermostat-off mode		Pto 20 W		heating / Warmer		Qhe - kWh/a	
crankcase heater mode		Pck 23 W		heating / colder		Qhe - kWh/a	
Capacity control (indicate one of three options)				Other items			
fixed		No		Sound power level (indoor)		Lwa 59 dB(A)	
staged		No		Sound power level (outdoor)		Lwa 70 dB(A)	
variable		Yes		Global warming potential		GWP 2088 kgCO2eq.	
				Rated air flow (indoor)		- 780 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. 5 The Square, Stockley Park, Uxbridge, Middlesex, UB11 1ET, United Kingdom					

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FDTC125VNXPVG

Model(s) : FDC125VNX / FDTC60VG (x2 units)							
Outdoor side heat exchanger of air conditioner : air							
Indoor side heat exchanger of air conditioner : air							
Type : vapour compression							
if applicable : electric motor							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	12.5	kW	Seasonal space cooling energy efficiency ηs,c		193	%
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)				Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	Pdc	12.5	kW	Tj=+35°C	EERd or GUEc,bin / AEFc,bin	305	%
Tj=+30°C	Pdc	9.2	kW	Tj=+30°C	EERd or GUEc,bin / AEFc,bin	449	%
Tj=+25°C	Pdc	5.9	kW	Tj=+25°C	EERd or GUEc,bin / AEFc,bin	611	%
Tj=+20°C	Pdc	4.7	kW	Tj=+20°C	EERd or GUEc,bin / AEFc,bin	733	%
Degradation coefficient for air conditioners**	Cdc	0.25	-				
Power consumption in other than 'active mode'							
Off mode	P _{OFF}	0.040	kW	Crankcase heater mode	P _{CK}	0.040	kW
Thermostat-off mode	P _{TO}	0.000	kW	Standby mode	P _{SB}	0.040	kW
Other items				For air-to-air air conditioner: air flow-rate,outdoor measured			
Capacity control		variable				6000	m ³ /h
Sound power level, outdoor	L _{WA}	70.0	dB				
If engine driven: Emissions of nitrogen oxides	NOx ^{***}	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details	Mitsubishi heavy industries thermal systems,LTD						
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

Information to identify the model(s) to which the information relates :				FDC125VNX / FDTC60VG (x2 units)			
Outdoor side heat exchanger of heat pump :				air			
Indoor side heat exchanger of heat pump :				air			
Indication if the heater is equipped with a supplementary heater :				No			
if applicable :				electric motor			
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	14.0	kW	Seasonal space heating energy efficiency ηs,h		150	%
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	Pdh	14.9	kW	Tj=-7°C	COPd or GUEh,bin / AEFh,bin	240	%
Tj=+2°C	Pdh	9.0	kW	Tj=+2°C	COPd or GUEh,bin / AEFh,bin	374	%
Tj=+7°C	Pdh	5.8	kW	Tj=+7°C	COPd or GUEh,bin / AEFh,bin	505	%
Tj=+12°C	Pdh	4.6	kW	Tj=+12°C	COPd or GUEh,bin / AEFh,bin	609	%
T _{biv} =bivalent temperature	Pdh	16.8	kW	T _{biv} =bivalent temperature	COPd or GUEh,bin / AEFh,bin	227	%
T _{OL} =operation limit	Pdh	13.0	kW	T _{OL} =operation limit	COPd or GUEh,bin / AEFh,bin	218	%
For air-to-water heat pumps : Tj=-15°C (if T _{OL} <-20°C)	Pdh	-	kW	For air-to-water heat pumps: Tj=-15°C (if T _{OL} <-20°C)	COPd or GUEh,bin / AEFh,bin	-	%
Bivalent temperature	T _{biv}	-10.0	°C	For water-to-air heat pumps: Operation limit T _{oi} temperature		-	°C
Degradation coefficient heat pumps**	C _{gh}	0.25	-				
Power consumption in modes other than 'active mode'				Supplementary heater back-up heating capacity			
Off mode	P _{OFF}	0.040	kW		elbu	-	kW
Thermostat-off mode	P _{TO}	0.045	kW	Type of energy input Standby mode	P _{SB}	0.040	kW
Crankcase heater mode	P _{CK}	0.040	kW				
Other items				For air-to-air heat pumps: air flow-rate, outdoor measured			
Capacity control		variable				6000	m ³ /h
Sound power level, outdoor measured	L _{WA}	70.0	dB	For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m ³ /h
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details				Mitsubishi heavy industries thermal systems.LTD			
** If C _{gh} is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners, the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

FDTC140VNXTVG

Model(s) : FDC140VNX / FDTC50VG (x3 units)							
Outdoor side heat exchanger of air conditioner : air							
Indoor side heat exchanger of air conditioner : air							
Type : vapour compression							
if applicable : electric motor							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	14.0	kW	Seasonal space cooling energy efficiency ηs,c		213	%
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)				Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	Pdc	14.0	kW	Tj=+35°C	EERd or GUEc,bin / AEFc,bin	333	%
Tj=+30°C	Pdc	10.3	kW	Tj=+30°C	EERd or GUEc,bin / AEFc,bin	491	%
Tj=+25°C	Pdc	6.6	kW	Tj=+25°C	EERd or GUEc,bin / AEFc,bin	664	%
Tj=+20°C	Pdc	5.2	kW	Tj=+20°C	EERd or GUEc,bin / AEFc,bin	837	%
Degradation coefficient for air conditioners**	Cdc	0.25	-				
Power consumption in other than 'active mode'							
Off mode	P _{OFF}	0.040	kW	Crankcase heater mode	P _{CK}	0.040	kW
Thermostat-off mode	P _{TO}	0.000	kW	Standby mode	P _{SB}	0.040	kW
Other items				For air-to-air air conditioner: air flow-rate,outdoor measured			
Capacity control		variable				6000	m ³ /h
Sound power level, outdoor	L _{WA}	72.0	dB				
If engine driven: Emissions of nitrogen oxides	NOx ^{***}	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details	Mitsubishi heavy industries thermal systems,LTD						
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

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Information to identify the model(s) to which the information relates : FDC140VNX / FDTC50VG (x3 units)			
Outdoor side heat exchanger of heat pump :		air	
Indoor side heat exchanger of heat pump :		air	
Indication if the heater is equipped with a supplementary heater :		No	
if applicable :		electric motor	
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.			
Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	16.0	kW
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C	Pdh	15.1	kW
Tj=+2°C	Pdh	9.2	kW
Tj=+7°C	Pdh	5.9	kW
Tj=+12°C	Pdh	4.7	kW
T _{bv} =bivalent temperature	Pdh	17.0	kW
T _{OL} =operation limit	Pdh	14.8	kW
For air-to-water heat pumps : Tj=-15°C (if T _{OL} < -20°C)	Pdh	-	kW
Bivalent temperature	T _{bv}	-10.0	°C
Degradation coefficient heat pumps**	C _{dh}	0.25	-
Power consumption in modes other than 'active mode'			
Off mode	P _{OFF}	0.040	kW
Thermostat-off mode	P _{TO}	0.045	kW
Crankcase heater mode	P _{CK}	0.040	kW
Other items			
Capacity control		variable	
Sound power level, outdoor measured	L _{WA}	72.0	dB
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV
GWP of the refrigerant		2088	kg CO _{2eq} (100years)
Contact details		Mitsubishi heavy industries thermal systems,LTD	
** If Cdh is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25. *** from 26 September 2018 Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.			

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency ηs,h		168	%
Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	COPd or GUEh,bin / AEFh,bin	269	%
Tj=+2°C	COPd or GUEh,bin / AEFh,bin	416	%
Tj=+7°C	COPd or GUEh,bin / AEFh,bin	565	%
Tj=+12°C	COPd or GUEh,bin / AEFh,bin	686	%
T _{bv} =bivalent temperature	COPd or GUEh,bin / AEFh,bin	254	%
T _{OL} =operation limit	COPd or GUEh,bin / AEFh,bin	269	%
For air-to-water heat pumps:Tj=-15°C (if T _{OL} < -20°C)	COPd or GUEh,bin / AEFh,bin	-	%
For water-to-air heat pumps:Operation limit T _{ol} temperature		-	°C
Supplementary heater back-up heating capacity	elbu	-	kW
Type of energy input Standby mode	P _{SB}	0.040	kW
For air-to-air heat pumps: air flow-rate,outdoor measured		6000	m3/h
For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m3/h

FDTC125VSPVG

Model(s) : FDC125VSX / FDTC60VG (x2 units)							
Outdoor side heat exchanger of air conditioner : air							
Indoor side heat exchanger of air conditioner : air							
Type : vapour compression							
if applicable : electric motor							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	12.5	kW	Seasonal space cooling energy efficiency ηs,c		195	%
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)				Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	Pdc	12.5	kW	Tj=+35°C	EERd or GUEc,bin / AEFc,bin	305	%
Tj=+30°C	Pdc	9.2	kW	Tj=+30°C	EERd or GUEc,bin / AEFc,bin	449	%
Tj=+25°C	Pdc	5.9	kW	Tj=+25°C	EERd or GUEc,bin / AEFc,bin	611	%
Tj=+20°C	Pdc	4.7	kW	Tj=+20°C	EERd or GUEc,bin / AEFc,bin	733	%
Degradation coefficient for air conditioners**	Cdc	0.25	-				
Power consumption in other than 'active mode'							
Off mode	P _{OFF}	0.035	kW	Crankcase heater mode	P _{CK}	0.035	kW
Thermostat-off mode	P _{TO}	0.000	kW	Standby mode	P _{SB}	0.035	kW
Other items							
Capacity control		variable		For air-to-air air conditioner: air flow-rate,outdoor measured		6000	m3/h
Sound power level, outdoor	L _{WA}	70.0	dB				
If engine driven: Emissions of nitrogen oxides	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details	Mitsubishi heavy industries thermal systems,LTD						
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

Information to identify the model(s) to which the information relates :				FDC125VSX / FDTC60VG (x2 units)			
Outdoor side heat exchanger of heat pump :				air			
Indoor side heat exchanger of heat pump :				air			
Indication if the heater is equipped with a supplementary heater :				No			
if applicable :				electric motor			
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	14.0	kW	Seasonal space heating energy efficiency ηs,h		150	%
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	Pdh	14.9	kW	Tj=-7°C	COPd or GUEh,bin / AEFh,bin	240	%
Tj=+2°C	Pdh	9.0	kW	Tj=+2°C	COPd or GUEh,bin / AEFh,bin	374	%
Tj=+7°C	Pdh	5.8	kW	Tj=+7°C	COPd or GUEh,bin / AEFh,bin	505	%
Tj=+12°C	Pdh	4.6	kW	Tj=+12°C	COPd or GUEh,bin / AEFh,bin	609	%
Tbiv=bivalent temperature	Pdh	16.8	kW	Tbiv=bivalent temperature	COPd or GUEh,bin / AEFh,bin	227	%
TOL=operation limit	Pdh	13.0	kW	TOL=operation limit	COPd or GUEh,bin / AEFh,bin	218	%
For air-to-water heat pumps : Tj=-15°C (if TOL < -20°C)	Pdh	-	kW	For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	COPd or GUEh,bin / AEFh,bin	-	%
Bivalent temperature	Tbiv	-10.0	°C	For water-to-air heat pumps: Operation limit TOL temperature		-	°C
Degradation coefficient heat pumps**	Cdh	0.25	-				
Power consumption in modes other than 'active mode'				Supplementary heater back-up heating capacity			
Off mode	P _{OFF}	0.035	kW		elbu	-	kW
Thermostat-off mode	P _{TO}	0.040	kW	Type of energy input Standby mode	P _{SB}	0.035	kW
Crankcase heater mode	P _{CK}	0.035	kW				
Other items				For air-to-air heat pumps: air flow-rate, outdoor measured			
Capacity control		variable				6000	m ³ /h
Sound power level, outdoor measured	L _{WA}	70.0	dB	For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m ³ /h
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details		Mitsubishi heavy industries thermal systems,LTD					
** If Cdh is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

FDTC140VSXTVG

Model(s) : FDC140VSX / FDTC50VG (x3 units)							
Outdoor side heat exchanger of air conditioner : air							
Indoor side heat exchanger of air conditioner : air							
Type : vapour compression							
if applicable : electric motor							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	14.0	kW	Seasonal space cooling energy efficiency ηs,c		215	%
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)				Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	Pdc	14.0	kW	Tj=+35°C	EERd or GUEc,bin / AEFc,bin	333	%
Tj=+30°C	Pdc	10.3	kW	Tj=+30°C	EERd or GUEc,bin / AEFc,bin	491	%
Tj=+25°C	Pdc	6.6	kW	Tj=+25°C	EERd or GUEc,bin / AEFc,bin	664	%
Tj=+20°C	Pdc	5.2	kW	Tj=+20°C	EERd or GUEc,bin / AEFc,bin	837	%
Degradation coefficient for air conditioners**	Cdc	0.25	-				
Power consumption in other than 'active mode'							
Off mode	P _{OFF}	0.035	kW	Crankcase heater mode	P _{CK}	0.035	kW
Thermostat-off mode	P _{TO}	0.000	kW	Standby mode	P _{SB}	0.035	kW
Other items				For air-to-air air conditioner: air flow-rate,outdoor measured			
Capacity control		variable				6000	m ³ /h
Sound power level, outdoor	L _{WA}	72.0	dB				
If engine driven: Emissions of nitrogen oxides	NOx ^{***}	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details	Mitsubishi heavy industries thermal systems,LTD						
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

Information to identify the model(s) to which the information relates :				FDC140VSX / FDTC50VG (x3 units)			
Outdoor side heat exchanger of heat pump :				air			
Indoor side heat exchanger of heat pump :				air			
Indication if the heater is equipped with a supplementary heater :				No			
if applicable :				electric motor			
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	16.0	kW	Seasonal space heating energy efficiency ηs,h		168	%
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	Pdh	15.1	kW	Tj=-7°C	COPd or GUEh,bin / AEFh,bin	269	%
Tj=+2°C	Pdh	9.2	kW	Tj=+2°C	COPd or GUEh,bin / AEFh,bin	416	%
Tj=+7°C	Pdh	5.9	kW	Tj=+7°C	COPd or GUEh,bin / AEFh,bin	565	%
Tj=+12°C	Pdh	4.7	kW	Tj=+12°C	COPd or GUEh,bin / AEFh,bin	686	%
Tbiv=bivalent temperature	Pdh	17.0	kW	Tbiv=bivalent temperature	COPd or GUEh,bin / AEFh,bin	254	%
TOL=operation limit	Pdh	14.8	kW	TOL=operation limit	COPd or GUEh,bin / AEFh,bin	269	%
For air-to-water heat pumps : Tj=-15°C (if TOL < -20°C)	Pdh	-	kW	For air-to-water heat pumps:Tj=-15°C (if TOL < -20°C)	COPd or GUEh,bin / AEFh,bin	-	%
Bivalent temperature	Tbiv	-10.0	°C	For water-to-air heat pumps:Operation limit TOL temperature		-	°C
Degradation coefficient heat pumps**	Cdh	0.25	-				
Power consumption in modes other than 'active mode'				Supplementary heater back-up heating capacity			
Off mode	P _{OFF}	0.035	kW		elbu	-	kW
Thermostat-off mode	P _{TO}	0.040	kW	Type of energy input Standby mode	P _{SB}	0.035	kW
Crankcase heater mode	P _{CK}	0.035	kW				
Other items				For air-to-air heat pumps: air flow-rate,outdoor measured			
Capacity control		variable				6000	m3/h
Sound power level, outdoor measured	L _{WA}	72.0	dB	For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m3/h
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details				Mitsubishi heavy industries thermal systems,LTD			
** If Cdh is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

Models FDTC40VG, 50VG, 60VG

Model(s) : FDTC40VG							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Cooling capacity (sensible)	$P_{rated,c}$	3.4	kW	Total electric power input	P_{elec}	0.050	kW
Cooling capacity (latent)	$P_{rated,c}$	0.6	kW	Sound power level (per speed setting,if applicable)	L_{WA}	59.0	dB
Heating capacity	$P_{rated,h}$	4.5	kW				
Contact details	Mitsubishi heavy industries thermal systems,LTD						

Model(s) : FDTC50VG							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Cooling capacity (sensible)	$P_{rated,c}$	3.8	kW	Total electric power input	P_{elec}	0.050	kW
Cooling capacity (latent)	$P_{rated,c}$	1.2	kW	Sound power level (per speed setting,if applicable)	L_{WA}	59.0	dB
Heating capacity	$P_{rated,h}$	5.4	kW				
Contact details	Mitsubishi heavy industries thermal systems,LTD						

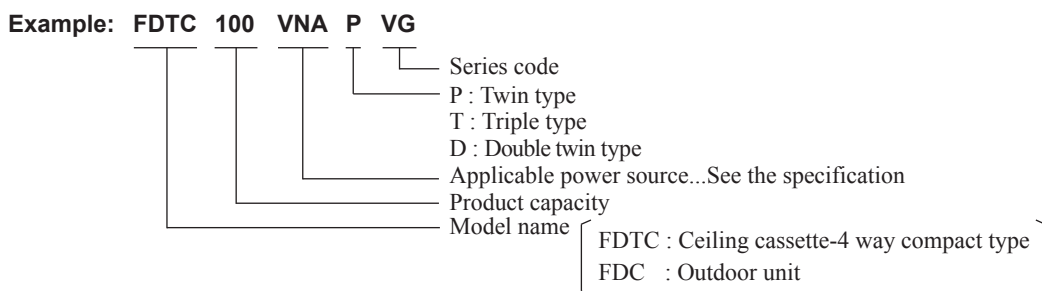
Model(s) : FDTC60VG							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Cooling capacity (sensible)	$P_{rated,c}$	3.9	kW	Total electric power input	P_{elec}	0.060	kW
Cooling capacity (latent)	$P_{rated,c}$	1.7	kW	Sound power level (per speed setting,if applicable)	L_{WA}	60.0	dB
Heating capacity	$P_{rated,h}$	6.7	kW				
Contact details	Mitsubishi heavy industries thermal systems,LTD						

2. MICRO INVERTER PACKAGED AIR-CONDITIONERS

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2.1 SPECIFICATIONS

(1) Twin type

Item	Model		FDTC100VNAPVG			
			Indoor unit FDTC50VG (2 units)	Outdoor unit FDC100VNA		
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 3.30			
		Heating	3.15			
	Max power consumption		6.40			
	Running current	Cooling	A 14.6 / 15.3			
		Heating	14.0 / 14.6			
	Inrush current, max current		5 , 25			
	Power factor	Cooling	% 98			
		Heating	98			
	EER		Cooling 3.03			
	COP		Heating 3.56			
	Sound power level	Cooling	dB(A) 59			
		Heating	70			
Sound pressure level	Cooling	P-Hi : 44 Hi : 40 Me : 35 Lo : 27				
	Heating	54 56				
Silent mode sound pressure level		50 / 44 (Normal / Silent)				
Exterior dimensions (Height x Width x Depth)		mm	Unit 248 × 570 × 570 Panel 10 × 620 × 620			
Exterior appearance (Munsell color) (RAL color)		Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight		kg	Unit 14 Panel 2.5 80			
Compressor type & Q'ty		—		RMT5126MCE3×1		
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 fin & inner grooved tubing		Straight fin & inner grooved tubing		
Refrigerant control		Electronic expansion valve				
Fan type & Q'ty		Turbo fan ×1		Propeller fan ×1		
Fan motor (Starting method)		W	50 < Direct line start > 86 < Direct line start >			
Air flow	Cooling	m ³ /min	P-Hi : 13 Hi : 11 Me : 9 Lo : 7			
	Heating	75 73				
Available external static pressure		Pa	0 —			
Outside air intake		Possible —				
Air filter, Quality / Quantity		Pocket plastic net ×1(Washable) —				
Shock & vibration absorber		Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)		
Electric heater		W	0 —			
Operation control	Remote control		(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2			
	Room temperature control		Thermostat by electronics			
	Operation display		—			
Safety equipments		Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection				
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm I/U φ 6.35 (1/4") ② φ 9.52(3/8")x0.8 ① φ 9.52(3/8")x0.8 O/U φ 9.52 (3/8")			
		Gas line	I/U φ 12.7 (1/2") ② φ 12.7(1/2")x0.8 ① φ 15.88(5/8")x1.0 O/U φ 15.88 (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.30m (Outdoor unit is higher) 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 VP25(O.D.32)		Hole size φ 20 × 3pcs		
Drain pump, max lift height		mm	Built-in drain pump , 850 —			
Recommended breaker size		A	—			
L.R.A. (Locked rotor ampere)		A	5.0			
Interconnecting wires		Size x Core number	φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)			
IP number		IPX0		IPX24		
Standard accessories		Mounting kit, Drain hose		Edging		
Option parts		OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E				
Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.						
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards
		DB	WB	DB	WB	
	Cooling	27°C	19°C	35°C	24°C	
Heating	20°C	—	7°C	6°C		
(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 indicate when the air-conditioner is operated at 230V50Hz or 220V60Hz.						
(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-WA1G"×1(Option). ① : Pipe of O/U-Branch, ② : Pipe of Branch-I/U						

Item		Model		FDTC100VSAPVG				
				Indoor unit FDTC50VG (2 units)		Outdoor unit FDC100VSA		
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		3.30			
		Heating	kW		3.15			
	Max power consumption			10.2				
	Running current	Cooling	A		4.9 / 5.1			
		Heating	A		4.6 / 4.9			
	Inrush current, max current			5 , 15				
	Power factor	Cooling	%		98			
		Heating	%		98			
	EER	Cooling		3.03				
	COP	Heating		3.56				
	Sound power level	Cooling	dB(A)		59		70	
		Heating	dB(A)		59		70	
Sound pressure level	Cooling	dB(A)		P-Hi : 44 Hi : 40 Me : 35 Lo : 27		54		
	Heating	dB(A)		P-Hi : 44 Hi : 40 Me : 35 Lo : 27		56		
Silent mode sound pressure level			-		50 / 44 (Normal / Silent)			
Exterior dimensions (Height x Width x Depth)		mm		Unit 248 x 570 x 570 Panel 10 x 620 x 620		845x970x370		
Exterior appearance (Munsell color) (RAL color)				Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight		kg		Unit 14 Panel 2.5		82		
Compressor type & Q'ty				-		RMT5126MCE4x1		
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 fin & inner grooved tubing		Straight fin & inner grooved tubing		
Refrigerant control				Electronic expansion valve				
Fan type & Q'ty				Turbo fan x1		Propeller fan x1		
Fan motor (Starting method)		W		50 < Direct line start >		86 < Direct line start >		
Air flow	Cooling	m ³ /min		P-Hi : 13 Hi : 11 Me : 9 Lo : 7		75		
	Heating	m ³ /min		P-Hi : 13 Hi : 11 Me : 9 Lo : 7		73		
Available external static pressure		Pa		0		-		
Outside air intake				Possible		-		
Air filter, Quality / Quantity				Pocket plastic net x1(Washable)		-		
Shock & vibration absorber				Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)		
Electric heater		W		0		20(Crank case heater)		
Operation control	Remote control			(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2				
	Room temperature control			Thermostat by electronics				
	Operation display			-				
Safety equipments				Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection				
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm	I/U ϕ 6.35 (1/4") ②ϕ 9.52(3/8")x0.8 ①ϕ 9.52(3/8")x0.8 O/U ϕ 9.52 (3/8")				
		Gas line		I/U ϕ 12.7 (1/2") ②ϕ 12.7(1/2")x0.8 ①ϕ 15.88(5/8")x1.0 O/U ϕ 15.88 (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 VP25(O.D.32)		Hole size ϕ 20 x 3pcs			
Drain pump, max lift height		mm		Built-in drain pump , 850		-		
Recommended breaker size		A		-				
L.R.A. (Locked rotor ampere)		A		5.0				
Interconnecting wires		Size x Core number		ϕ 1.6mmx3 cores (Including earth cable) / Terminal block (Screw fixing type)				
IP number				IPX0		IPX24		
Standard accessories				Mounting kit, Drain hose		Edging		
Option parts				OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E				
Notes (1) The data are measured at the following conditions.				The pipe length is 7.5m.				
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards		
		DB	WB	DB	WB			
	Cooling	27°C	19°C	35°C	24°C	ISO5151-T1		
Heating	20°C	-	7°C	6°C				
(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 indicate when the air-conditioner is operated at 400V50Hz or 380V60Hz. (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-WA1G"x1(Optional). ① : Pipe of O/U-Branch, ② : Pipe of Branch-I/U								

Item		Model		FDTC125VNAPVG			
				Indoor unit	FDTC60VG (2 units)	Outdoor unit	FDC125VNA
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		4.90		
		Heating	kW		4.50		
	Max power consumption			6.40			
	Running current	Cooling	A		21.7 / 22.7		
		Heating	A		20.0 / 20.9		
	Inrush current, max current			5 , 25			
	Power factor	Cooling	%		98		
		Heating	%		98		
	EER	Cooling			2.55		
	COP	Heating			3.11		
	Sound power level	Cooling	dB(A)		60		
		Heating	dB(A)		71		
Sound pressure level	Cooling	dB(A)		P-Hi : 46 Hi : 42 Me : 38 Lo : 31			
	Heating	dB(A)		55			
Silent mode sound pressure level					57		
Exterior dimensions (Height x Width x Depth)	mm		Unit 248 × 570 × 570 Panel 10 × 620 × 620		845×970×370		
Exterior appearance (Munsell color) (RAL color)			Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight	kg		Unit 14 Panel 2.5		80		
Compressor type & Q'ty			—		RMT5126MCE3×1		
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 fin & inner grooved tubing		Straight fin & inner grooved tubing		
Refrigerant control			Electronic expansion valve				
Fan type & Q'ty			Turbo fan ×1		Propeller fan ×1		
Fan motor (Starting method)	W		50 < Direct line start >		86 < Direct line start >		
Air flow	Cooling	m ³ /min		P-Hi : 14 Hi : 12 Me : 10 Lo : 8		75	
	Heating	m ³ /min				73	
Available external static pressure	Pa		0		—		
Outside air intake			Possible		—		
Air filter, Quality / Quantity			Pocket plastic net ×1(Washable)		—		
Shock & vibration absorber			Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)		
Electric heater	W		0		20(Crank case heater)		
Operation control	Remote control	(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2					
	Room temperature control	Thermostat by electronics					
	Operation display	—					
Safety equipments		Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection					
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm		I/U φ 6.35 (1/4") ② φ 9.52(3/8")x0.8 ① φ 9.52(3/8")x0.8 O/U φ 9.52 (3/8")		
		Gas line	mm		I/U φ 12.7 (1/2") ② φ 12.7(1/2")x0.8 ① φ 15.88(5/8")x1.0 O/U φ 15.88 (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 VP25(O.D.32)		Hole size φ 20 × 3pcs		
Drain pump, max lift height	mm		Built-in drain pump , 850		—		
Recommended breaker size	A		—				
L.R.A. (Locked rotor ampere)	A		5.0				
Interconnecting wires	Size x Core number		φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)				
IP number			IPX0		IPX24		
Standard accessories			Mounting kit, Drain hose		Edging		
Option parts			OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E				
Notes (1) The data are measured at the following conditions.				The pipe length is 7.5m.			
Operation	Item	Indoor air temperature		Outdoor air temperature		Standards	
		DB	WB	DB	WB	ISO5151-T1	
	Cooling	27°C	19°C	35°C	24°C		
Heating	20°C	—	7°C	6°C			
(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 indicate when the air-conditioner is operated at 230V50Hz or 220V60Hz.							
(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-WA1G"×1(Optional). ① : Pipe of O/U-Branch, ② : Pipe of Branch-I/U							

Item		Model		FDTC125VSAPVG			
				Indoor unit	FDTC60VG (2 units)	Outdoor unit	FDC125VSA
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		4.90		
		Heating	kW		4.50		
	Max power consumption			10.2			
	Running current	Cooling	A		7.2 / 7.6		
		Heating	A		6.6 / 7.0		
	Inrush current, max current			5 , 15			
	Power factor	Cooling	%		98		
		Heating	%		98		
	EER	Cooling			2.55		
	COP	Heating			3.11		
	Sound power level	Cooling	dB(A)		60		
		Heating	dB(A)		71		
Sound pressure level	Cooling	dB(A)		P-Hi : 46 Hi : 42 Me : 38 Lo : 31			
	Heating	dB(A)		55			
Silent mode sound pressure level					57		
Exterior dimensions (Height x Width x Depth)	mm		Unit 248 x 570 x 570 Panel 10 x 620 x 620		845x970x370		
Exterior appearance (Munsell color) (RAL color)			Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent		Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent		
Net weight	kg		Unit 14 Panel 2.5		82		
Compressor type & Q'ty			-		RMT5126MCE4x1		
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 fin & inner grooved tubing		Straight fin & inner grooved tubing		
Refrigerant control			Electronic expansion valve				
Fan type & Q'ty			Turbo fan x1		Propeller fan x1		
Fan motor (Starting method)	W		50 < Direct line start >		86 < Direct line start >		
Air flow	Cooling	m ³ /min		P-Hi : 14 Hi : 12 Me : 10 Lo : 8			
	Heating	m ³ /min		75			
Available external static pressure	Pa		0		-		
Outside air intake			Possible		-		
Air filter, Quality / Quantity			Pocket plastic net x1(Washable)		-		
Shock & vibration absorber			Rubber sleeve (for fan motor)		Rubber sleeve (for compressor)		
Electric heater	W		0		20(Crank case heater)		
Operation control	Remote control	(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2					
	Room temperature control	Thermostat by electronics					
	Operation display	-					
Safety equipments		Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection					
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm			I/U φ 6.35 (1/4") ②φ 9.52(3/8"x)0.8 ①φ 9.52(3/8"x)0.8 O/U φ 9.52 (3/8")	
		Gas line	mm			I/U φ 12.7 (1/2") ②φ 12.7(1/2"x)0.8 ①φ 15.88(5/8"x)1.0 O/U φ 15.88 (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 VP25(O.D.32)		Hole size φ 20 x 3pcs		
Drain pump, max lift height	mm		Built-in drain pump , 850		-		
Recommended breaker size	A		-				
L.R.A. (Locked rotor ampere)	A		5.0				
Interconnecting wires	Size x Core number		φ 1.6mmx3 cores (Including earth cable) / Terminal block (Screw fixing type)				
IP number			IPX0		IPX24		
Standard accessories			Mounting kit, Drain hose		Edging		
Option parts			OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E				
Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.							
Item		Indoor air temperature		Outdoor air temperature		Standards	
Operation	DB	WB	DB	WB	ISO5151-T1		
	Cooling	27°C	19°C	35°C			24°C
	Heating	20°C	-	7°C			6°C
(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 indicate when the air-conditioner is operated at 400V50Hz or 380V60Hz.							
(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-WA1G"x1(Option). ① : Pipe of O/U-Branch, ② : Pipe of Branch-I/U							

Item		Model		FDTC250VSADVG																						
				Indoor unit	FDTC60VG (4 units)	Outdoor unit	FDC250VSA																			
Power source		3 phase 380-415V 50Hz / 380V 60Hz																								
Operation data	Nominal cooling capacity (range)	kW		24.0 [6.9(Min.)-28.0(Max.)]																						
	Nominal heating capacity (range)	kW		27.0 [5.5(Min.)-31.5(Max.)]																						
	Power consumption	Cooling	kW		10.65																					
		Heating	kW		8.20																					
	Max power consumption			10.2																						
	Running current	Cooling	A		16.7 / 17.4																					
		Heating	A		12.9 / 13.4																					
	Inrush current, max current			5 , 21																						
	Power factor	Cooling	%		92 / 93																					
		Heating	%		92 / 93																					
	EER	Cooling			2.25																					
	COP	Heating			3.29																					
	Sound power level	Cooling	dB(A)		60	75																				
		Heating	dB(A)		60	75																				
Sound pressure level	Cooling	dB(A)		P-Hi : 46 Hi : 42 Me : 38 Lo : 31	61																					
	Heating	dB(A)		P-Hi : 46 Hi : 42 Me : 38 Lo : 31	62																					
Silent mode sound pressure level			-		54																					
Exterior dimensions (Height x Width x Depth)		mm		Unit 248 × 570 × 570 Panel 10 × 620 × 620	1,505×970×370																					
Exterior appearance (Munsell color) (RAL color)				Fine snow (8.0Y9.3/0.1) near equivalent (RAL 9001) near equivalent	Stucco white (4.2Y7.5/1.1) near equivalent (RAL 7004) near equivalent																					
Net weight		kg		Unit 14 Panel 2.5	143																					
Compressor type & Q'ty				-	GTC5150NC40KF×1																					
Compressor motor (Starting method)		kW		-	Direct line start																					
Refrigerant oil (Amount, type)		ℓ		-	1.45 (M-MA32R)																					
Refrigerant (Type, amount, pre-charge length)		kg		R410A 7.2kg(Pre-charged up to the piping length of 30m)Outdoor unit																						
Heat exchanger				Louver fin & inner grooved tubing	M shape fin & inner grooved tubing																					
Refrigerant control				Electronic expansion valve																						
Fan type & Q'ty				Turbo fan ×1	Propeller fan ×1																					
Fan motor (Starting method)		W		50 < Direct line start >	86×2 < Direct line start >																					
Air flow	Cooling	m ³ /min		P-Hi : 14 Hi : 12 Me : 10 Lo : 8																						
	Heating	m ³ /min		143																						
Available external static pressure		Pa		0	0																					
Outside air intake				Possible	-																					
Air filter, Quality / Quantity				Pocket plastic net ×1(Washable)	-																					
Shock & vibration absorber				Rubber sleeve (for fan motor)	Rubber sleeve (for compressor)																					
Electric heater		W		0	20(Crank case heater)																					
Operation control	Remote control	(Option) Wired : RC-EX3A, RC-E5, RCH-E3 Wireless : RCN-TC-5AW-E2																								
	Room temperature control	Thermostat by electronics																								
	Operation display	-																								
Safety equipments		Overload protection for fan motor, Frost protection thermostat Internal thermostat for fan motor, Abnormal discharge temperature protection																								
Installation data	Refrigerant piping size (O.D.)	Liquid line	mm			I/U φ 6.35 (1/4") ③② φ 9.52(3/8")x0.8 ① φ 12.7(1/2")x0.8 O/U φ 12.7 (1/2")																				
		Gas line	mm			I/U φ 12.7 (1/2") ③ φ 12.7x0.8 ② φ 15.88x1.0 ① φ 22.22(7/8")x1.0 or φ 25.4(1")x1.0 or φ 28.58(1 1/8")x1.0 O/U φ 22.22 (7/8")																				
	Connecting method			Flare piping																						
	Attached length of piping	m		-																						
	Insulation for piping			Necessary (both Liquid & Gas lines)																						
	Refrigerant line (one way) length	m		Max.70m																						
	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 VP25(O.D.32) Hole size φ 20 × 3pcs																							
Drain pump, max lift height	mm		Built-in drain pump , 850																							
Recommended breaker size	A		-																							
L.R.A. (Locked rotor ampere)	A		5/5																							
Interconnecting wires	Size x Core number		φ 1.6mm×3 cores (Including earth cable) / Terminal block (Screw fixing type)																							
IP number			IPX0		IPX24																					
Standard accessories				Mounting kit, Drain hose	Connecting pipe, Edging																					
Option parts				OA Spacer : TC-OAS-E2 , TC-OAD-E , Motion sensor : LB-TC-5W-E																						
Notes (1) The data are measured at the following conditions. The pipe length is 7.5m.																										
<table border="1"> <thead> <tr> <th rowspan="2">Item</th> <th colspan="2">Indoor air temperature</th> <th colspan="2">Outdoor air temperature</th> <th rowspan="2">Standards</th> </tr> <tr> <th>DB</th> <th>WB</th> <th>DB</th> <th>WB</th> </tr> </thead> <tbody> <tr> <td>Cooling</td> <td>27°C</td> <td>19°C</td> <td>35°C</td> <td>24°C</td> <td rowspan="2">ISO5151-T1</td> </tr> <tr> <td>Heating</td> <td>20°C</td> <td>-</td> <td>7°C</td> <td>6°C</td> </tr> </tbody> </table>						Item	Indoor air temperature		Outdoor air temperature		Standards	DB	WB	DB	WB	Cooling	27°C	19°C	35°C	24°C	ISO5151-T1	Heating	20°C	-	7°C	6°C
Item	Indoor air temperature		Outdoor air temperature		Standards																					
	DB	WB	DB	WB																						
Cooling	27°C	19°C	35°C	24°C	ISO5151-T1																					
Heating	20°C	-	7°C	6°C																						
(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 indicate when the air-conditioner is operated at 400V50Hz or 380V60Hz.																										
(6) Indoor unit specifications for one unit. Capacity and operation data is four indoor units are combined and run together.																										
(7) Branching pipe set "DIS-WB1G"×1,"DIS-WA1G"×2 (Option). Pipe ① : O/U-Branch, ② : Branch-Branch, ③ : Branch-I/U																										
(8) Use 1/2H pipes having a 1.0mm or thicker wall for φ 19.05 or larger pipes.																										

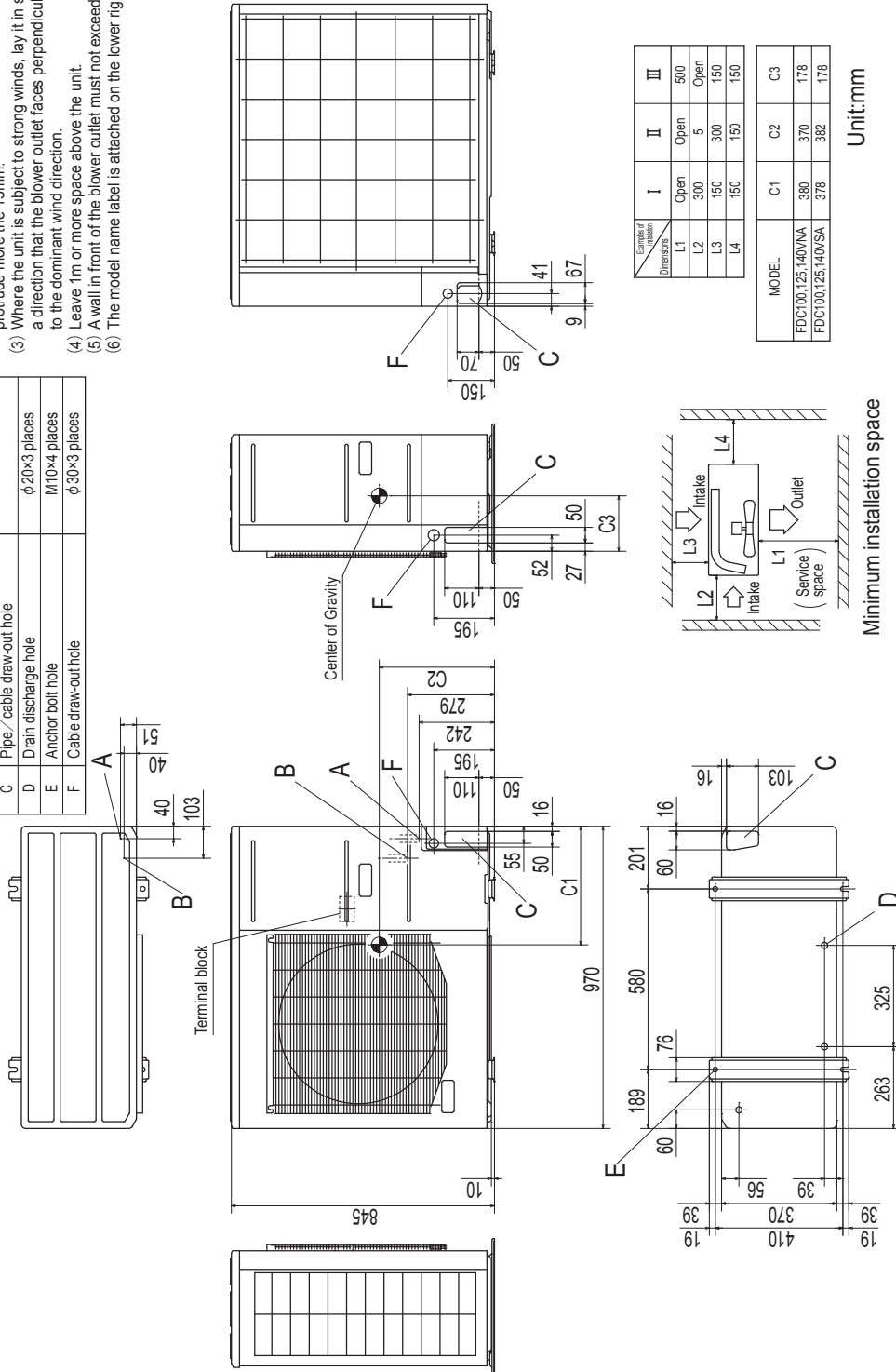
2.2 EXTERIOR DIMENSIONS

- (1) Indoor units See page 13.
 (2) Outdoor units
 Models FDC100VNA, 125VNA, 140VNA
 100VSA, 125VSA, 140VSA

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 than 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.

Symbol	Content
A	Service valve connection (gas side) $\phi 15.88 (5/8")$ (Flare)
B	Service valve connection (liquid side) $\phi 9.52 (3/8")$ (Flare)
C	Pipe/Cable draw-out hole $\phi 20 \times 3$ places
D	Drain discharge hole M10 \times 4 places
E	Anchor bolt hole $\phi 30 \times 3$ places
F	Cable draw-out hole



Examples of installation dimensions	I		II		III	
	L1	Open	Open	Open	500	500
L2	300	5	300	5	300	178
L3	150	300	150	150	150	178
L4	150	150	150	150	150	178

MODEL	C1	C2	C3
FDC100,125,140VNA	380	370	178
FDC100,125,140VSA	378	382	178

Unit:mm

Minimum installation space

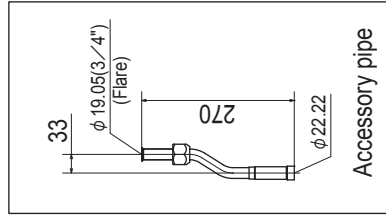
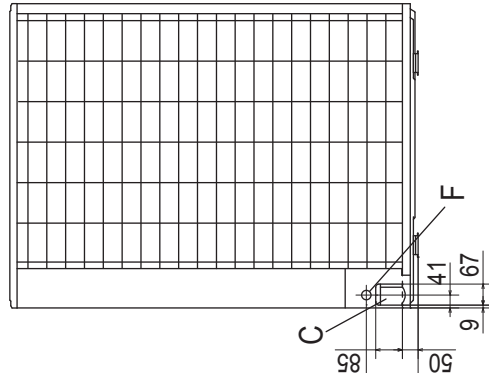
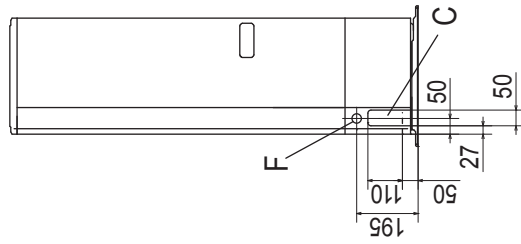
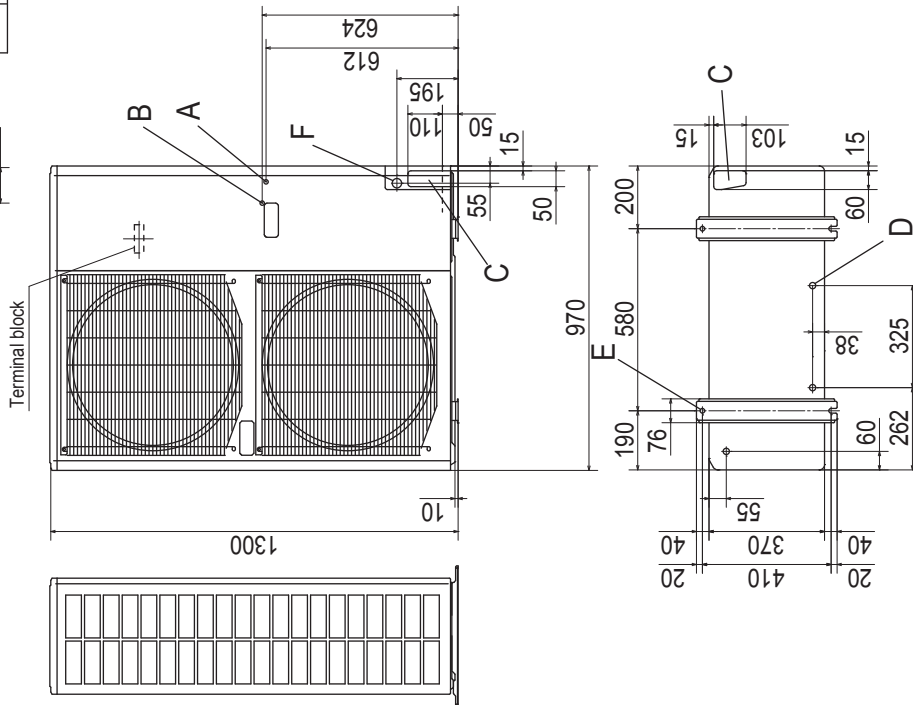
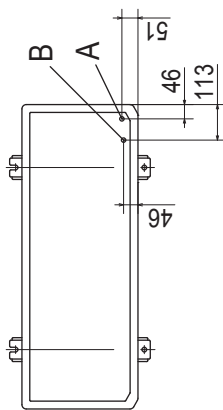
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Model FDC200VSA

Notes

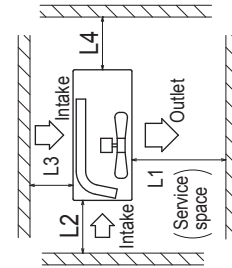
- (1) It must not be surrounded by walls on the four sides.
- (2) The unit must be fixed with anchor bolts.
- (3) Where the unit is subject to strong winds, lay it in such a direction that the blower outlet faces perpendicularly to the dominant wind direction.
- (4) Leave 1m or more space above the unit.
- (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.
- (7) Connect the service valve with local pipe by using the pipe of the attachment (Gas side only)
- (8) Regarding attaching the pipe of accessories, refer to service manual.

Symbol	Content
A	Service valve connection of the attached connecting pipe (gas side) φ19.05(3/4") (Flare)
B	Service valve connection (liquid side) φ9.52(3/8") (Flare)
C	Pipe/cable draw-out hole
D	Drain discharge hole
E	Anchor bolt hole
F	Cable draw-out hole



Unit:mm

Dimensions	Examples of installation		
	I	II	III
L1	Open	Open	500
L2	300	5	Open
L3	150	300	150
L4	5	5	5



Minimum installation space

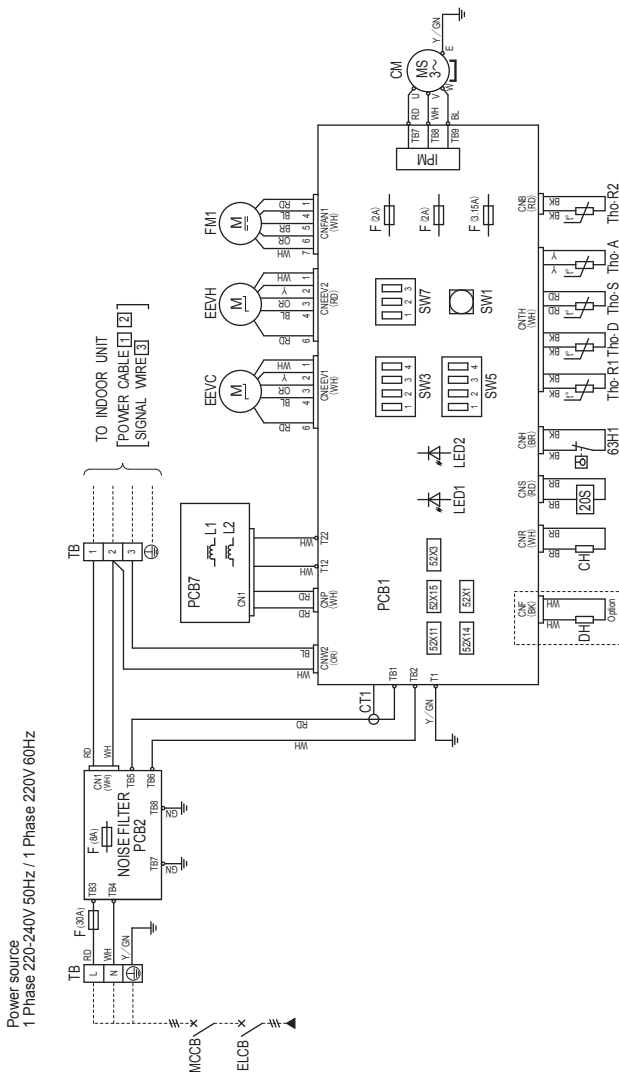
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2.3 ELECTRICAL WIRING

- (1) Indoor units See page 20.
 (2) Outdoor units
 Models FDC100VNA, 125VNA, 140VNA

ITEM	DESCRIPTION
CH	Crankcase heater
CM	Compressor motor
CN	Connector
CT1	Current sensor
DH	Drain pan heater
EEVC	Expansion valve for cooling
EEVH	Expansion valve for heating
F	Fuse
FM1	Fan motor
IPM	Intelligent power module
LED1	Indication lamp (GREEN)
LED2	Indication lamp (RED)
L1,2	Reactor
SW1	Switch
SW3,5,7	Local setting switch
TB	Terminal block
Thb-A	Thermistor (Outdoor air temp.)
Thb-D	Thermistor (Discharge pipe temp.)
Thb-R1,R2	Thermistor (Heat exchanger temp.)
Thb-S	Thermistor (Suction pipe temp.)
20S	Solenoid valve for 4-way valve
52X1	Auxiliary relay
52X3	Auxiliary relay
52X11	Auxiliary relay (for 20S)
52X14	Auxiliary relay (for CH)
52X15	Auxiliary relay (for DH)
63H1	High pressure switch

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



Local setting switch SW3,5,7 (Set up at shipment OFF)

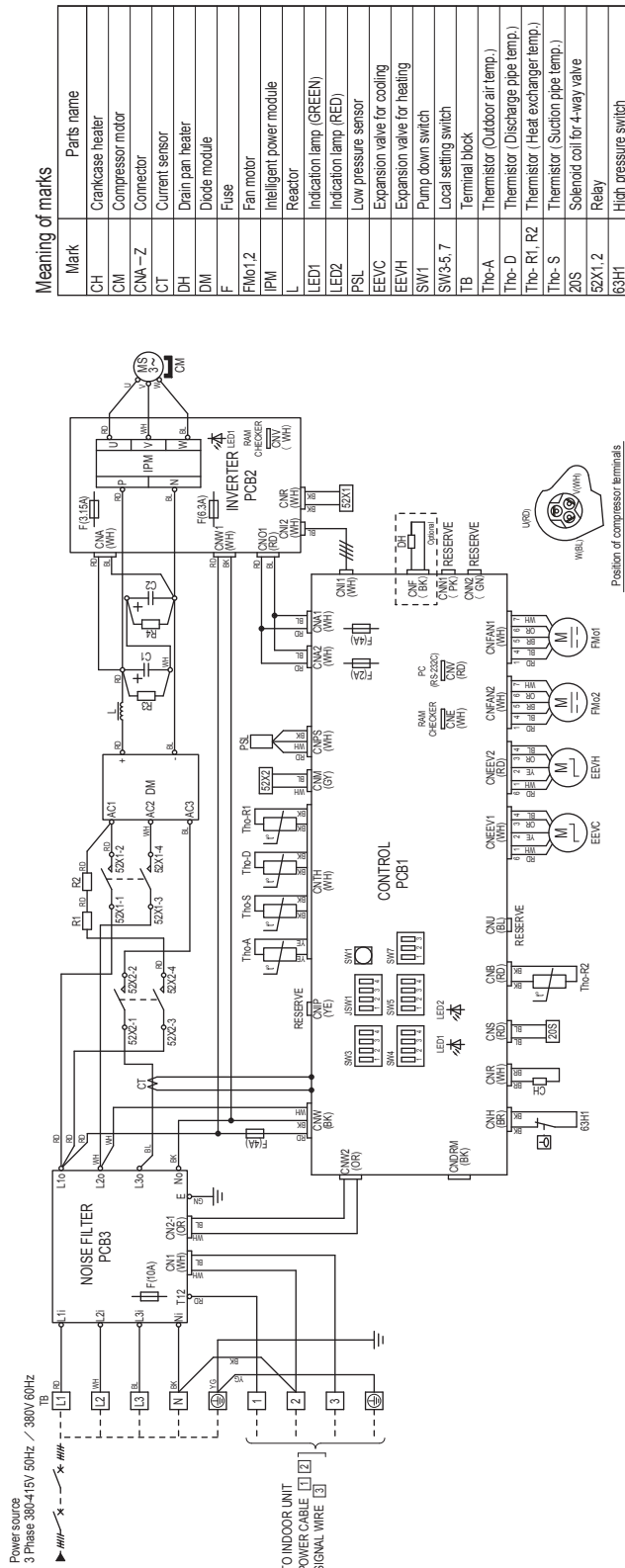
Item	Description
SW3-1	Defrost control change
SW3-2	Snow guard fan control
SW3-3,4	Trial operation
SW5-2	High height difference operation control
SW7-2	Defrost control change
SW7-3	Lower noise silent mode

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	22	Ø1.6mm x 3	Ø1.6
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	26	5.5	20	Ø1.6mm x 3	Ø1.6
125					
140					

- 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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Model FDC200VSA



Meaning of marks

Mark	Parts name
CH	Criticase heater
CM	Compressor motor
CNA-Z	Connector
CT	Current sensor
DH	Drain pan heater
DM	Diode module
F	Fuse
F1M1.2	Fan motor
IPM	Intelligent power module
L	Reactor
LED1	Indication lamp (GREEN)
LED2	Indication lamp (RED)
PSL	Low pressure sensor
EEVC	Expansion valve for cooling
EEVH	Expansion valve for heating
SW1	Pump down switch
SW3-5,7	Local setting switch
TB	Terminal block
Th-A	Thermistor (Outdoor air temp.)
Th-D	Thermistor (Discharge pipe temp.)
Th-R1, R2	Thermistor (Heat exchanger temp.)
Th-S	Thermistor (Suction pipe temp.)
20S	Solenoid coil for 4-way valve
52X1, 2	Relay
63H1	High pressure switch

Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GN	Green
OR	Orange
RD	Red
WH	White
YE	Yellow
YG	Yellow/Green
GY	Gray
PK	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°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 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

MAX over current (A)	Power cable size (mm)	Indoor-outdoor wire size x number	Earth wire size
25	5.5	φ1.6mm x 3	φ1.6mm

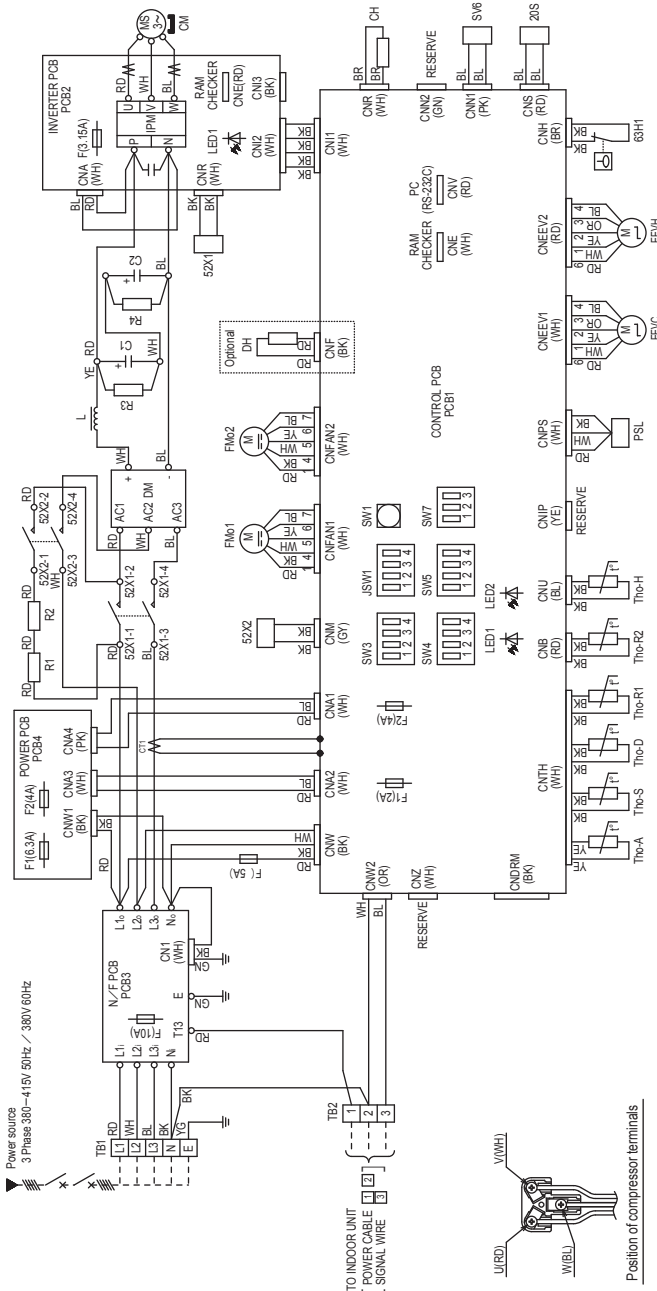
- The specifications shown in the above table are for units without heaters. For units with heaters, refer to the installation instructions or the construction instructions of the indoor unit.
- Switchgear of circuit breaker capacity which is calculated from MAX. over current should be chosen along the 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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Model FDC250VSA

Meaning of marks

Mark	Parts name
CH	Crankcase heater
CM	Compressor motor
CNA-Z	Cometor
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)
PSL	Low pressure sensor
EEVC	Expansion valve for cooling
EEVH	Expansion valve for heating
SW1	Pump down switch
SW3-5,7	Local setting switch
TB	Terminal block
Tho-A	Thermistor (Outdoor air temp.)
Tho-D	Thermistor (Discharge pipe temp.)
Tho-R1,R2	Thermistor (Heat exchanger temp.)
Tho-H	Thermistor (Suction pipe temp.)
Tho-S	Thermistor (Comp. under dome temp.)
20S	Solenoid coil for 4-way valve
SV6	Solenoid coil for 2 way valve
52X1, 2	Relay
63H1	High pressure switch



Position of compressor terminals

Power cable, indoor-outdoor connecting wires

MAX over current (A)	Power cable size (mm ²)	Power cable length (m)	Indoor-outdoor wire size x number	Earth wire size
27	5.5	40	φ 1.6mm x 3	φ 1.6mm

- 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.

Local setting switch SW3 (Set up at shipment OFF)

SW3-1	SW3-2	SW3-3,4
Defrost control change	Snow guard fan control	Trial operation

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.

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.

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.

Color marks

Mark	Color
BK	Black
BL	Blue
BR	Brown
GN	Green
OR	Orange
RD	Red
WH	White
YE	Yellow
YG	Yellow/Green
GY	Gray
PK	Pink

PCB003Z866

2.4 NOISE LEVEL

Notes(1) The data are based on the following conditions.

Ambient air temperature: Indoor unit 27°CWB. Outdoor unit 35°CDB.

(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 25.

(2) Outdoor units

Measured based on JIS B 8616

Mike position: at highest noise level in position as mentioned below

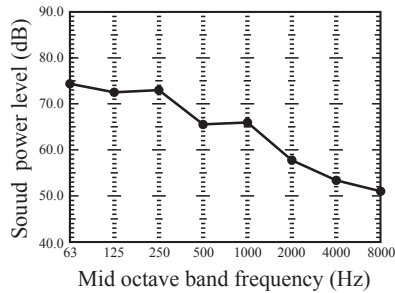
Distance from front side 1m

Height 1m

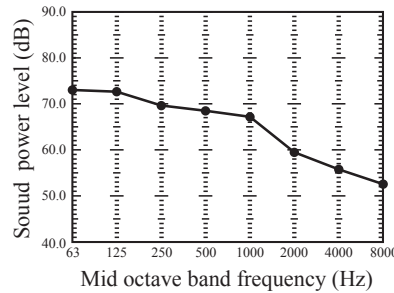
(a) FDC100-140

(i) Sound power level

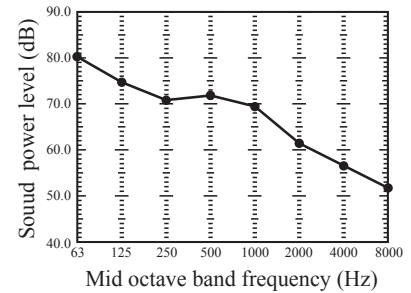
Models FDC100VNA,100VSA
Noise level 70 dB (A)



Models FDC125VNA,125VSA
Noise level 71 dB (A)



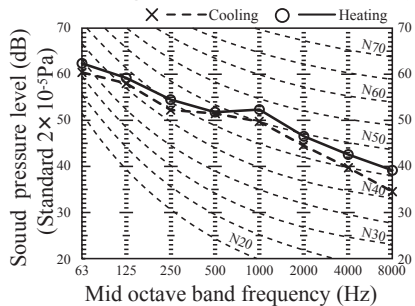
Models FDC140VNA,140VSA
Noise level 73 dB (A)



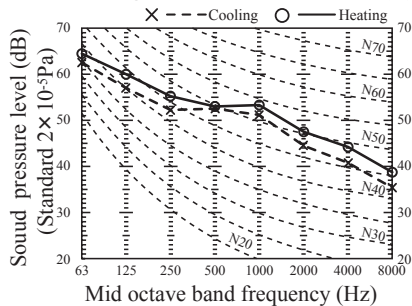
(ii) Sound pressure level

1) Rating mode

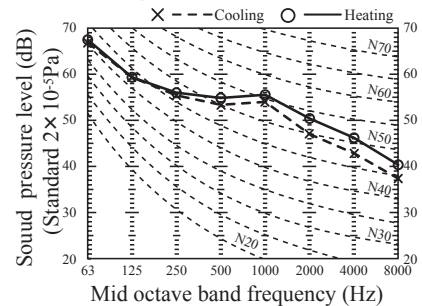
Models FDC100VNA,100VSA
Cooling noise level Hi : 54 dB (A)
Heating noise level Hi : 56 dB (A)



Models FDC125VNA,125VSA
Cooling noise level Hi : 55 dB (A)
Heating noise level Hi : 57 dB (A)

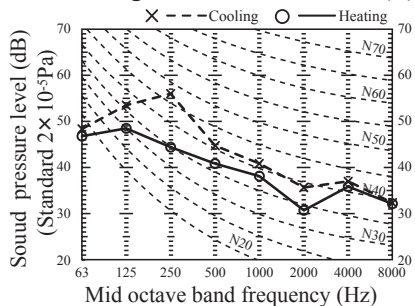


Models FDC140VNA,140VSA
Cooling noise level Hi : 57 dB (A)
Heating noise level Hi : 59 dB (A)

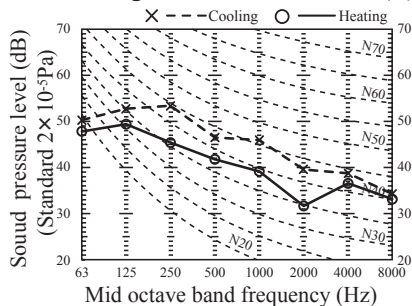


2) Silent mode

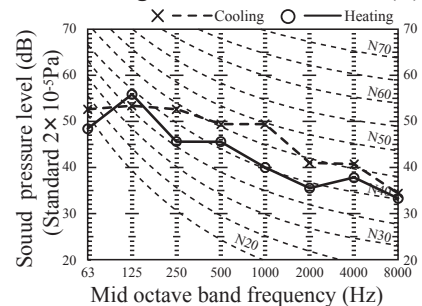
Models FDC100VNA,100VSA
Cooling noise level Hi : 50 dB (A)
Heating noise level Hi : 44 dB (A)



Models FDC125VNA,125VSA
Cooling noise level Hi : 51 dB (A)
Heating noise level Hi : 45 dB (A)

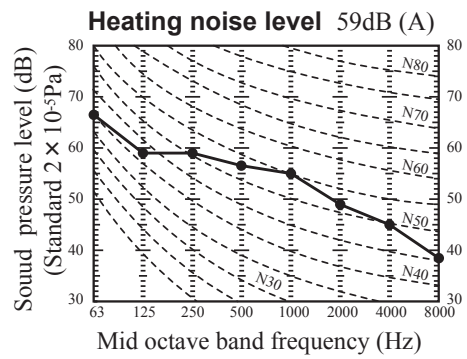
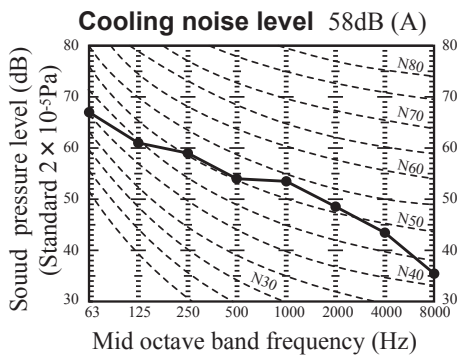


Models FDC140VNA,140VSA
Cooling noise level Hi : 53 dB (A)
Heating noise level Hi : 47 dB (A)

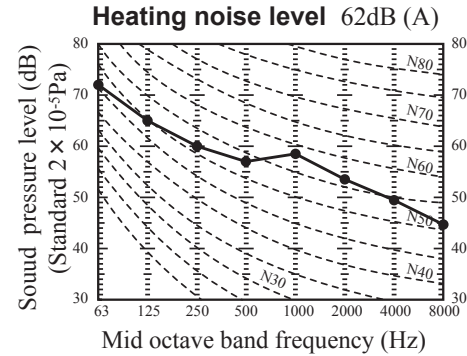
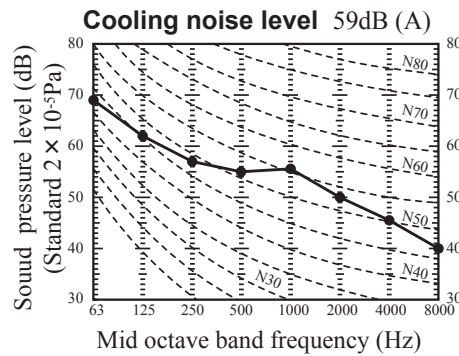


(b) FDC200, 250

Model FDC200VSA



Model FDC250VSA



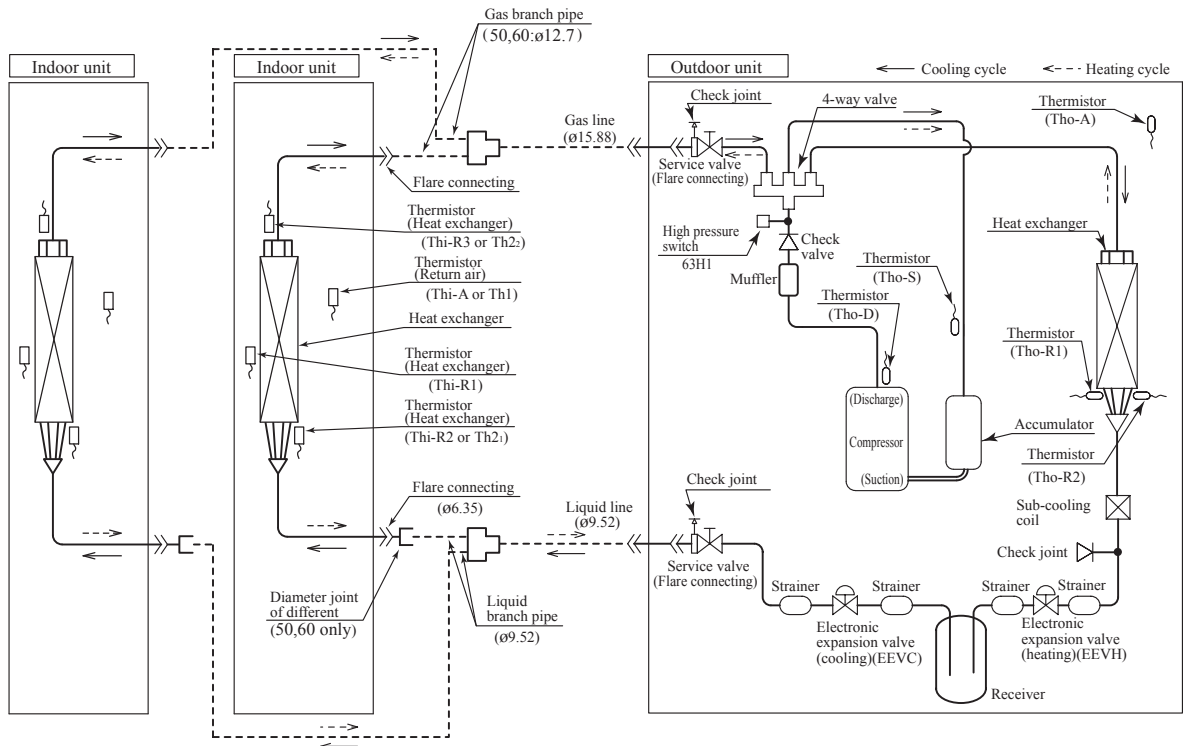
2.5 TEMPERATURE AND VELOCITY DISTRIBUTION

See page 27 of chapter 1.5.

2.6 PIPING SYSTEM

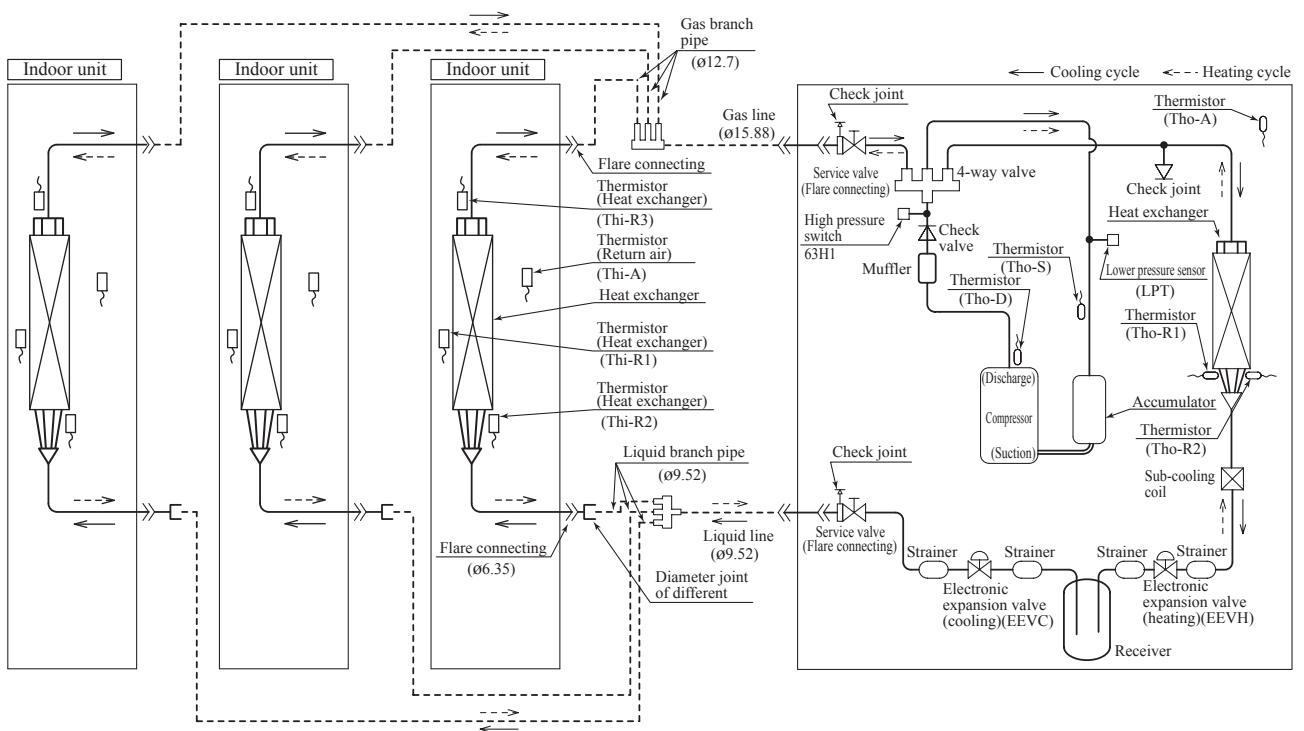
(1) Twin type

Models FDTC100, 125



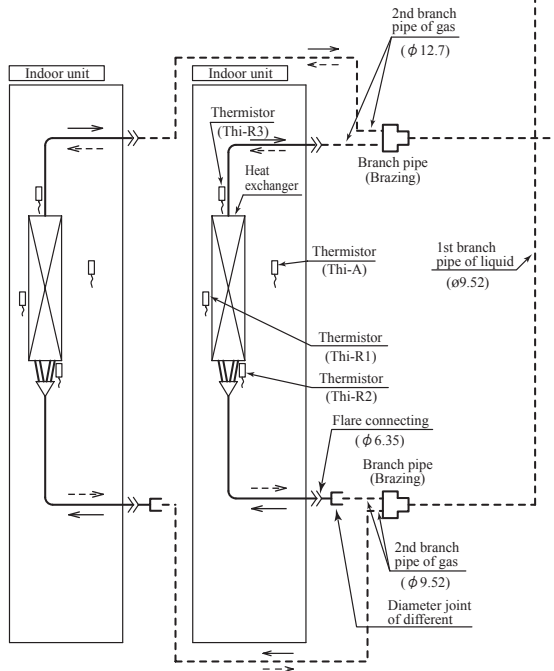
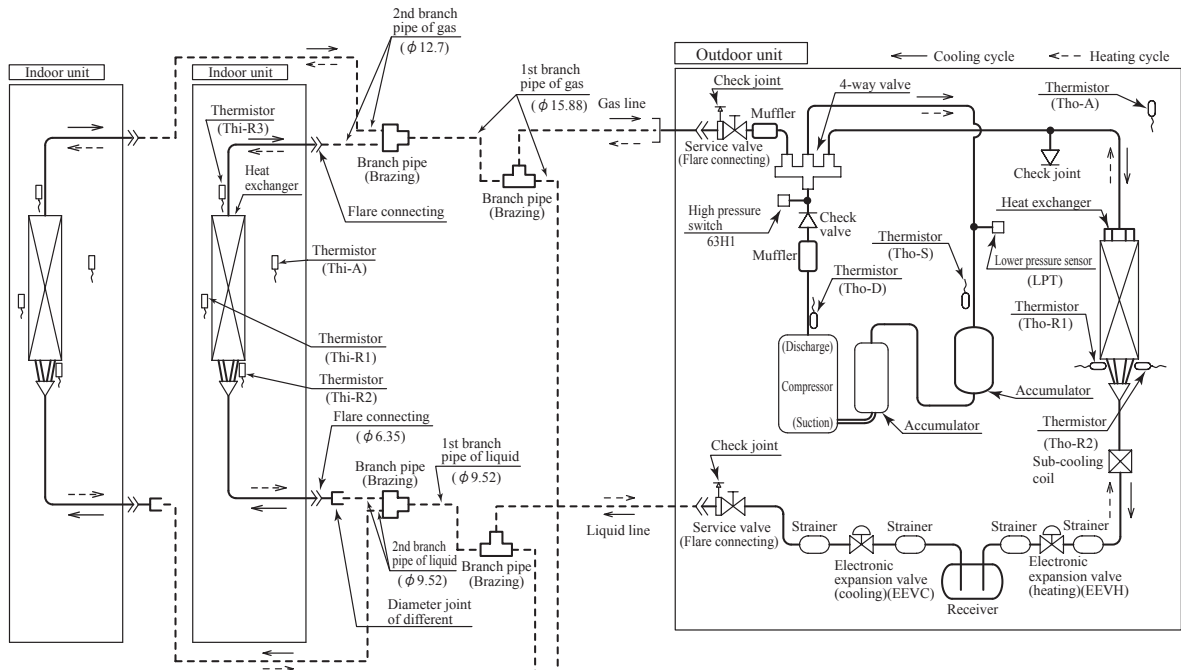
(2) Triple type

Models FDTC140



(3) Double twin type

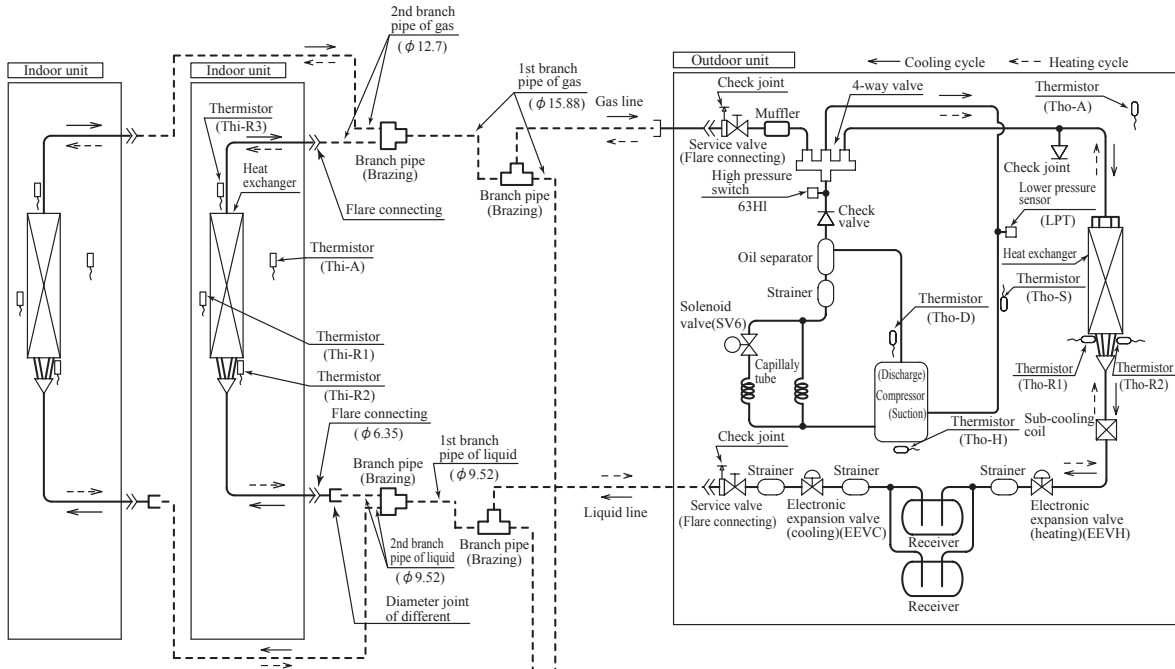
Model FDTC200



●Refrigerant line (one way) pipe size

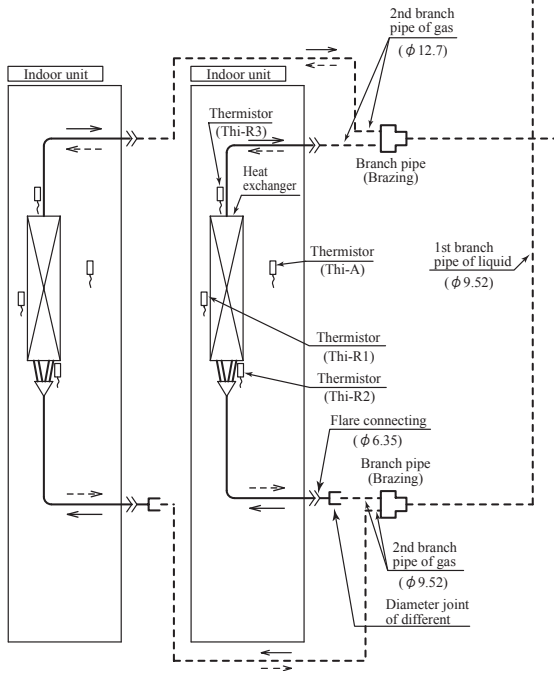
Gas line	Liquid line
In case of $\phi 22.22 : 35\text{m}$	In case of $\phi 9.52 : 40\text{m}$
In case of $\phi 25.4$ or $\phi 28.58 : 70\text{m}$	In case of $\phi 12.7 : 70\text{m}$

Model FDTC250



●Refrigerant line (one way) pipe size

Gas line	Liquid line
In case of $\phi 22.22$: 35m	In case of $\phi 12.7$: 70m
In case of $\phi 25.4$ or $\phi 28.58$: 70m	



Preset point of the protective devices

Parts name	Mark	Equipped unit	FDTC100, 125, 140 model	FDTC200, 250 model
Thermistor (for protection overloading in heating)	Thi-R	Indoor unit	OFF 63°C ON 56°C	
Thermistor (for frost prevention)	Thi-R		OFF 1.0°C ON 10°C	
Thermistor (for protection high pressure in cooling.)	Tho-R	Outdoor unit	OFF 51°C ON 65°C	
Thermistor (for detecting discharge pipe temp.)	Tho-D	Outdoor unit	OFF 115°C ON 85°C	OFF 135°C ON 90°C
High pressure switch (for protection)	63H1	Outdoor unit	OFF 4.15MPa ON 3.15MPa	
Low pressure sensor (for protection)	LPT	Outdoor unit	OFF 0.227MPa ON 0.079MPa	

2.7 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 : 28°C or less, relative humidity : 80% or less
Limitations on unit and piping installation		See pages 116 and 117.
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 unbalance	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 values, add polyurethane foam insulation on the outer plate (10mm or thicker) of indoor unit.

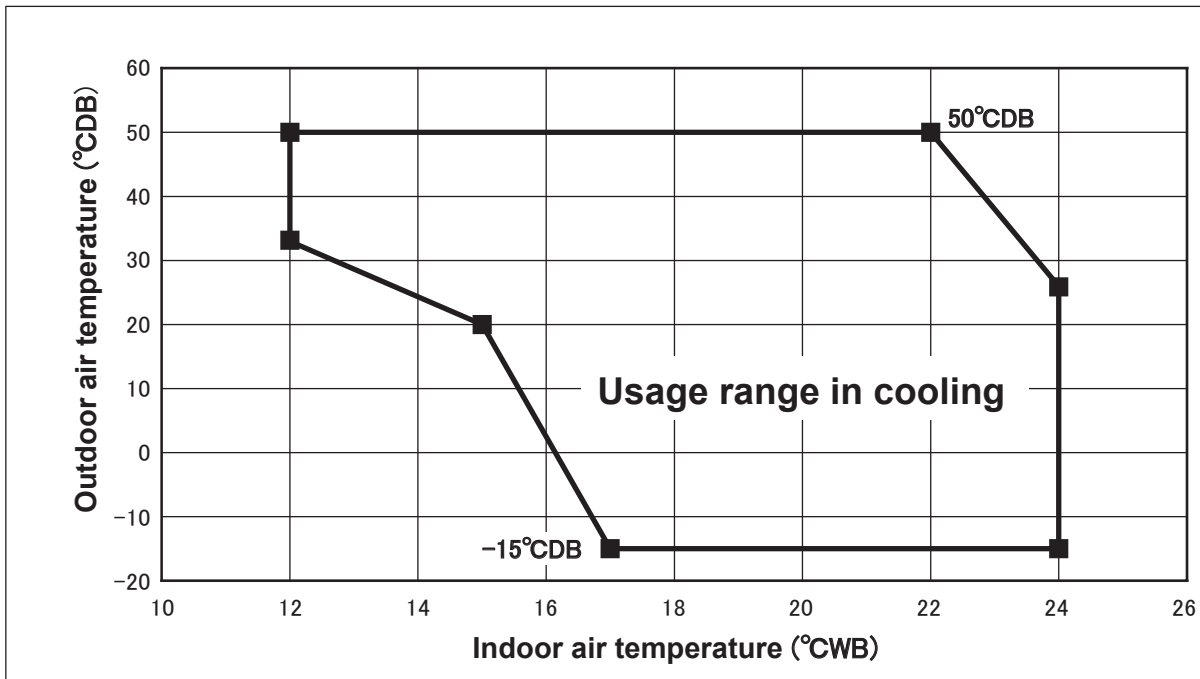
Note 3. Both gas and liquid pipes need to be covered with 20mm or thicker heat insulation materials at the place where humidity exceeds 70%.

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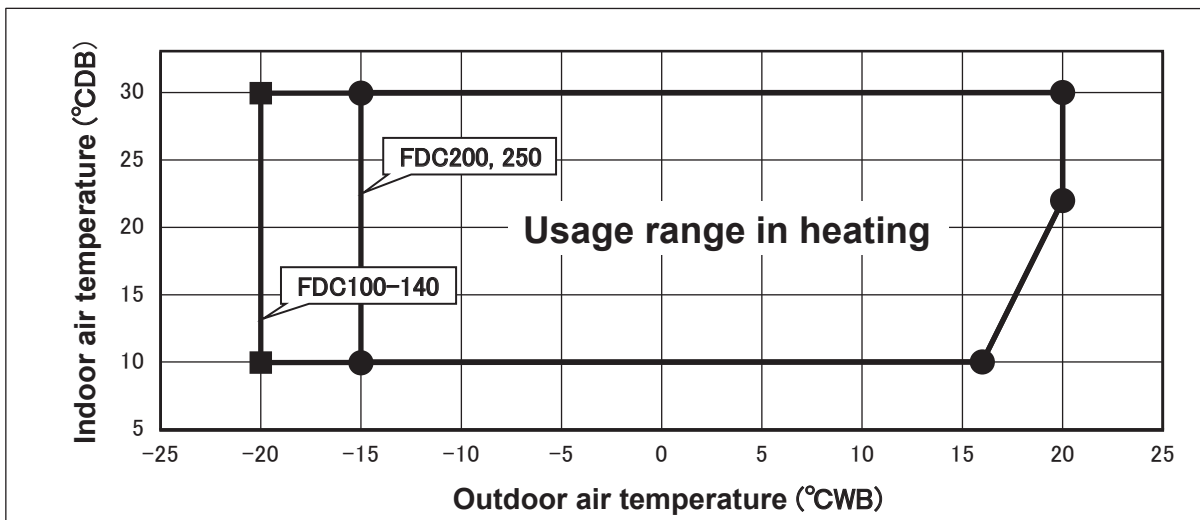
PCA001Z779

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.

“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 optional 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°C or lower, the outdoor fan is controlled at lower or lowest speed by outdoor fan control, but if strong wind directly blow into the outdoor unit, the outdoor heat exchanger temperature will drop more.

This makes high and low pressures to drop as well. This low pressure drop makes the indoor heat exchanger temperature to drop and will activate anti-frost control at indoor heat exchanger at frequent intervals, that cooling operation may not be established for any given time.

Limitation on unit and piping installation - twin, Double twin.		Model for outdoor units		Dimensional limitations		Marks appearing in the drawing	
Descriptions						Single type	Twin type
One-way pipe length	FDC100 · 125			≤ 50m		L	Double twin type
	FDC200	Liquid piping	φ9.52	≤ 40m		L+L1	L+La+L1
	FDC250		φ12.7	40m ≤ ≤ 70m		L+L2	L+La+L2 L+Lb+L3 L+Lb+L4
	FDC200 · 250	Gas piping	φ22.22	≤ 35m			
FDC100 · 125	φ25.4 or φ28.58		35m ≤ ≤ 70m				
Main pipe length	FDC200	Liquid piping	φ9.52	≤ 50m		L	L
	FDC250		φ12.7	40m ≤ ≤ 70m			
	FDC200 · 250	Gas piping	φ22.22	≤ 35m			
	FDC100 · 125		φ25.4 or φ28.58	35m ≤ ≤ 70m			
One-way pipe length after the first branching point	FDC200 · 250			≤ 30m		L1, L2	La+L1, La+L2, Lb+L3, Lb+L4
Difference of pipe length after the first branching point				≤ 10m		L1-L2 L2-L1	L1-L2, L2-L1, L3-L4, L4-L3 (L1+La)-(L3+Lb), (L1+La)-(L4+Lb) (L2+La)-(L3+Lb), (L2+La)-(L4+Lb)
Total pipe length after the second branching point				≤ 15m			L1+L2, L3+L4
Elevation difference between indoor and outdoor units	When the outdoor unit is positioned higher		FDC100 · 125	≤ 30m, (≤ 50m)*		H	H
	When the outdoor unit is positioned lower		FDC200 · 250	≤ 30m			
Elevation difference among indoor units			FDC100 - 250	≤ 15m		H	H
				≤ 0.5m		h	h1, h2, h3, h4, h5, h6

Twin type

Double twin type

Twin type

Model for outdoor units	Branch piping set(option)
FDC100 · 125	DIS-WA1G

Double twin type

Model for outdoor units	Branch piping set(option)
FDC200 · 250	DIS-WB1G

(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.

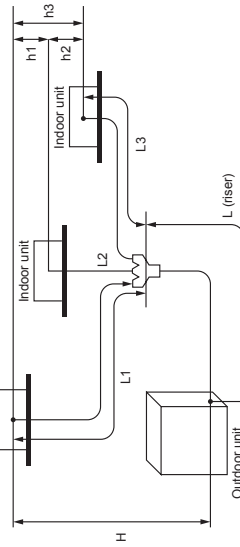
(2) Reduce refrigerant amount by according to table below from factory charge when refrigerant piping is shorter than 3m.

Model for outdoor units	Refrigerant to be reduced
FDC100 · 125 · 200 · 250	-1.0kg

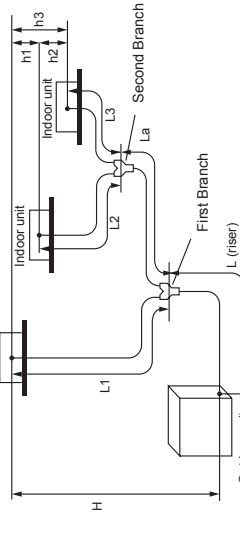
(3) In case of the outdoor unit is positioned higher, dimensional limitation change from 30m to 50m by changing SW5-2 of outdoor unit control PCB to ON. (*-mark)

Limitation on unit and piping installation - triple.		Marks appearing in the drawing	
Triple type (In case of FDC140)		< 3m	$\geq 3m$
One-way pipe length difference from the first branching point to the indoor unit	Dimensional limitations	Triple type A	Triple type B
Model for outdoor units		$L+L_1+L_2+L_3$	$L+L_1+L_2+L_3$ ※ 1
FDC140	$\leq 50m$		
FDC140	$\leq 50m$	L	L
	$\leq 5m$		La
Piping length between the first branching point and the second branching point	$\leq 30m$	L1, L2, L3	L1 ※ 1
One-way pipe length between the first branching point and indoor units	$\leq 27m$		La+L2, La+L3 ※ 1
One-way pipe length from the first branching point to indoor units through the second branching point	$< 3m$	$ L_1-L_2 , L_1-L_3 , L_2-L_3 $	
Piping length difference from the first branching point to indoor unit	$3m \leq, \leq 10m$		$L_1-(L_1+L_2), L_1-(L_1+L_3)$ ※ 1
One-way pipe length difference from the second branching point to indoor unit	$\leq 10m$		L2-L3, L3-L2
Elevation difference between indoor and outdoor units	When the outdoor unit is positioned higher When the outdoor unit is positioned lower	H	H
Elevation difference among indoor units		h_1, h_2, h_3	h_1, h_2, h_3

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 (L+L2) or (L+L3) within 10m.

Triple type

Model for outdoor units	Branch piping set(option)	
	Type A	Type B
FDC140	Branch pipe	Second branch
	DIS-TA1G	DIS-WA1G
	DIS-TA1G	DIS-WA1G

(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.

(3) In case of the outdoor unit is positioned higher, dimensional limitation change from 30m to 50m by changing SW5-2 of outdoor unit control PCB to ON. (*mark)

2.8 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 (2.8.1) × Correction factors shown in the table (2.8.2) (2.8.3) (2.8.4).

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.

2.8.1 Capacity tables

(1) Twin type

Model **FDTC100VNAPVG** Indoor unit **FDTC50VG (2 units)** Outdoor unit **FDC100VNA** (kW) Heating mode:HC (kW)

Outdoor air temp. °CDB	Indoor air temperature														Outdoor air temp. °CDB		Indoor air temperature °CDB						
	18 °CDB		21 °CDB		23 °CDB		26 °CDB		27 °CDB		28 °CDB		31 °CDB		33 °CDB		°CDB	°CWB	16	18	20	22	24
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC							
11					8.12	6.72	8.59	7.24	8.82	7.19	9.07	7.14	9.56	7.53	10.06	7.40	-19.8	-20	6.82	6.79	6.77	6.75	6.72
13					8.50	6.89	9.00	7.41	9.26	7.36	9.52	7.31	10.06	7.70	10.60	7.57	-17.7	-18	7.16	7.14	7.10	7.08	7.04
15					8.88	7.05	9.42	7.58	9.69	7.53	9.98	7.48	10.56	7.87	11.14	7.74	-15.7	-16	7.50	7.46	7.44	7.40	7.37
17					9.26	7.22	9.84	7.75	10.12	7.70	10.43	7.65	11.05	8.04	11.67	7.91	-13.5	-14	7.86	7.83	7.79	7.76	7.72
19					9.46	7.31	10.05	7.84	10.34	7.79	10.65	7.74	11.29	8.13	11.92	7.99	-11.5	-12	8.23	8.19	8.15	8.12	8.08
21					9.65	7.40	10.25	7.93	10.56	7.88	10.88	7.83	11.52	8.21	12.16	8.07	-9.5	-10	8.58	8.55	8.50	8.47	8.42
23					9.65	7.40	10.28	7.94	10.59	7.89	10.91	7.84	11.56	8.23	12.21	8.09	-7.5	-8	8.93	8.89	8.85	8.80	8.75
25			8.93	7.49	9.64	7.39	10.31	7.95	10.62	7.90	10.95	7.85	11.61	8.25	12.27	8.11	-5.5	-6	9.05	9.00	8.97	8.91	8.86
27			8.86	7.46	9.64	7.39	10.34	7.96	10.65	7.91	10.96	7.86	11.57	8.23			-3.0	-4	9.17	9.12	9.07	9.03	8.97
29			8.80	7.43	9.50	7.33	10.17	7.89	10.49	7.85	10.81	7.80	11.45	8.19			-1.0	-2	9.29	9.23	9.19	9.13	9.07
31			8.73	7.39	9.35	7.26	9.99	7.82	10.32	7.78	10.66	7.74	11.32	8.14			1.0	0	9.40	9.34	9.29	9.23	9.18
33	8.22	6.93	8.58	7.32	9.21	7.20	9.82	7.75	10.16	7.72	10.51	7.68	11.19	8.09			2.0	1	9.45	9.39	9.34	9.28	9.22
35	8.05	6.84	8.44	7.26	9.06	7.13	9.64	7.67	10.00	7.65	10.36	7.63	11.07	8.05			3.0	2	9.82	9.77	9.71	9.67	9.63
37	7.92	6.78	8.30	7.19	8.91	7.07	9.46	7.60	9.79	7.57	10.13	7.54	10.80	7.96			4.0	3	10.21	10.15	10.09	10.08	10.07
39	7.78	6.70	8.16	7.12	8.75	6.99	9.28	7.52	9.59	7.49	9.90	7.45	10.53	7.86			5.0	4	11.33	11.27	11.20	11.22	11.23
41	7.64	6.63	8.02	7.06	8.60	6.93	9.09	7.45	9.38	7.41	9.68	7.37	10.26	7.77			6.0	5	11.78	11.71	11.64	11.62	11.59
43	7.50	6.56	7.88	6.99	8.45	6.86	8.91	7.37	9.18	7.33	9.45	7.28	9.99	7.67			7.0	6	12.23	12.16	12.09	12.02	11.94
46	7.33	6.48	7.67	6.90	8.22	6.76	8.58	7.24	8.83	7.19	9.07	7.14	9.57	7.53			8.0	7	12.91	12.83	12.75	12.65	12.60
50	7.09	6.36	7.39	6.77	7.91	6.63	8.19	7.08	8.35	7.01	8.51	6.93	8.83	7.28			9.0	8	13.59	13.50	13.42	13.29	13.26
																	10.0	9	13.93	13.84	13.75	13.61	13.59

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Model **FDTC100VSAPVG** Indoor unit **FDTC50VG (2 units)** Outdoor unit **FDC100VSA** (kW) Heating mode:HC (kW)

Outdoor air temp. °CDB	Indoor air temperature														Outdoor air temp. °CDB		Indoor air temperature °CDB						
	18 °CDB		21 °CDB		23 °CDB		26 °CDB		27 °CDB		28 °CDB		31 °CDB		33 °CDB		°CDB	°CWB	16	18	20	22	24
	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC							
11					8.12	6.72	8.59	7.24	8.82	7.19	9.07	7.14	9.56	7.53	10.06	7.40	-19.8	-20	6.82	6.79	6.77	6.75	6.72
13					8.50	6.89	9.00	7.41	9.26	7.36	9.52	7.31	10.06	7.70	10.60	7.57	-17.7	-18	7.16	7.14	7.10	7.08	7.04
15					8.88	7.05	9.42	7.58	9.69	7.53	9.98	7.48	10.56	7.87	11.14	7.74	-15.7	-16	7.50	7.46	7.44	7.40	7.37
17					9.26	7.22	9.84	7.75	10.12	7.70	10.43	7.65	11.05	8.04	11.67	7.91	-13.5	-14	7.86	7.83	7.79	7.76	7.72
19					9.46	7.31	10.05	7.84	10.34	7.79	10.65	7.74	11.29	8.13	11.92	7.99	-11.5	-12	8.23	8.19	8.15	8.12	8.08
21					9.65	7.40	10.25	7.93	10.56	7.88	10.88	7.83	11.52	8.21	12.16	8.07	-9.5	-10	8.58	8.55	8.50	8.47	8.42
23					9.65	7.40	10.28	7.94	10.59	7.89	10.91	7.84	11.56	8.23	12.21	8.09	-7.5	-8	8.93	8.89	8.85	8.80	8.75
25			8.93	7.49	9.64	7.39	10.31	7.95	10.62	7.90	10.95	7.85	11.61	8.25	12.27	8.11	-5.5	-6	9.05	9.00	8.97	8.91	8.86
27			8.86	7.46	9.64	7.39	10.34	7.96	10.65	7.91	10.96	7.86	11.57	8.23			-3.0	-4	9.17	9.12	9.07	9.03	8.97
29			8.80	7.43	9.50	7.33	10.17	7.89	10.49	7.85	10.81	7.80	11.45	8.19			-1.0	-2	9.29	9.23	9.19	9.13	9.07
31			8.73	7.39	9.35	7.26	9.99	7.82	10.32	7.78	10.66	7.74	11.32	8.14			1.0	0	9.40	9.34	9.29	9.23	9.18
33	8.22	6.93	8.58	7.32	9.21	7.20	9.82	7.75	10.16	7.72	10.51	7.68	11.19	8.09			2.0	1	9.45	9.39	9.34	9.28	9.22
35	8.05	6.84	8.44	7.26	9.06	7.13	9.64	7.67	10.00	7.65	10.36	7.63	11.07	8.05			3.0	2	9.82	9.77	9.71	9.67	9.63
37	7.92	6.78	8.30	7.19	8.91	7.07	9.46	7.60	9.79	7.57	10.13	7.54	10.80	7.96			4.0	3	10.21	10.15	10.09	10.08	10.07
39	7.78	6.70	8.16	7.12	8.75	6.99	9.28	7.52	9.59	7.49	9.90	7.45	10.53	7.86			5.0	4	11.33	11.27	11.20	11.22	11.23
41	7.64	6.63	8.02	7.06	8.60	6.93	9.09	7.45	9.38	7.41	9.68	7.37	10.26	7.77			6.0	5	11.78	11.71	11.64	11.62	11.59
43	7.50	6.56	7.88	6.99	8.45	6.86	8.91	7.37	9.18	7.33	9.45	7.28	9.99	7.67			7.0	6	12.23	12.16	12.09	12.02	11.94
46	7.33	6.48	7.67	6.90	8.22	6.76	8.58	7.24	8.83	7.19	9.07	7.14	9.57	7.53			8.0	7	12.91	12.83	12.75	12.65	12.60
50	7.09	6.36	7.39	6.77	7.91	6.63	8.19	7.08	8.35	7.01	8.51	6.93	8.83	7.28			9.0	8	13.59	13.50	13.42	13.29	13.26
																	10.0	9	13.93	13.84	13.75	13.61	13.59

PJF000Z512

- Notes (1) These data show average status.
 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. (Cooling only)
 In the heating mode in which the outside air temperature is 0°C DB or less, the compressor operates at maximum frequency.
- (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 **FDTC125VNAPVG** Indoor unit **FDTC60VG (2 units)** Outdoor unit **FDC125VNA**
 Cooling mode (kW) Heating mode:HC (kW)

Outdoor air temp.	Indoor air temperature															Outdoor air temp.		Indoor air temperature					
	18 °CDB		21 °CDB		23 °CDB		26 °CDB		27 °CDB		28 °CDB		31 °CDB		33 °CDB		°CDB	°CWB	°CDB				
	12 °CWB	14 °CWB	16 °CWB	18 °CWB	19 °CWB	20 °CWB	22 °CWB	24 °CWB	16	18	20	22	24										
°CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	
11					10.15	8.40	10.74	9.06	11.03	8.99	11.34	8.93	11.96	9.42	12.57	9.24	-19.8	-20	7.77	7.73	7.70	7.67	7.65
13					10.63	8.61	11.26	9.27	11.57	9.20	11.91	9.14	12.58	9.63	13.25	9.46	-17.7	-18	8.16	8.13	8.11	8.06	8.03
15					11.10	8.82	11.78	9.48	12.11	9.41	12.47	9.35	13.20	9.84	13.92	9.67	-15.7	-16	8.57	8.53	8.50	8.46	8.42
17					11.58	9.03	12.29	9.68	12.65	9.63	13.04	9.57	13.82	10.06	14.59	9.89	-13.5	-14	9.02	8.98	8.94	8.90	8.86
19					11.82	9.13	12.56	9.80	12.92	9.73	13.32	9.68	14.11	10.16	14.90	9.99	-11.5	-12	9.46	9.41	9.37	9.33	9.28
21					12.06	9.24	12.82	9.91	13.19	9.84	13.60	9.78	14.40	10.27	15.20	10.09	-9.5	-10	9.90	9.84	9.80	9.76	9.70
23					12.06	9.24	12.85	9.92	13.23	9.86	13.64	9.80	14.45	10.28	15.27	10.12	-7.5	-8	10.32	10.28	10.23	10.17	10.12
25			11.16	9.36	12.06	9.25	12.89	9.94	13.27	9.87	13.68	9.81	14.51	10.30	15.34	10.14	-5.5	-6	10.50	10.45	10.39	10.33	10.28
27			11.08	9.32	12.05	9.24	12.92	9.95	13.31	9.89	13.69	9.82	14.47	10.29			-3.0	-4	10.66	10.61	10.55	10.49	10.43
29			11.00	9.28	11.87	9.16	12.71	9.86	13.11	9.81	13.51	9.75	14.31	10.23			-1.0	-2	10.82	10.77	10.71	10.65	10.58
31			10.92	9.25	11.69	9.08	12.49	9.77	12.90	9.73	13.32	9.67	14.15	10.18			1.0	0	10.99	10.93	10.87	10.80	10.73
33	10.27	8.66	10.72	9.15	11.51	9.00	12.27	9.68	12.70	9.65	13.13	9.60	13.99	10.12			2.0	1	11.07	11.01	10.94	10.88	10.81
35	10.07	8.56	10.55	9.07	11.33	8.92	12.06	9.60	12.50	9.57	12.94	9.53	13.83	10.06			3.0	2	11.92	11.85	11.78	11.73	11.68
37	9.90	8.47	10.38	8.99	11.13	8.83	11.83	9.50	12.24	9.46	12.66	9.42	13.50	9.95			5.0	4	12.76	12.69	12.61	12.60	12.58
39	9.72	8.38	10.20	8.91	10.94	8.75	11.60	9.40	11.99	9.36	12.38	9.32	13.16	9.83			7.0	6	14.16	14.08	14.00	14.02	14.04
41	9.55	8.29	10.02	8.82	10.75	8.66	11.37	9.31	11.73	9.26	12.09	9.20	12.82	9.71			9.0	8	14.72	14.64	14.56	14.52	14.49
43	9.38	8.21	9.85	8.74	10.56	8.58	11.14	9.22	11.47	9.16	11.81	9.10	12.48	9.59			11.5	10	15.28	15.20	15.11	15.02	14.93
46	9.21	8.14	9.53	8.57	10.28	8.46	10.88	9.18	11.12	9.06	11.28	8.88	11.96	9.41			13.5	12	16.13	16.04	15.94	15.82	15.75
50	7.43	6.67	7.63	6.99	8.25	6.92	8.67	7.50	8.78	7.37	8.80	7.17	9.05	7.46			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

PJF000Z512

Model **FDTC125VSAPVG** Indoor unit **FDTC60VG (2 units)** Outdoor unit **FDC125VSA**
 Cooling mode (kW) Heating mode:HC (kW)

Outdoor air temp.	Indoor air temperature															Outdoor air temp.		Indoor air temperature					
	18 °CDB		21 °CDB		23 °CDB		26 °CDB		27 °CDB		28 °CDB		31 °CDB		33 °CDB		°CDB	°CWB	°CDB				
	12 °CWB	14 °CWB	16 °CWB	18 °CWB	19 °CWB	20 °CWB	22 °CWB	24 °CWB	16	18	20	22	24										
°CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	
11					10.15	8.40	10.74	9.06	11.03	8.99	11.34	8.93	11.96	9.42	12.57	9.24	-19.8	-20	7.77	7.73	7.70	7.67	7.65
13					10.63	8.61	11.26	9.27	11.57	9.20	11.91	9.14	12.58	9.63	13.25	9.46	-17.7	-18	8.16	8.13	8.11	8.06	8.03
15					11.10	8.82	11.78	9.48	12.11	9.41	12.47	9.35	13.20	9.84	13.92	9.67	-15.7	-16	8.57	8.53	8.50	8.46	8.42
17					11.58	9.03	12.29	9.68	12.65	9.63	13.04	9.57	13.82	10.06	14.59	9.89	-13.5	-14	9.02	8.98	8.94	8.90	8.86
19					11.82	9.13	12.56	9.80	12.92	9.73	13.32	9.68	14.11	10.16	14.90	9.99	-11.5	-12	9.46	9.41	9.37	9.33	9.28
21					12.06	9.24	12.82	9.91	13.19	9.84	13.60	9.78	14.40	10.27	15.20	10.09	-9.5	-10	9.90	9.84	9.80	9.76	9.70
23					12.06	9.24	12.85	9.92	13.23	9.86	13.64	9.80	14.45	10.28	15.27	10.12	-7.5	-8	10.32	10.28	10.23	10.17	10.12
25			11.16	9.36	12.06	9.25	12.89	9.94	13.27	9.87	13.68	9.81	14.51	10.30	15.34	10.14	-5.5	-6	10.50	10.45	10.39	10.33	10.28
27			11.08	9.32	12.05	9.24	12.92	9.95	13.31	9.89	13.69	9.82	14.47	10.29			-3.0	-4	10.66	10.61	10.55	10.49	10.43
29			11.00	9.28	11.87	9.16	12.71	9.86	13.11	9.81	13.51	9.75	14.31	10.23			-1.0	-2	10.82	10.77	10.71	10.65	10.58
31			10.92	9.25	11.69	9.08	12.49	9.77	12.90	9.73	13.32	9.67	14.15	10.18			1.0	0	10.99	10.93	10.87	10.80	10.73
33	10.27	8.66	10.72	9.15	11.51	9.00	12.27	9.68	12.70	9.65	13.13	9.60	13.99	10.12			2.0	1	11.07	11.01	10.94	10.88	10.81
35	10.07	8.56	10.55	9.07	11.33	8.92	12.06	9.60	12.50	9.57	12.94	9.53	13.83	10.06			3.0	2	11.92	11.85	11.78	11.73	11.68
37	9.90	8.47	10.38	8.99	11.13	8.83	11.83	9.50	12.24	9.46	12.66	9.42	13.50	9.95			5.0	4	12.76	12.69	12.61	12.60	12.58
39	9.72	8.38	10.20	8.91	10.94	8.75	11.60	9.40	11.99	9.36	12.38	9.32	13.16	9.83			7.0	6	14.16	14.08	14.00	14.02	14.04
41	9.55	8.29	10.02	8.82	10.75	8.66	11.37	9.31	11.73	9.26	12.09	9.20	12.82	9.71			9.0	8	14.72	14.64	14.56	14.52	14.49
43	9.38	8.21	9.85	8.74	10.56	8.58	11.14	9.22	11.47	9.16	11.81	9.10	12.48	9.59			11.5	10	15.28	15.20	15.11	15.02	14.93
46	9.21	8.14	9.53	8.57	10.28	8.46	10.88	9.18	11.12	9.06	11.28	8.88	11.96	9.41			13.5	12	16.13	16.04	15.94	15.82	15.75
50	7.43	6.67	7.63	6.99	8.25	6.92	8.67	7.50	8.78	7.37	8.80	7.17	9.05	7.46			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

PJF000Z512

- Notes (1) These data show average status.
 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. (Cooling only)
 In the heating mode in which the outside air temperature is 0°C DB or less, the compressor operates at maximum frequency.
- (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 **FDTC140VNATVG** Indoor unit **FDTC50VG (3 units)** Outdoor unit **FDC140VNA**
 Cooling mode (kW) Heating mode:HC (kW)

Outdoor air temp.	Indoor air temperature																Outdoor air temp.		Indoor air temperature				
	18 °CDB		21 °CDB		23 °CDB		26 °CDB		27 °CDB		28 °CDB		31 °CDB		33 °CDB		°CDB	°CWB	°CDB				
	12 °CWB		14 °CWB		16 °CWB		18 °CWB		19 °CWB		20 °CWB		22 °CWB		24 °CWB				16	18	20	22	24
°CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	°CDB	°CWB	16	18	20	22	24
11					11.05	9.14	11.68	9.85	12.00	9.78	12.34	9.71	13.01	10.24	13.68	10.06	-19.8	-20	7.94	7.91	7.88	7.85	7.82
13					11.56	9.36	12.25	10.08	12.59	10.01	12.95	9.94	13.69	10.47	14.42	10.29	-17.7	-18	8.44	8.41	8.37	8.34	8.30
15					12.07	9.59	12.81	10.31	13.18	10.24	13.57	10.17	14.36	10.70	15.14	10.52	-15.7	-16	8.94	8.90	8.86	8.82	8.79
17					12.59	9.82	13.38	10.54	13.77	10.47	14.19	10.41	15.04	10.95	15.87	10.76	-13.5	-14	9.50	9.46	9.41	9.37	9.33
19					12.86	9.94	13.66	10.66	14.07	10.60	14.49	10.53	15.35	11.05	16.20	10.87	-11.5	-12	10.07	10.02	9.98	9.93	9.88
21					13.12	10.06	13.95	10.79	14.36	10.71	14.79	10.64	15.66	11.16	16.53	10.98	-9.5	-10	10.64	10.59	10.54	10.49	10.44
23					13.12	10.06	13.99	10.80	14.40	10.73	14.84	10.67	15.73	11.19	16.61	11.01	-7.5	-8	11.21	11.15	11.10	11.04	10.99
25			12.14	10.19	13.11	10.06	14.02	10.81	14.44	10.74	14.89	10.68	15.79	11.21	16.69	11.03	-5.5	-6	11.51	11.45	11.39	11.33	11.27
27			12.06	10.15	13.11	10.06	14.06	10.83	14.48	10.76	14.90	10.69	15.74	11.20			-3.0	-4	11.80	11.74	11.68	11.62	11.55
29			11.97	10.10	12.91	9.96	13.82	10.73	14.26	10.67	14.70	10.61	15.56	11.13			-1.0	0	12.11	12.05	11.98	11.91	11.84
31			11.88	10.06	12.72	9.88	13.59	10.63	14.04	10.58	14.49	10.53	15.40	11.07			1.0	1	12.42	12.35	12.28	12.20	12.13
33	11.18	9.42	11.67	9.96	12.52	9.79	13.36	10.54	13.82	10.50	14.29	10.45	15.22	11.01			2.0	2	12.58	12.50	12.43	12.35	12.28
35	10.96	9.31	11.48	9.87	12.32	9.70	13.11	10.44	13.60	10.41	14.09	10.37	15.05	10.95			3.0	3	13.35	13.27	13.20	13.13	13.08
37	10.76	9.21	11.29	9.78	12.11	9.61	12.87	10.34	13.32	10.30	13.77	10.25	14.69	10.82			4.0	4	14.12	14.05	13.96	13.95	13.93
39	10.58	9.12	11.10	9.69	11.91	9.52	12.62	10.23	13.05	10.19	13.46	10.13	14.32	10.69			5.0	5	15.68	15.59	15.50	15.52	15.55
41	10.39	9.03	10.91	9.60	11.70	9.42	12.37	10.13	12.76	10.08	13.16	10.02	13.95	10.56			6.0	6	16.30	16.21	16.11	16.07	16.03
43	10.21	8.94	10.71	9.51	11.49	9.33	12.11	10.02	12.48	9.97	12.85	9.90	13.58	10.43			7.0	7	16.30	16.21	16.11	16.07	16.03
46	10.03	8.86	10.47	9.41	11.13	9.16	11.73	9.89	12.10	9.86	12.27	9.66	13.01	10.24			8.0	8	17.86	17.76	17.65	17.52	17.44
50	7.61	6.82	7.88	7.21	8.35	7.00	8.75	7.57	8.97	7.53	8.98	7.31	9.33	7.69			9.0	9	18.80	18.69	18.57	18.40	18.36
																	10.0	10	19.28	19.15	19.03	18.84	18.81

PJF000Z512

Model **FDTC140VSATVG** Indoor unit **FDTC50VG (3 units)** Outdoor unit **FDC140VSA**
 Cooling mode (kW) Heating mode:HC (kW)

Outdoor air temp.	Indoor air temperature																Outdoor air temp.		Indoor air temperature				
	18 °CDB		21 °CDB		23 °CDB		26 °CDB		27 °CDB		28 °CDB		31 °CDB		33 °CDB		°CDB	°CWB	°CDB				
	12 °CWB		14 °CWB		16 °CWB		18 °CWB		19 °CWB		20 °CWB		22 °CWB		24 °CWB				16	18	20	22	24
°CDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	°CDB	°CWB	16	18	20	22	24
11					11.05	9.14	11.68	9.85	12.00	9.78	12.34	9.71	13.01	10.24	13.68	10.06	-19.8	-20	7.94	7.91	7.88	7.85	7.82
13					11.56	9.36	12.25	10.08	12.59	10.01	12.95	9.94	13.69	10.47	14.42	10.29	-17.7	-18	8.44	8.41	8.37	8.34	8.30
15					12.07	9.59	12.81	10.31	13.18	10.24	13.57	10.17	14.36	10.70	15.14	10.52	-15.7	-16	8.94	8.90	8.86	8.82	8.79
17					12.59	9.82	13.38	10.54	13.77	10.47	14.19	10.41	15.04	10.95	15.87	10.76	-13.5	-14	9.50	9.46	9.41	9.37	9.33
19					12.86	9.94	13.66	10.66	14.07	10.60	14.49	10.53	15.35	11.05	16.20	10.87	-11.5	-12	10.07	10.02	9.98	9.93	9.88
21					13.12	10.06	13.95	10.79	14.36	10.71	14.79	10.64	15.66	11.16	16.53	10.98	-9.5	-10	10.64	10.59	10.54	10.49	10.44
23					13.12	10.06	13.99	10.80	14.40	10.73	14.84	10.67	15.73	11.19	16.61	11.01	-7.5	-8	11.21	11.15	11.10	11.04	10.99
25			12.14	10.19	13.11	10.06	14.02	10.81	14.44	10.74	14.89	10.68	15.79	11.21	16.69	11.03	-5.5	-6	11.51	11.45	11.39	11.33	11.27
27			12.06	10.15	13.11	10.06	14.06	10.83	14.48	10.76	14.90	10.69	15.74	11.20			-3.0	-4	11.80	11.74	11.68	11.62	11.55
29			11.97	10.10	12.91	9.96	13.82	10.73	14.26	10.67	14.70	10.61	15.56	11.13			-1.0	0	12.11	12.05	11.98	11.91	11.84
31			11.88	10.06	12.72	9.88	13.59	10.63	14.04	10.58	14.49	10.53	15.40	11.07			1.0	1	12.42	12.35	12.28	12.20	12.13
33	11.18	9.42	11.67	9.96	12.52	9.79	13.36	10.54	13.82	10.50	14.29	10.45	15.22	11.01			2.0	2	12.58	12.50	12.43	12.35	12.28
35	10.96	9.31	11.48	9.87	12.32	9.70	13.11	10.44	13.60	10.41	14.09	10.37	15.05	10.95			3.0	3	13.35	13.27	13.20	13.13	13.08
37	10.76	9.21	11.29	9.78	12.11	9.61	12.87	10.34	13.32	10.30	13.77	10.25	14.69	10.82			4.0	4	14.12	14.05	13.96	13.95	13.93
39	10.58	9.12	11.10	9.69	11.91	9.52	12.62	10.23	13.05	10.19	13.46	10.13	14.32	10.69			5.0	5	15.68	15.59	15.50	15.52	15.55
41	10.39	9.03	10.91	9.60	11.70	9.42	12.37	10.13	12.76	10.08	13.16	10.02	13.95	10.56			6.0	6	16.30	16.21	16.11	16.07	16.03
43	10.21	8.94	10.71	9.51	11.49	9.33	12.11	10.02	12.48	9.97	12.85	9.90	13.58	10.43			7.0	7	16.30	16.21	16.11	16.07	16.03
46	10.03	8.86	10.47	9.41	11.13	9.16	11.73	9.89	12.10	9.86	12.27	9.66	13.01	10.24			8.0	8	17.86	17.76	17.65	17.52	17.44
50	7.61	6.82	7.88	7.21	8.35	7.00	8.75	7.57	8.97	7.53	8.98	7.31	9.33	7.69			9.0	9	18.80	18.69	18.57	18.40	18.36
																	10.0	10	19.28	19.15	19.03	18.84	18.81

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- Notes (1) These data show average status.
 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. (Cooling only)
 In the heating mode in which the outside air temperature is 0°CDB or less, the compressor operates at maximum frequency.
- (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)

(3) Double twin type

Model FDTC200VSADVG Indoor unit FDTC50VG (4 units) Outdoor unit FDC200VSA
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					19.36	14.04	20.45	14.96	20.99	14.79	21.67	14.65	23.02	15.34	24.37	14.96
13					19.46	14.08	20.57	15.01	21.13	14.84	21.78	14.69	23.09	15.36	24.40	14.97
15					19.55	14.12	20.69	15.05	21.26	14.89	21.90	14.73	23.16	15.38	24.43	14.98
17					19.56	14.13	20.77	15.08	21.37	14.93	21.99	14.76	23.23	15.40	24.47	14.99
19					19.64	14.16	20.84	15.11	21.48	14.97	22.09	14.80	23.30	15.43	24.51	15.00
21					19.34	14.03	20.50	14.98	21.11	14.83	21.72	14.67	22.92	15.31	24.13	14.90
23					19.04	13.91	20.16	14.85	20.74	14.69	21.35	14.54	22.55	15.19	23.76	14.79
25			17.82	14.28	18.89	13.84	19.99	14.78	20.56	14.63	21.16	14.47	22.37	15.13	23.57	14.73
27			17.68	14.22	18.74	13.78	19.82	14.72	20.38	14.56	21.25	14.50	22.13	15.05		
29			17.40	14.09	18.43	13.65	19.49	14.59	20.03	14.43	20.93	14.39	21.83	14.96		
31			17.11	13.96	18.11	13.52	19.15	14.46	19.69	14.31	20.60	14.28	21.52	14.86		
33	15.84	12.98	16.58	13.73	17.80	13.39	18.82	14.34	19.34	14.19	20.28	14.16	21.21	14.77		
35	15.73	12.92	16.37	13.64	17.49	13.27	18.49	14.21	19.00	14.06	19.95	14.05	20.91	14.67		
37	15.52	12.82	16.13	13.53	17.14	13.12	18.05	14.05	18.57	13.91	19.48	13.89	20.39	14.51		
39	15.31	12.73	15.89	13.43	16.78	12.98	17.61	13.89	18.13	13.76	19.00	13.73	19.87	14.35		
41	15.10	12.63	15.65	13.32	16.43	12.84	17.18	13.73	17.70	13.60	18.53	13.57	19.36	14.20		
43	14.89	12.53	15.41	13.22	16.07	12.70	16.74	13.57	17.26	13.45	18.05	13.41	18.84	14.04		
46	14.58	12.38	15.05	13.06	15.54	12.49	16.09	13.34	16.61	13.23	17.34	13.18	18.06	13.81		
50	11.25	10.87	11.78	11.54	12.39	11.29	12.68	12.16	12.88	12.00	13.08	11.84	13.28	12.47		

Heating mode:HC (kW)

Outdoor air temp.	Indoor air temperature						
	°CDB						
	°CDB	°CWB	16	18	20	22	24
-19.8	-20						
-17.7	-18						
-15.7	-16						
-13.5	-14	11.10	10.98	10.86	10.73	10.60	
-11.5	-12	11.93	11.80	11.67	11.54	11.40	
-9.5	-10	12.75	12.61	12.48	12.34	12.20	
-7.5	-8	13.57	13.43	13.29	13.14	13.00	
-5.5	-6	13.78	13.64	13.51	13.37	13.24	
-3.0	-4	13.99	13.86	13.73	13.60	13.47	
-1.0	-2	14.20	14.08	13.95	13.83	13.71	
1.0	0	14.41	14.29	14.18	14.06	13.94	
2.0	1	14.51	14.40	14.29	14.17	14.06	
3.0	2	16.19	16.05	15.91	15.79	15.67	
5.0	4	19.54	19.35	19.15	19.02	18.89	
7.0	6	22.89	22.64	22.40	22.25	22.11	
9.0	8	23.99	23.78	23.58	23.42	23.25	
11.5	10	25.09	24.92	24.75	24.58	24.40	
13.5	12	25.95	25.79	25.63	25.45	25.27	
15.5	14	26.82	26.66	26.50	26.32	26.14	
16.5	16	27.25	27.10	26.94	26.76	26.57	

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Model FDTC250VSADVG Indoor unit FDTC60VG (4 units) Outdoor unit FDC250VSA
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					24.64	16.78	26.08	17.74	26.80	17.54	27.60	17.35	29.20	17.99	30.80	17.49
13					24.67	16.79	26.11	17.76	26.83	17.55	27.63	17.36	29.23	18.00	30.83	17.50
15					24.69	16.80	26.14	17.77	26.86	17.56	27.66	17.37	29.26	18.01	30.86	17.51
17					24.70	16.81	26.23	17.81	26.99	17.61	27.78	17.41	29.34	18.04	30.91	17.53
19					24.81	16.85	26.33	17.85	27.13	17.67	27.90	17.46	29.43	18.07	30.96	17.54
21					24.43	16.68	25.90	17.67	26.67	17.48	27.43	17.28	28.96	17.91	30.48	17.39
23					24.05	16.51	25.47	17.49	26.20	17.30	26.96	17.10	28.49	17.75	30.01	17.24
25			22.51	16.93	23.86	16.43	25.25	17.40	25.97	17.21	26.73	17.02	28.25	17.67	29.77	17.17
27			22.33	16.85	23.67	16.34	25.04	17.31	25.74	17.12	26.85	17.06	27.96	17.56		
29			21.97	16.68	23.27	16.17	24.61	17.14	25.30	16.95	26.44	16.90	27.57	17.43		
31			21.61	16.50	22.88	16.00	24.19	16.97	24.87	16.78	26.03	16.75	27.18	17.30		
33	20.01	15.43	20.94	16.19	22.49	15.82	23.77	16.80	24.44	16.61	25.62	16.60	26.80	17.17		
35	19.87	15.35	20.68	16.07	22.10	15.65	23.35	16.63	24.00	16.45	25.21	16.45	26.41	17.05		
37	19.61	15.22	20.42	15.95	21.78	15.52	22.94	16.47	23.56	16.28	24.66	16.25	25.76	16.83		
39	19.51	15.17	20.33	15.90	21.65	15.46	22.72	16.38	23.30	16.18	24.30	16.12	25.30	16.68		
41	20.09	15.46	20.57	16.02	21.47	15.39	22.44	16.28	22.98	16.06	23.88	15.97	24.77	16.51		
43	19.02	14.93	19.85	15.68	21.05	15.21	21.92	16.07	22.41	15.85	23.19	15.72	23.96	16.25		
46	17.16	14.02	17.71	14.72	18.29	14.07	18.93	14.95	19.55	14.82	20.41	14.77	21.26	15.41		
50	11.31	11.08	11.84	11.60	12.45	11.83	12.74	12.49	12.94	12.63	13.14	12.47	13.35	13.08		

Heating mode:HC (kW)

Outdoor air temp.	Indoor air temperature						
	°CDB						
	°CDB	°CWB	16	18	20	22	24
-19.8	-20						
-17.7	-18						
-15.7	-16						
-13.5	-14	13.22	13.07	12.93	12.78	12.63	
-11.5	-12	13.88	13.73	13.58	13.43	13.28	
-9.5	-10	14.55	14.39	14.24	14.08	13.93	
-7.5	-8	15.21	15.05	14.89	14.73	14.58	
-5.5	-6	15.48	15.32	15.17	15.02	14.87	
-3.0	-4	15.74	15.59	15.45	15.30	15.16	
-1.0	-2	16.00	15.87	15.73	15.59	15.45	
1.0	0	16.27	16.14	16.01	15.87	15.74	
2.0	1	16.40	16.27	16.14	16.01	15.88	
3.0	2	18.64	18.48	18.32	18.18	18.04	
5.0	4	23.11	22.89	22.66	22.50	22.34	
7.0	6	27.59	27.29	27.00	26.82	26.65	
9.0	8	28.92	28.67	28.42	28.22	28.03	
11.5	10	30.24	30.04	29.84	29.63	29.41	
13.5	12	31.28	31.09	30.89	30.68	30.46	
15.5	14	32.32	32.14	31.95	31.73	31.51	
16.5	16	32.85	32.66	32.47	32.25	32.03	

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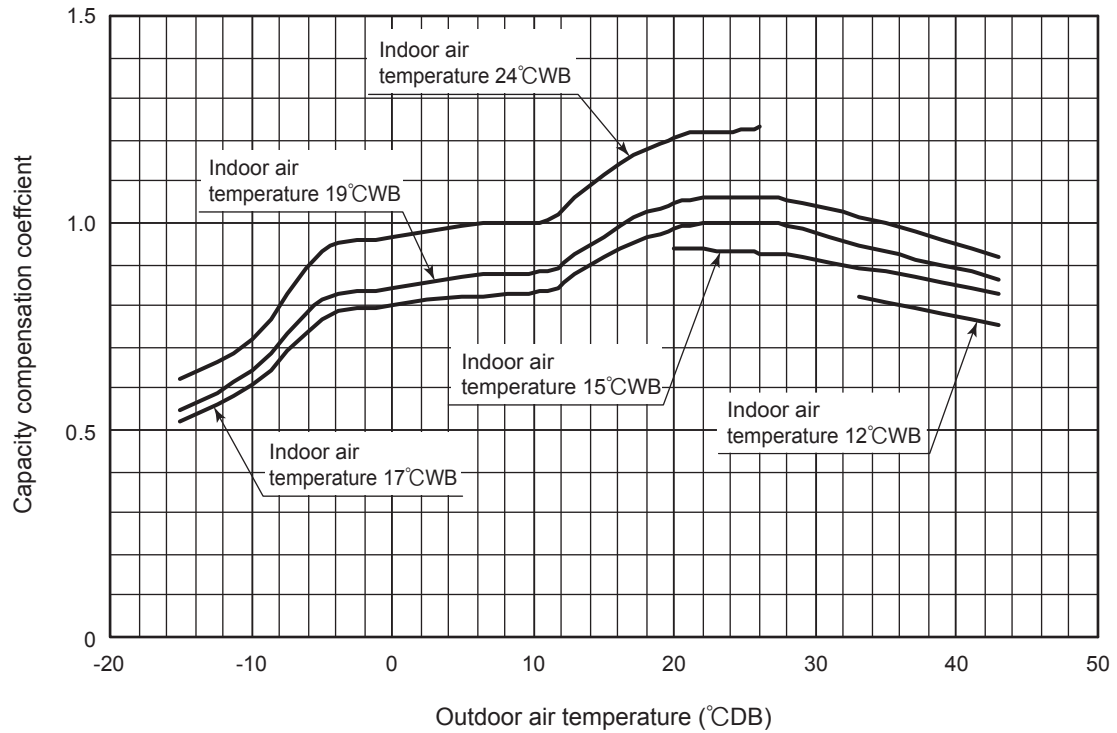
- Notes (1) These data show average status.
 Depending on the system control, there may be ranges where the operation is not conducted continuously.
 These data show the case where the operation frequency of a compressor is fixed. (Cooling only)
 In the heating mode in which the outside air temperature is 0°C DB or less, the compressor operates at maximum frequency.
 (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]

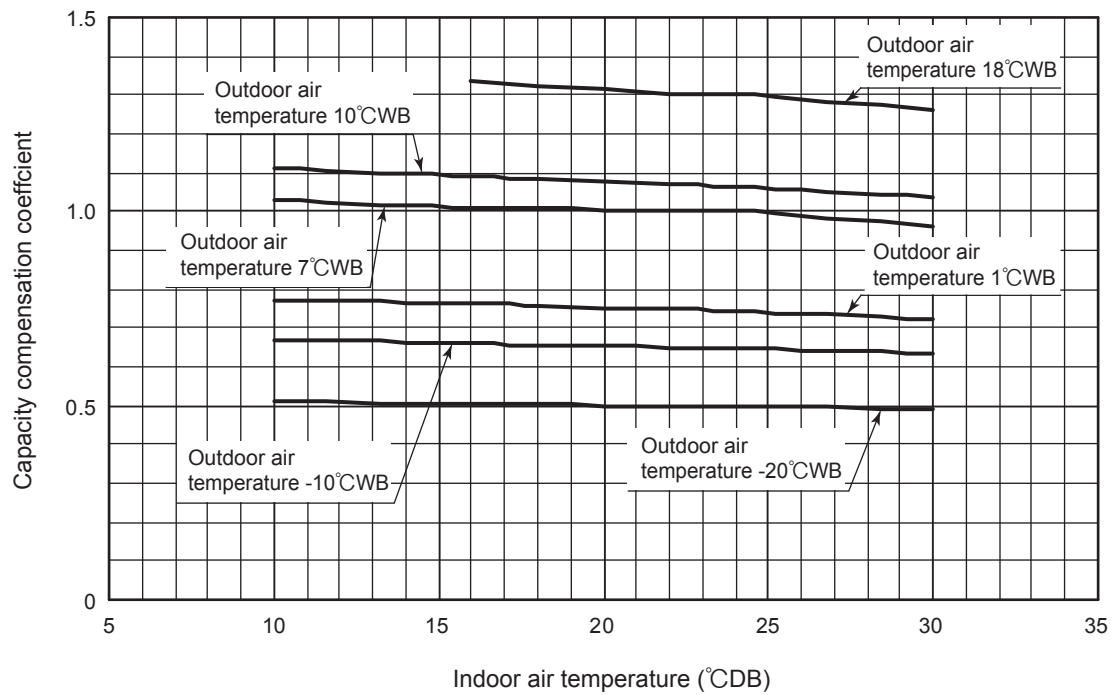
Capacity variation against outdoor and indoor temperature at rated capacity condition.

(I) Models FDC100, 125, 140VNA, 100, 125, 140VSA

① Cooling

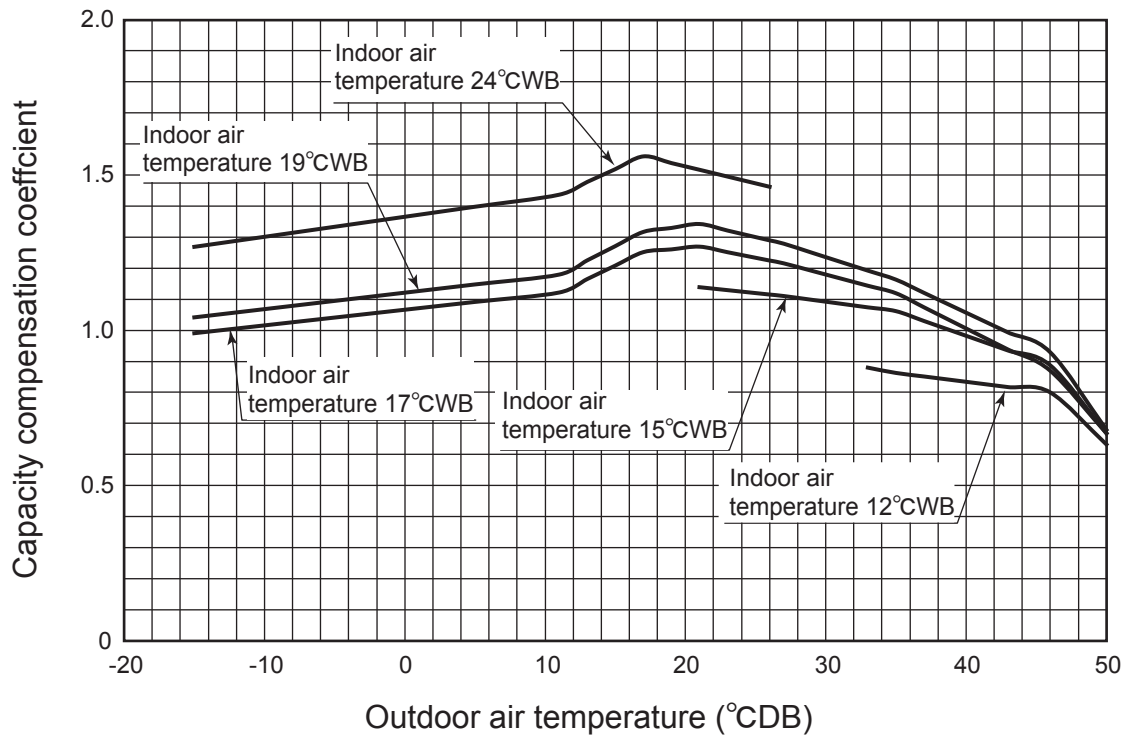


② Heating

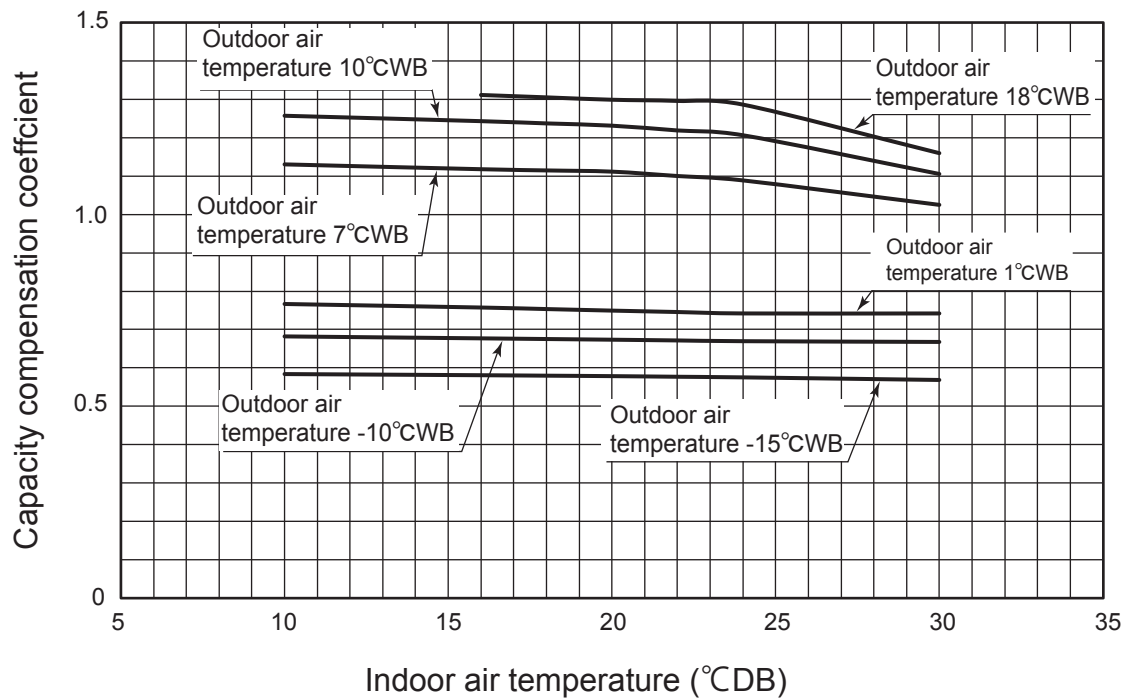


(II) Model FDC200VSA

① Cooling

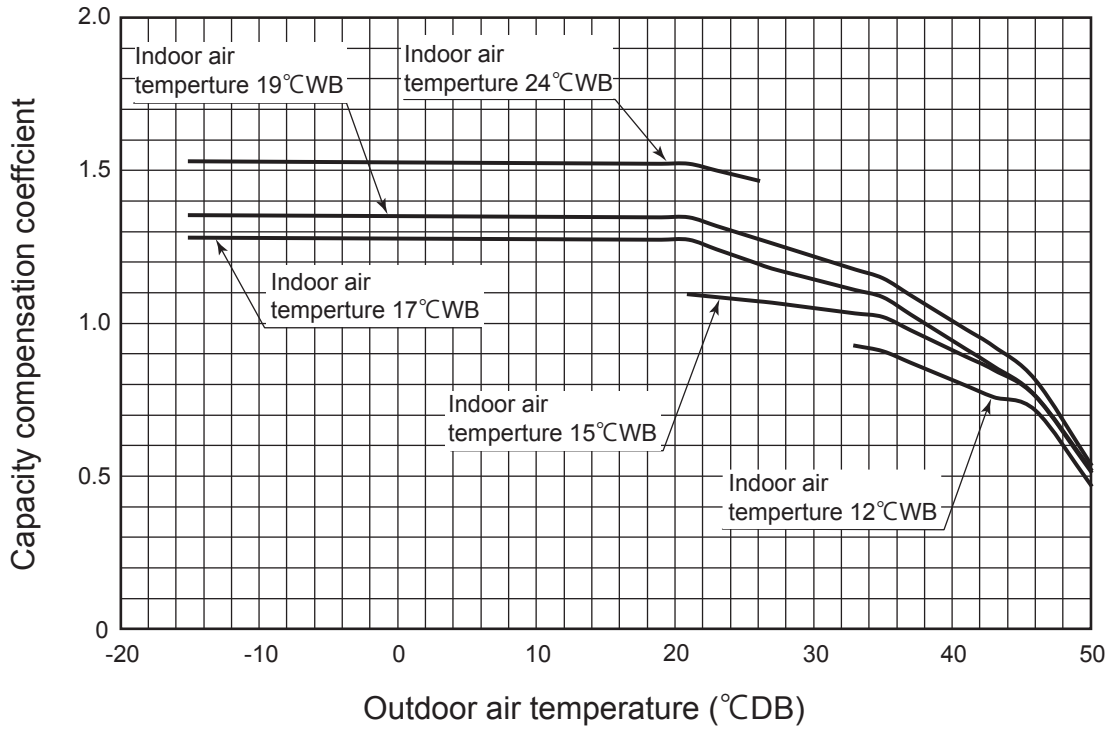


② Heating

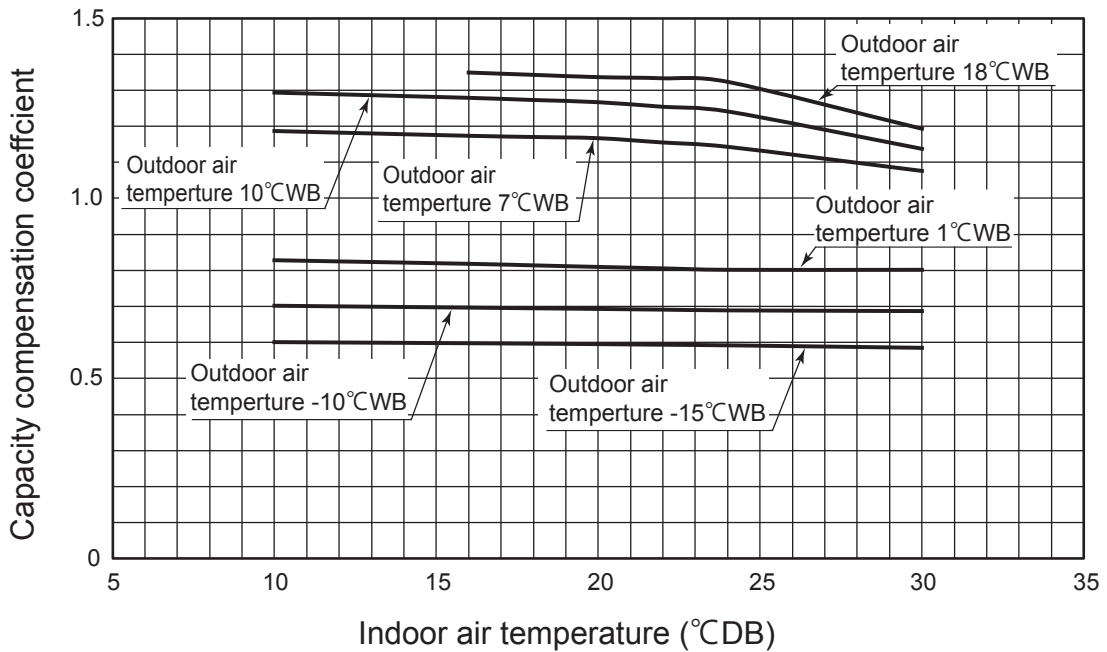


(III) Model FDC250VSA

① Cooling



② Heating



2.8.2 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

2.8.3 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.

(1) Models FDC100 - 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	FDC100 model	φ 15.88	1	0.991	0.978	0.964	0.951	0.937	0.924	0.910	0.897	0.883	0.870
	FDC125 model		1	0.986	0.968	0.950	0.932	0.914	0.896	0.878	0.860	0.842	0.824
	FDC140 model		1	0.985	0.966	0.946	0.927	0.907	0.888	0.868	0.849	0.829	0.810
	FDC100 model	φ 19.05	1.016	1.013	1.007	1.002	0.996	0.991	0.985	0.980	0.974	0.969	0.963
	FDC125 model		1.022	1.018	1.009	1.001	0.992	0.984	0.975	0.967	0.958	0.950	0.941
	FDC140 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.

(2) Models FDC200, 250

Equivalent piping length ⁽¹⁾ (m)		7.5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
Heating		1	0.998	0.995	0.991	0.988	0.984	0.981	0.977	0.974	0.970	0.967	0.963	0.960	0.956	0.953
Cooling	FDC200 model	φ 22.22	1	0.997	0.991	0.984	0.978	0.971	0.965	-	-	-	-	-	-	-
	FDC250 model		1	0.995	0.985	0.975	0.965	0.954	0.944	-	-	-	-	-	-	-
	FDC200 model	φ 25.4	-	-	-	-	-	0.988	0.984	0.981	0.977	0.974	0.970	0.967	0.963	0.960
	FDC250 model		-	-	-	-	-	0.978	0.972	0.966	0.960	0.953	0.947	0.941	0.935	0.929
	FDC200 model	φ 28.58	-	-	-	-	-	0.999	0.997	0.995	0.993	0.991	0.989	0.987	0.985	0.983
	FDC250 model		-	-	-	-	-	0.997	0.994	0.990	0.987	0.983	0.980	0.976	0.973	0.969

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)	φ 12.7	φ 15.88	φ 19.05	φ 22.22	φ 25.4	φ 28.58
Equivalent bend length	0.20	0.25	0.30	0.35	0.40	0.45

2.8.4 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

Model	FDC100 - 140	FDC200, 250
Item		
Max. one way piping length	50m	70m
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 FDTC200VSADVG with the air flow “P-Hi”, the piping length of 15m, the outdoor unit located 5m lower than the indoor unit, indoor wet-bulbtemperature at 19.0°C and outdoor dry-bulb temperature 35°C is

$$\text{Net cooling capacity} = \frac{19.0}{\text{Net cooling total capacity of FDTC200VSADVG (Outdoor temp. : 35°CDB Indoor temp. : 19°CWB) shown in 2.8.1}} \times \frac{1.00}{\text{Air flow : P-Hi shown in 2.8.2}} \times \frac{0.991}{\text{Piping length : 15m (Gas pipe size is } \phi 22.22 \text{) shown in 2.8.3}} \times \frac{0.99}{\text{Height diff. : 5m (Outdoor unit : below) shown in 2.8.4}} \approx 18.6\text{kW}$$

2.9 APPLICATION DATA

- 2.9.1 Installation of indoor unit See page 45.
 - 2.9.2 Electric wiring work installation See page 53.
 - 2.9.3 Installation of wired remote control (Option parts) See page 57.
 - 2.9.4 Installation of outdoor unit
- (1) Models FDC100-140VNA, 100-140VSA

PSC012D106
Inverter driven split PAC
100VNA – 140VNA, 100VSA – 140VSA
Designed for R410A refrigerant

Check before installation work

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

Ⓞ This installation manual deals with outdoor units and general installation specifications only. For indoor units, refer to the respective installation manuals supplied with the units.
 Ⓞ 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 notification 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.

WARNING

<p>● 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.</p> <p>● Install the system in full accordance with the instruction manual. Incorrect installation may cause burns, personal injury, water leaks, electric shocks and fire.</p> <p>● Use the original accessories and the specified components for installation. If refrigerant leaks into the room and comes into contact with an open or other hot surface, poisonous gas is produced.</p> <p>● When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the event of leakage accordance with ISO145. 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.</p> <p>● 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.</p> <p>● After completed installation, check that no refrigerant leaks from the system. If refrigerant leaks into the room and comes into contact with an open or other hot surface, poisonous gas is produced.</p> <p>● 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.</p> <p>● Install the unit in a location with good support. Unstable installation locations can cause the unit to fall and cause material damage and personal injury.</p> <p>● Ensure the unit is stable when installed, so that it can withstand earthquakes and strong winds. Unstable installation locations can cause the unit to fall and cause material damage and personal injury.</p> <p>● 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.</p> <p>● 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.</p> <p>● 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.</p> <p>● 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.</p> <p>● 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.</p> <p>● Do not perform brazing work in the airtight room It can cause lack of oxygen.</p> <p>● 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.</p>	<p>● 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.</p> <p>● Do not open the service valves for liquid line and gas line until completed refrigerant piping work, air tightness test and evacuation. If the system 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.</p> <p>● Only use prescribed optional 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.</p> <p>● Do not perform any change of protective device (circuit breaker or pressure switch) and temperature control or the use of non specified component can cause fire or burst.</p> <p>● 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.</p> <p>● Consult the dealer or an expert regarding removal of the unit. Incorrect installation can cause water leaks, electric shocks or fire.</p> <p>● 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.</p> <p>● Be sure to wear protective goggles and gloves while at work.</p> <p>● 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.</p> <p>● Do not run the unit with removal panels or protections Touching rotating equipments, hot surfaces or high voltage parts can cause personal injury due to entrapment, burn or electric shocks.</p> <p>● Be sure to fix up the service panels. Incorrect fixing can cause electric shocks or fire due to intrusion of dust or water.</p> <p>● 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.</p> <p>● Do not process or splice the power cord, or share the socket with other power plugs. This may cause fire or electric shock due to affecting contact, affecting insulation and over-current etc.</p> <p>● Do not bundle or wind or process the power cord. Do not deform the power cord by treading it. This may cause fire or heating.</p>
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⚠
CAUTION

	<p>● 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.</p>
	<p>● Use the circuit breaker or all pole with correct capacity. Do not use a circuit breaker with a capacity less than the unit's rated capacity. ● Use the correct breaker for the correct wiring in accordance with the local codes and regulations. The resistor should be locked in accordance with EN60204-1. ● Be careful 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 enters the indoor unit during welding work, it can cause pin-hole indentation 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. The density of nitrogen exceeds the limit in the event of nitrogen leakage in the small room, lack of oxygen can occur, which can cause serious accidents. ● Perform installation work properly according to this installation manual. If the density of nitrogen exceeds the limit in the event of nitrogen leakage in the small room, lack of oxygen can occur, which can cause serious accidents. ● Use an appropriate sealant for all metal parts should be secured. 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 sulfuric 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 ladders 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 too close to the equipment that generates electromagnetic fields or high frequency harmonics. The unit should be installed away from such equipment. 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 frame for outdoor unit which is corroded or damaged due to long periods of operation. Using an old and damaged base frame can cause the unit falling down and cause personal injury.</p>
	<p>● 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 sulphuric 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 where the unit is exposed to changes in temperature. -Locations at high altitude (more than 1000m high). -Locations with ammoniac 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 with any obstacles which can prevent inlet and outlet air of the unit. -Locations where strong air flows occur in case of multiple units installation. -Locations where something located above the unit could fall. 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 air or the equipment is directly hit by rain or jets. The unit can affect adversely to the plant etc. -Locations where vibration and operation sound generated by the outdoor unit can affect seriously on the wall or at the place near loud room. -Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m) 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 injury from a fall of the article. ● Do not step onto the outdoor unit. You may incur injury from a drop or fall. ● Do not touch the suction or aluminum fin on the outdoor unit. This may cause injury. ● Do not put anything on the outdoor unit and operating unit. This may cause damage the objects or injury due to falling to the object.</p>

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 operation 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

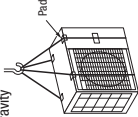
1. HAULAGE AND INSTALLATION (Take particular care in carrying in or moving the unit, and always perform such an operation with two or more persons.)

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.

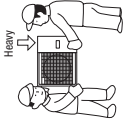
1) Delivery

- Deliver the unit as close as possible to the installation site before removing it from the packaging.
- When some compelling reason necessitates the transporting the unit beyond its carrying 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 the right hand the handle provided on the front panel of the unit and with his left hand the corner column section.



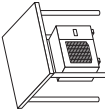
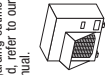
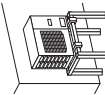
3) Selection of installation location for the outdoor unit

- Be sure to select a suitable installation place in consideration of following conditions.
- A place where the unit will not be exposed to vibration, transparency 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 it can be free from danger of oil splashes.
 - A place where drain water can be disposed without any trouble.
 - A place where snow will not accumulate.
 - A place where the unit will not be affected by heat radiation from other heat source.
 - A place where the unit will not be affected by heat radiation from TV set and/or radio receiver in order to avoid any radio or TV interference.
 - A place where the unit will not be affected by electromagnetic waves and/or high-harmonic waves generated by other equipment.
 - 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 flow 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.

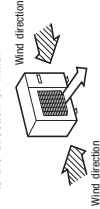
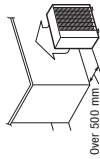
1. Install the unit on the base so that the bottom is higher than snow cover surface.
2. Provide a snow hood to the outdoor unit on site. Regarding outline of a snow hood, refer to our technical manual.
3. Install the unit under eaves or provide the roof on site.



- 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 meet the material of drainage paths with heat.

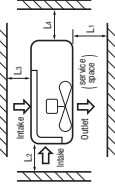
- (2) If the unit can be affected by strong wind, following measures are required.

- 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 stable, tie down the unit with wires.



5) Installation space

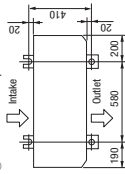
- Walls surrounding the unit in the four sides are not acceptable.
- There must be a 1-meter or larger space in the above.
- Where a danger of short-circuiting exists, install guide louvers.
- Where more than one unit are installed, provide sufficient intake space consciously so that short-circuiting 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.



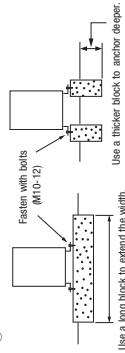
Step	EXHAUST (REAR SIDE)			(mm)		
	I	II	III	I	II	III
L1	Open	Open	500			
L2	300	5	Open			
L3	150	300	150			
L4	150	150	150			

6) Installation

- ① Anchor bolt fixed position



- ② Nonabilla for installation



- In installing the unit, fix the unit's legs with bolts specified on the left.
 - The protrusion of an anchor bolt on the front side must be kept within 15 mm.
 - Securely install the unit so that it does not fall over during earthquakes or strong winds, etc.
 - Refer to the left illustrations for information regarding concrete foundations.
 - Install the unit in a level area. (With a gradient of 5 mm or less.)
- Improper installation can result in a compressor failure, broken piping within the unit and abnormal noise generation.

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.

Restrictions	One-way pipe length difference from the first branching point to the indoor unit		Mfrs. specified in the drawing	
	Emergency restrictors	Emergency restrictors	< 3m	≥ 3m
One-way pipe length of refrigerant piping	Model for outdoor units	Single type	Twin type	Triple type B
	100WNA, 125WA, 100WSA, 125WSA 140WNA, 140WSA	≤ 30m	L, L+L1+L2	L+L1+L2+L3
Main pipe length	120WNA, 120WSA	≤ 30m	L	-
	140WNA, 140WSA	≤ 5m	-	La
One-way pipe length between the first branching point to the second branching point	Twin type	≤ 30m	L1, L2	L1 m
	All Models	≤ 30m	-	-
One-way pipe length after the first branching point	Twin type	≤ 27m	-	-
	All Models	≤ 10m	L1, L2	Lm+L2, Lm+L3 m
One-way pipe length from the first branching point to indoor units through the second branching point	Twin type	≤ 3m	-	-
	All Models	≤ 3m	-	-
One-way pipe length difference from the first branching point to the indoor unit	Twin type	≤ 10m	-	-
	All Models	≤ 10m	L1, L2, L3, L1+L2, L1+L3, L1+L2+L3	L1, L2, L3
One-way pipe length difference from the second branching point to the indoor unit	Twin type	≤ 10m	-	-
	All Models	≤ 10m	-	-
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	H	H
Elevation difference between indoor units	When the outdoor unit is positioned higher.	≤ 15m	h	h1, h2, h3
	When the outdoor unit is positioned lower.	≤ 15m	h	h1, h2, h3

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." to the above table and right figure.

● 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 (L + L2) or (L + L3) within 10m.
 (2) When the outdoor unit is installed at a position higher than the indoor unit by 30m or more, set SWS-2 on the control PCB to ON.

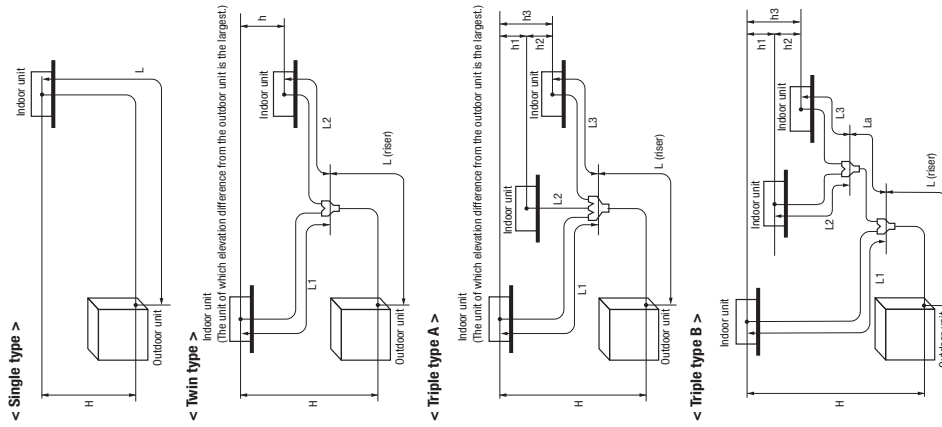
2) Determination of pipe size

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

Outdoor unit connected	Model 100V		Model 125V		Model 140V	
	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe
Refrigerant piping (Main pipe L)	φ15.88	φ9.52	φ15.88	φ9.52	φ15.88	φ9.52
	Flare	Flare	Flare	Flare	Flare	Flare
	φ15.88	φ9.52	φ15.88	φ9.52	φ15.88	φ9.52
Capacity of indoor unit	Model 100V		Model 125V		Model 140V	
	DS-WA1G	DS-WA1G	DS-WA1G	DS-WA1G	DS-WA1G	DS-WA1G
Refrigerant piping (branch pipe L1, L2)	φ12.7	φ9.52	φ12.7	φ9.52	φ15.88	φ9.52
	φ12.7	φ6.35	φ12.7	φ6.35	φ15.88	φ9.52
Branching pipe set	Model 50Vx2		Model 60Vx2		Model 71Vx2	
	DS-TA1G	DS-TA1G	DS-TA1G	DS-TA1G	DS-TA1G	DS-TA1G
Capacity of indoor unit	Model 50Vx2		Model 60Vx2		Model 71Vx2	
	φ12.7	φ6.35	φ12.7	φ6.35	φ12.7	φ6.35
Branching pipe set	Model 50Vx3		Model 60Vx3		Model 71Vx3	
	DS-WA1G	DS-WA1G	DS-WA1G	DS-WA1G	DS-WA1G	DS-WA1G
Refrigerant piping (branch pipe L1)	φ15.88	φ9.52	φ15.88	φ9.52	φ15.88	φ9.52
	φ12.7	φ6.35	φ12.7	φ6.35	φ12.7	φ6.35
Refrigerant piping (branch pipe L2)	φ15.88	φ9.52	φ15.88	φ9.52	φ15.88	φ9.52
	φ12.7	φ6.35	φ12.7	φ6.35	φ12.7	φ6.35
Capacity of indoor unit	Model 50Vx3		Model 60Vx3		Model 71Vx3	
	φ12.7	φ6.35	φ12.7	φ6.35	φ12.7	φ6.35

- 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 as 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.

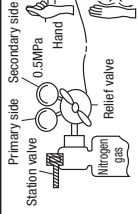
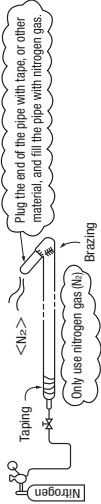
CAUTION



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 $\phi 19.05$ 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		1/2H-type pipe		1/2H-type pipe

NOTE

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

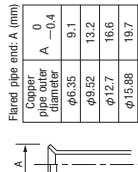
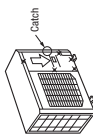
4) On-site piping work

- 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 (X 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.
- 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 pipe.
- 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 vibrator.
- Tighten a flare joint securely with a double spanner.



CAUTION

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

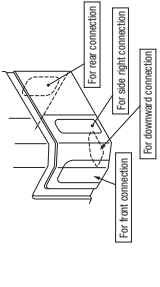
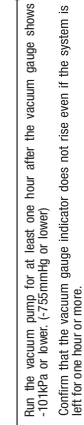
Fix both liquid and gas service valves at the valve main bodies as illustrated on the right, and then fasten them, applying appropriate fastening torque.

5) Air tightness test

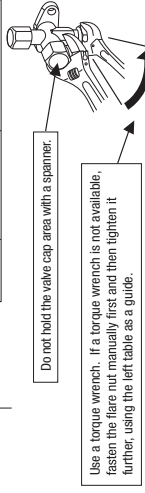
- Although outdoor and indoor units themselves have been tested for air tightness at the factory, check the connecting pipes after the installation work for air tightness from the operation valve's check joint equipped on the outdoor unit side. While conducting a test, keep the operation valve shut all the time.
 - Raise the pressure to 0.5 MPa, and then stop. Leave it for five minutes to see if the pressure drops.
 - Then raise the pressure to 1.5 MPa, and stop. Leave it for five more minutes to see if the pressure drops.
 - 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°C, the pressure also fall approximately 0.01 MPa. The pressure, if changed, should be compensated for.
 - If a pressure drop is observed in checking e) and g) - f), 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.
- 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

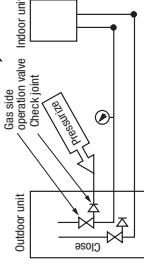
Work flow > When the system has remaining moisture inside or a leaky point, the vacuum gauge indicator will rise. Check the system for a leaky point and then draw air to create a vacuum again.



Copper pipe protrusion for flaring: B (mm)	0	0-0.5	0.7-1.3
In the case of a rigid (clutch) type pipe outer diameter	$\phi 6.35$	$\phi 9.52$	$\phi 12.7$
With an R410A tool			
With a conventional tool			



Use a torque wrench. If a torque wrench is not available, fasten the flare nut manually first and then tighten it further, using the left table as a guide.



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	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
Capacity 100VNA~140VNA 100VSA~140VSA	2.0	0	0.06	3.8	30

<Twin, triple type>

Item	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		
Capacity 100VNA~140VNA 100VSA~140VSA	2.0	0	0.06	0.06	3.8	30

- A standard refrigerant charge volume means a refrigerant charge volume for an installation with 0m long refrigerant piping.
- This unit contains 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 30m, reduce refrigerant by kg from the above table and adjust 2.0kg.
- 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

$$\text{Additional charge volume (kg)} = (\text{Main pipe length (m)} - \text{Length covered without additional charge 30 (m)}) \times 0.06 \text{ (kg/m)} + \text{Total length of branch pipes (m)} \times 0.06 \text{ (kg/m)}$$

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).

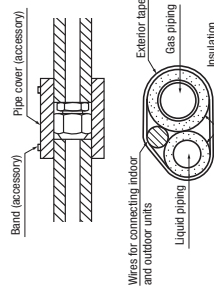
(2) Charging refrigerant

- 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 operation 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 method is used, the required charge conditions so that refrigerant will gushy upon entering the unit.
- In charging refrigerant, always charge a calculated volume by using a scale measures 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.

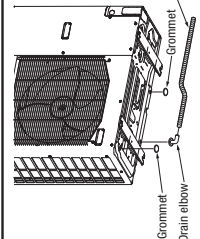
8) Heating and condensation prevention

- (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°C 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-conditioner 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%.**

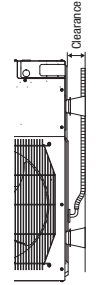


3. DRAIN PIPING WORK

- Execute drain piping by using a drain elbow and drain grommets supplied separately as optional 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 operation 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.

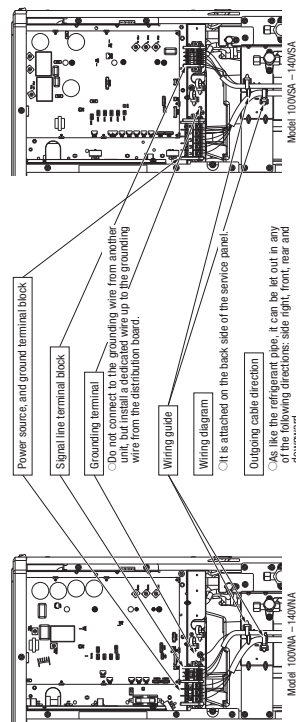


4. ELECTRICAL WIRING WORK For details of electrical cabling, refer to the indoor unit installation manual.

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 lighter than one specified in parentheses for each type below.
 - flexible cord (cable designation 60245 IEC 51)
 - ordinary tough rubber sheathed cord (code designation 60245 IEC 53)
 - fit for use any lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57) for supply cords of parts of appliances for use in wet areas.

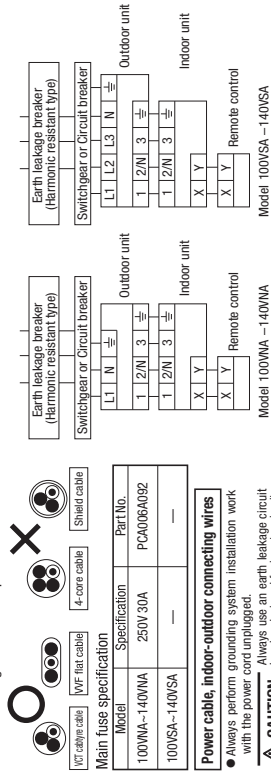
- Do not use any lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57) for supply cords of parts of appliances for use in wet areas.
- Ground the unit. Do not connect the grounding wire to a gas pipe, water pipe, lightning rod or telephone grounding wire. If improper grounding, an electric shock or malfunction may result.
- Grounding wire must be tested 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 accident such as an electric shock or a fire.



Model	Power source	Power cable thickness(mm)	MAX. over current (A)	Cable length (m)	Bounding wire thickness	Indoor-outdoor wire thickness × number
100WA-10WA	Single phase 3 wire 220-240V/50Hz	5.5	24	22	φ1.6mm	φ1.6mm x 3
100SA-10WSA	3 phase 4 wire 380-415V/50Hz 380V/60Hz	3.5	15	46		

- The specifications shown in the above table are for units without heaters. For units with heaters, refer to the installation instructions of the construction instructions of the indoor unit.
- 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.

- Do not turn on the power until the electrical work is completed.
- Do not use a condensate capacitor for power factor improvement under any circumstances. (It does 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.
- When cables are connected, make sure that all electrical components within the electrical component box are free of loose connection 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.



Model	Power source	Power cable thickness(mm)	MAX. over current(A)	Cable length (m)	Bounding wire thickness	Indoor-outdoor wire thickness × number
100WA-120WA	Single phase 3 wire 220-240V/50Hz	5.5	26	20	φ1.6mm	φ1.6mm x 3
140WA			27			
100SA-120SA	3 phase 4 wire 380-415V/50Hz 380V/60Hz	3.5	17	40	φ1.6mm	φ1.6mm x 3
140SA			18			

5. TEST RUN

⚠ WARNING

- Before conduct a test run, make sure that the operation valves are open.
- Turn on power 6 hours prior to a test run to energize the crankcase 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.

⚠ 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 operation valve charge port.
- The 4-way valve (ZDS) is energized during a heating operation.
- When the 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 SW6-4 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.

2) Checking the state of the unit in operation

Use check points provided on the piping before and after the four-way valve installed inside the outdoor unit to check the state of the unit in operation. 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.

SW3-3 SW3-4	SW6-4	Operation	Check point of the pipe
ON	OFF	Cooling during a test run	Discharge pressure (high pressure)
ON	ON	Heating during a test run	Suction pressure (Low pressure)
OFF	—	Normal or after the test operation	Suction pressure (Low pressure) Discharge pressure (High pressure)

3) Setting SW3-1, SW3-2, SW5-2, SW7-3, 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 fan will run for 10 seconds in every 10 minutes, when outdoor temperature falls to 3°C or lower and the compressor is not running.
 - When the unit is used in a very snowy country, set this switch to ON.
- (3) High height difference operation control (SW5-2)
 - Set this switch to ON when outdoor unit is installed at a position higher than indoor unit by 30m or more.
- (4) Lower noise silent mode (SW7-3)
 - Upper limit of compressor speed and fan speed becomes lower in silent mode

4) Failure diagnosis in a test run

Error indicated on the remote control unit	Red LED	Green LED	Failure event	Action
E54	Blinking once	Blinking continuously	Open phase	Check power cables for loose contact or disconnection. 1. Check whether the operation valves are open. 2. If an error has been canceled when 3 minutes have elapsed after the error occurs, check the operation valves, especially the electronic expansion valve, for any effecting check leak from the remote control unit.
E40	Blinking once	Blinking continuously	ESHT actuation or operation with operation valves shut (occurs mainly during a heating operation)	
E57	Blinking once	Blinking continuously	Short of refrigerant error or operation with operation valves shut (occurs mainly during a heating 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.

Value for a cooling operation	When power is turned on	When the unit comes to a normal stop	When the unit comes to an abnormal stop
Complete shut position	During a cooling operation	During a heating operation	During a cooling operation
Full open position	Complete shut position	Full open position	Full open position
Full open position	Full open position	Complete shut 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.

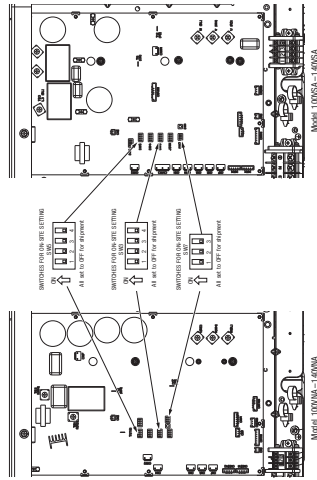
A failure to observe these instructions can result in a compressor breakdown.

- 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 brazing was performed 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 operation 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? Is the unit free of cabling errors such as uncompleted connection, an absent or reversed phase? Are property rated electrical equipments used for circuit breakers and cables? Doesn't cabling cross-connection between units, where more than one unit are installed? Are 1 indoor-outdoor signal wires connected to remote control wires? Do indoor-outdoor connecting cables connect between the same terminal numbers? Are either VCT cable or VFF flat cables used for indoor-outdoor connecting cables? Does grounding satisfy the D type grounding type II grounding requirements? Is the unit grounded with a dedicated grounding wire not connected to another unit's grounding wire? Are cables free of those screws at their connection points? Are cables held down with cable clamps so that no external force works into terminal connections? 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?	
4	Electric wiring		
—	Indoor unit		

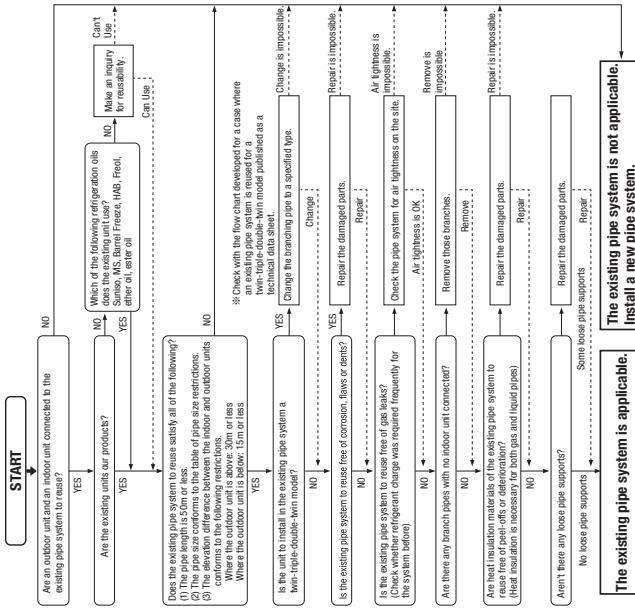
- Always carry out a test run and check the following in order as listed.

Turn	The contents of operation	Check
①	Open the gas side operation valve fully.	
②	Open the liquid side operation valve fully.	
③	Close the panel.	
④	Where a remote control unit is used for unit setpoint on the installation site, follow instructions for unit setpoint on the installation site with a remote control unit.	
⑤	SW3-3 ON / SW3-4 OFF: the unit will start a cooling operation.	
⑥	SW3-3 ON / SW3-4 ON: the unit will start a heating operation.	
⑦	When the unit starts operation, press the wind direction button provided on the remote control unit to check its operation.	
⑧	Place your hand before the indoor unit's diffuser to check whether cold (warm) winds come out in a cooling (heating) operation.	
⑨	Make sure that a red LED is not blinking.	
⑩	When you complete the test run, do not forget to turn SW3-3 to the OFF position.	
⑪	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 existing 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 operation 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.

● Turn on-site setting switch SW6-1 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 ○ Applicable

△ Restricted to shorter pipe length limits × Not applicable

Pipe size	Liquid pipe	Gas pipe	Additional charging amount of refrigerant per 1m	0.08kg/m	0.08kg/m	φ12.7	φ12.7
100V	○	○	φ15.88	φ19.05	φ15.88	φ19.05	φ19.05
125V	○	○	φ18.1	△	△	△	△
140V	○	○	φ18.1	△	△	△	△

<Pipe system after the branching pipe>

Pipe size	Additional charging amount of refrigerant per 1m		After 1st branch		After 2nd branch	
	Liquid pipe	Gas pipe	φ9.52	φ12.7	φ9.52	φ12.7
100V	○	○	φ15.88	φ19.05	φ15.88	φ19.05
125V	○	○	φ18.1	△	△	△
140V	○	○	φ18.1	△	△	△

※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 × 11.0. 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 Pipe size after branch should be equal or smaller than main pipe size.

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

※6 The piping size after the second branch should be φ9.52 (Liquid) / φ12.7 (Gas).

※7 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)) × 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) × 0.08kg/m = 0.4 kg.

PSC012D066D
Inverter driven split PAC
FDC200VSA, 250VSA (200V, 250V)
FDCA160VSA, 200VSA (A160V, A200V)
Designed for R410A refrigerant

(2) Models FDC200, 250VSA

Ⓞ This installation manual deals with outdoor units and general installation specifications only. For indoor units, refer to page 45.

Ⓞ 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 the **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 notification to the utility company is given before usage.
- 3phase 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.
- 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]

1 piece 	1 piece 	1 piece 	1 piece
Edging	knock-out hole protection	Accessory pipe	Accessory pipe B

- 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 according with SWS149.**
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 open 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 or 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.**
Unstable 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.**
Unstable 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 conforming to safety standard and cable ampacity for power distribution work.**
Uninformable 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 contact with the metal block.**
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**
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	⚡
<ul style="list-style-type: none"> ● Do not use the base frame for outdoor unit which is corroded or damaged due to long periods of operation. Using an old and damaged base frame can cause the unit falling down and cause personal injury. ● Do not install the unit in the locations listed below. -Locations where carbon filter, metal powder or any powder is floating. -Locations where any substance that can affect the unit such as sulphide gas, chloride gas, acid and alkaline can occur. -Holes and slits -Locations where any medicine or special spray 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 where heavy snow (if installed, be sure to provide base frame and snow hood mentioned in the manual) -Locations where the unit is exposed to heavy smoke -Locations where the unit is exposed to rain -Locations with ammoniac 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 where any substances that can prevent heat sink outlet of the unit -Locations with any substances that can cause corrosion (e.g. acid, alkali, salt, etc.) -Locations where strong air blows against the air outlet of outdoor unit -Locations where 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. -Locations where dust, surrounding environment and cause a claim -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 injury from a fall of the article. ● Do not step onto the outdoor unit You may incur injury from a fall of the unit. 	<ul style="list-style-type: none"> ● 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 pipe 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 accordance with EN62094-1. ● Take care when carrying the unit by hand. If the unit weighs 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. Airt 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 wet spatter when welding work is done near the indoor unit. If metal splatters fall in the drain pan, it can prevent indoor unit water drainage. To prevent such damage, keep the indoor unit in 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 completing refrigerant piping work. If the density of refrigerant leaks, the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents. ● Perform insulation work properly according to this installation manual. Improper insulation 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 sulfuric 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, bearing or 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 the system close to the equipment that generates electromagnetic waves or high frequency harmonics Such as, TV sets, mobile phones, and other communication equipment. The system close to the equipment that generates electromagnetic waves or high frequency harmonics can cause malfunctions and breakdown. The system can also affect medical equipment and disturb its function or cause jamming. ● Do not install the outdoor unit in a location where insects and small animals can pass Insects and small animals can enter the electric parts and cause damage of fire. Instruct the user to keep the surroundings clean.

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 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.)

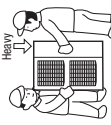
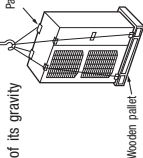
⚠ CAUTION

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.

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.

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 inconvenient, stable and safe to install.
 - A place where the unit weight and will not allow vibration transmission of the unit to the building.
 - A place where the unit is not exposed to both strong neighbors due to noise or exhaust air from the unit.
 - 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 snow 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 the unit can be kept away 5m or more from the sea breeze, coastal area, or the sea.
 - A place where the unit will not be affected by electromagnetic waves and/or high-harmonic waves generated by other equipment.
 - 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

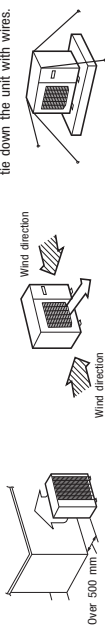
- (1) If the unit is installed in the area where the snow will accumulate, following measures are required.
 - The bottom plate of unit and intake, outlet may be blocked by snow.
- (2) Provide a snow hood to the outdoor unit on site.
 - Regarding outline of a snow hood, refer to our technical manual.
- (3) Install the unit under eaves or provide 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 (option 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.)
 - In case that the product has a corrective drainage system, the drainage paths should have suitable measure against freezing but be sure not to meet 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.



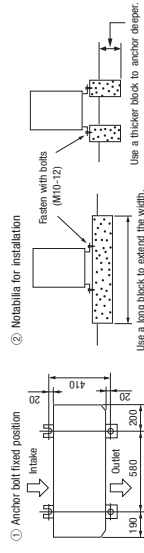
5) Installation space

- Helix 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 ladders.
- When more than one unit are installed, provide sufficient intake space consciously so that short-circuiting may not occur.
- Where piping 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.

Size	Required installation (mm)		
	L1	II	III
L2	300	5	Open
L3	150	300	150
L4	※1	5	5
L4	※2	250 (5)	250 (5)

※1 In case of 200V model.
 ※2 In case of 230V, 200V, 400V models. If unit is installed in L4 space with 1/2 condition, secure space of 250mm in lateral (L4) by unit movement at the time of exchange work of compressor.

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

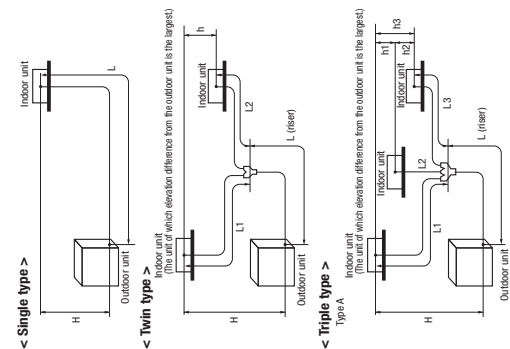
- Check the following points in light of the indoor unit specifications and the installation site.
- Observe the following restrictions on unit installation and use. Improper installation can result in a compressor failure or performance degradation.

Restrictions	One-way pipe length difference from the first branching point to the indoor unit		Multi-apartment in the above	
	Model for outdoor units	Dimensional restrictions	Single type	Twin type
One-way pipe length of refrigerant piping	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	Triple type A 200V-L4, L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
Main pipe length	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
One-way pipe length between the first branching point from the second branching point to the indoor unit	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
One-way pipe length between the first branching point to the indoor unit	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
One-way pipe length difference from the first branching point to the indoor unit	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
One-way pipe length difference from the first branching point to the indoor unit	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
Elevation difference between indoor and outdoor units	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
Elevation difference between indoor units	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3
	200V	Liquid φ 12.7 Gas Piping φ 12.7	L	200V-L4-L1-L2-L3 200V-L1-L4-L2-L3-L4-L3

● For model 200V, always use φ12.7mm liquid main pipe when the one way piping length exceeds 40m. If φ9.52mm pipes are used in an installation having over 40m piping, they can cause performance degradation and/or water leaks from an indoor unit. Use φ9.52mm liquid main pipe when the one way piping length is less than 40m.

CAUTION

If the unit is installed in a place where the unit is exposed to direct sunlight, the unit may overheat and cause performance degradation. Therefore, please avoid installing the unit in such a place.



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

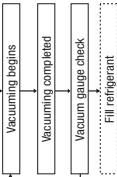
Fix both liquid and gas service valves at the valve main bodies as illustrated on the right, and then fasten them, applying appropriate fastening torque.

6) 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 at all the time.
 - a) Raise the pressure to 0.5 MPa, and then stop. Leave it for five more 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 falls 1°C, the pressure also falls approximately 0.01 MPa. The pressure, however, should be compensated for.
 - e) If a pressure drop is observed in checking a) and b) - 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.

7) Evacuation

<Work flow> When the system has remaining moisture inside or a leaky point, the vacuum gauge 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.

8) Additional refrigerant charge

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

<Single type>

Item	Standard refrigerant charge volume (kg)	Pipe length for standard refrigerant charge volume (m)	Installation's pipe length (m) covered without additional refrigerant charge	Refrigerant volume charged for shipment at the factory (kg)	Refrigerant volume charged for shipment at the factory (kg)
Capacity	200V	3.8	0	0.06 (Liquid piping φ 9.52)	5.6
	250V	3.6	0	0.145 (Liquid piping φ 12.7)	7.2
	A160V, A200V			0.12	

- 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.
- 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

Model 200V	In the case of φ 9.52mm main liquid piping	Additional charge volume (kg) = (Main pipe length (m) - 30 (m)) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m)
	In the case of φ 12.7mm main liquid piping	Additional charge volume (kg) = (Main pipe length (m) - 30 (m)) × 0.145 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m)
Model 250V, A160V, A200V		Additional charge volume (kg) = (Main pipe length (m) - 30 (m)) × 0.12 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m)

- 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).

In case of 200V and using φ 12.7 at main liquid piping, calculate the amount as follows.

Total charge volume(kg) = Refrigerant volume charged for shipment at the factory + (Main piping length(m)-30(m))×0.145(kg/m) + Total length of branch pipes (m) × 0.06 (kg/m)

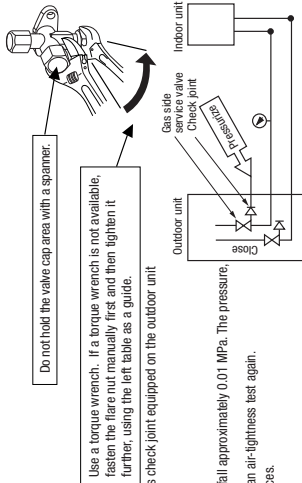
(2) Charging refrigerant

- 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 charge 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 label attached on the back side of the service panel.

9) Heating and condensation prevention

- (1) Dress refrigerant pipes (both gas and liquid pipes) for heat insulation and prevention of dew condensation.
 - In proper 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 piping).
 - 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.
- 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%.



Service valve size (mm)	Tightening torque (N·m)	Tightening angle (°)	Recommended length of a tool handle (mm)
φ 6.35 (1/4")	14-18	45-60	150
φ 9.52 (3/8")	34-42	30-45	200
φ 12.7 (1/2")	49-61	30-45	250
φ 15.88 (5/8")	88-92	15-20	300
φ 19.05 (3/4")	100-120	15-20	450

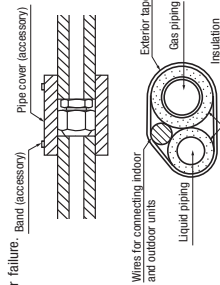
Pay attention to the following points in addition to the above for the R410A and compatible machines.

- 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.

<Twin, triple type>

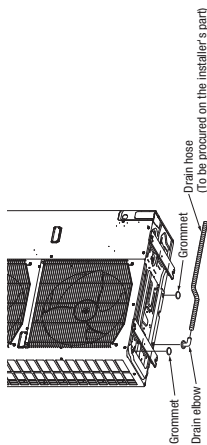
Item	Standard refrigerant charge volume (kg)	Pipe length for standard refrigerant charge volume (m)	Additional charge volume (kg) per meter of refrigerant piping		Refrigerant volume charged for shipment at the factory (kg)	Installation's pipe length (m) covered without additional refrigerant charge
			Main pipe	Branch pipe		
Capacity	200V	3.8	0.06 (Liquid piping φ 9.52)	0.06	5.6	30
	250V	3.6	0.145 (Liquid piping φ 12.7)	0.06	7.2	
	A160V, A200V		0.12	0.06		

*When an additional charge volume calculation result is negative, it is not necessary to charge refrigerant additionally.

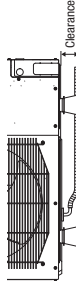


3. DRAIN PIPING WORK

- 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 option part) or concrete blocks. Then, please secure space for the drain elbow and the drain hose.

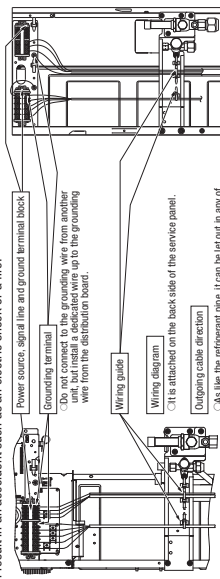


4. ELECTRICAL WIRING WORK

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 improper grounded, an electric shock or malfunction may result.
- 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 accident such as an electric shock or a fire.



Model: 200V

Model	Power source	Power cable thickness (mm)	MAX. over current (A)	Cable length (m)	Grounding wire thickness	Indoor-outdoor wire thickness number
200V	3 phase, 4 wire 380V/200V/50Hz	5.5	20	54	φ1.6mm	φ1.6mm x 3
250V, A160V, A200V	3 phase, 4 wire 380V/200V/50Hz	5.5	21	51	φ1.6mm	φ1.6mm x 3

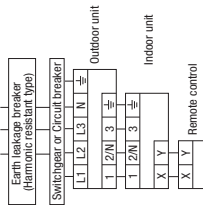
- The specifications shown in the above table are for units without heaters. For units with heaters, refer to the installation instructions or the construction manual.
- Switchgear or Circuit breaker capacity which is calculated from MAX. over current should be chosen along the regulations in each country.
- 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.

Power cable, indoor-outdoor connecting wires

- Always perform grounding system installation work with the power cord unplugged.



Always use an earth leakage circuit breaker designed for inverter circuits to prevent a faulty operation.



Model: 200V, 250V, A160V, A200V

Model	Power source	Power cable thickness (mm)	MAX. over current (A)	Cable length (m)	Grounding wire thickness	Indoor-outdoor wire thickness number
200V	3 phase, 4 wire 380V/200V/50Hz	5.5	25	43	φ1.6mm	φ1.6mm x 3
250V, A160V, A200V	3 phase, 4 wire 380V/200V/50Hz	5.5	27	40	φ1.6mm	φ1.6mm x 3

※ At the connection with EDU indoor unit.

Model	Power source	Power cable thickness (mm)	MAX. over current (A)	Cable length (m)	Grounding wire thickness	Indoor-outdoor wire thickness number
200V	3 phase, 4 wire 380V/200V/50Hz	5.5	22	49	φ1.6mm	φ1.6mm x 3
250V, A160V, A200V	3 phase, 4 wire 380V/200V/50Hz	5.5	24	45	φ1.6mm	φ1.6mm x 3

※ At the connection with EDUM indoor unit.

5. TEST RUN

⚠ WARNING

- Before conduct a test run, make sure that the service valves are opened.
- 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.

⚠ 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 (2WS) 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 SW5-4 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.

SW3-3	SW3-4	SW5-4	Operation
ON	OFF	ON	Cooling during a test run
OFF	ON	ON	Heating during a test run
—	—	—	Normal or After the test operation

2) Checking the state of the unit in operation

- Use check points 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 point of the pipe	Check joint of the pipe	Charge port of the gas operation valve
Cooling operation	Discharge pressure	Suction pressure
Heating operation	Suction 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°C 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	Red LED	Green LED	Failure event	Action
E40	Blinking once	Blinking continuously	RS485 activation 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)	Check whether the service valves are open.

- 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.

Valve for a cooling operation	When power is turned on	When the unit comes to a normal stop
Complete shut position <td>During a cooling operation <td>During a heating operation </td></td>	During a cooling operation <td>During a heating operation </td>	During a heating operation
Full open position <td>Complete shut position <td>Full open position </td></td>	Complete shut position <td>Full open position </td>	Full open position
Valve for a heating operation <td>Full open position <td>Complete shut position </td></td>	Full open position <td>Complete shut position </td>	Complete shut position
Complete shut position <td>Full open position <td>Full open position </td></td>	Full open position <td>Full open position </td>	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.
- At the first operation of heating mode after turning on the circuit breaker, the outdoor unit may start in cooling mode a while to prevent from liquid refrigerant back to compressor. If that is the case, do not suspect a unit failure.

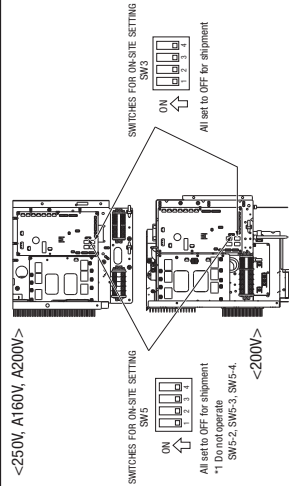
A failure to observe these instructions can result in a compressor breakdown.

- 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	Have air-igniters that are vacuum extraction safety performed? Are test insulation materials installed on both liquid and gas pipes? Are service valves safely opened for both liquid and gas systems? Are you recording the additional refrigerant charge volume and refrigerant pipe length on the panel's label? Is the unit free of rattling noise such as uncompleted connection, an absent or reversed flange? Are property rated electrical equipments used for circuit breakers and cables? Is the indoor-outdoor signal wire connected to remote control wires? Is the indoor-outdoor connecting cables connect between the same terminal numbers?	
4	Electric wiring	Are either VCT cable-type cables or VV flat cables used for indoor-outdoor connecting cables? Does grounding satisfy the D-type grounding type II (protective) requirements? Are the unit grounds with a dedicated grounding wire not connected to another unit's grounding wire? Are cables tied or loose screws at their connection points? Are cables tied or loose screws so that no external force works onto terminal connections? Is indoor unit insulation work completed? Is there a heat cover attached once an indoor unit, is the heat 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)	When a remote control unit is used for unit setup on the installation site, blow 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.	
(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.	



2.9.5 Method for connecting the accessory pipe

Model FDC200VSA

PSC012D028A 

- Be sure to use the accessory pipe to connect the service valve on the gas side with the field pipe.
- Be sure to use the straight pipe (Procured at the field) shown in the table 1 applicable.
- When tightening the flare, connect the pipe securely by pressing the flared face of pipe against the service valve.
- When brazing between the pipe in place and the attached pipe, confirm that no excessive force is applied to the flare joint. Otherwise gas could leak from the flare joint.
- Connect the attached pipe according to the following steps ① – ⑤.
 - ① Referring to Table 2 and Table 3, prepare the straight pipe and the elbow in the field, which are used in the construction examples (A) – (D) applicable to the connecting direction.
 - ② Firstly, use the accessory pipe to assemble the connecting pipe assembly outside the outdoor unit.
(As shown in the figure of connecting examples (A) – (D).)
 - ③ After assembling the connecting pipe, connect it to the service valve on the gas side inside the outdoor unit. Tighten the flare nut with appropriate torque.

Proper torque	
φ 19.05	100 – 120N · m

- ④ After connection of the connecting pipe assembly to the service valve on the gas side, braze the connecting pipe assembly and the field pipe.
- ⑤ When connecting pipe contacts wiring, attach heat insulating material to the pipe in order to prevent from contacting of the pipe and wiring. (If the wiring is rubbed with the pipe and the cover of wiring is teared, there is a risk of a short circuit or an electric shock.)

About brazing

- Be sure to braze while supplying nitrogen gas.
If no nitrogen gas is supplied, a large amount of impurity (oxidized film) will be generated, which may clog the capillary tube and the expansion valve, resulting in fatal malfunction.

Table 1 Pipe specification

Refrigerant line (one way)	length (m)
≤ 35 (m)	φ 22.22 x T1.0
≤ 70 (m)	φ 25.4 x T1.0 or φ 28.58 x T1.0

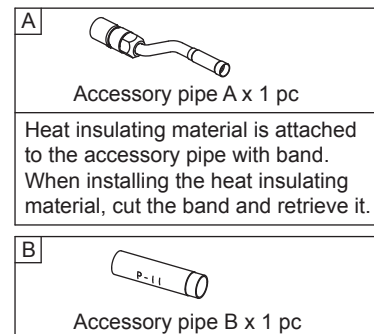
- Be sure to use pipes of 1/2H material, and wall thickness above 1mm. (Pressure resistance of O-type pipe is not enough)

Table 2 Parts used for the connecting pipe assembly

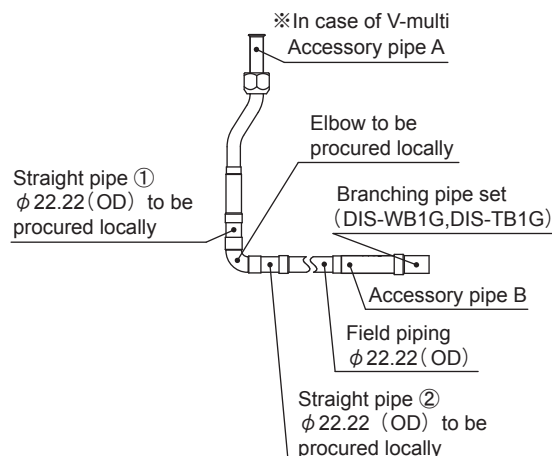
No.	Name	Quantity	Remark
1	Accessory pipe A	1	Accessory
2	Straight pipe ①	1	Procured at the field
3	Straight pipe ②	1 or 0	Procured at the field (Not required for downward direction)
4	Elbow	1 or 0	Procured at the field (Not required for downward direction)

Table 3 Length and specification of straight pipe (Procured in the field)

	Ⓐ Downward	Ⓑ Forward	Ⓒ Rightward	Ⓓ Backward
Straight pipe ①	380mm or more	200mm	155mm	215mm
Straight pipe ②	—	160mm or more	160mm or more	370mm or more

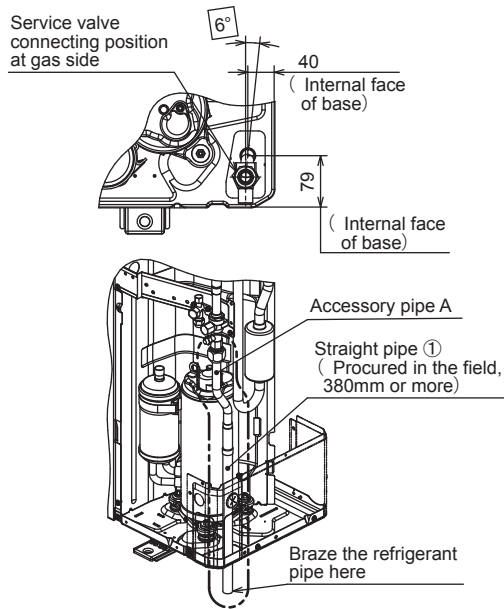


- Branching pipe set can be used by using the accessory pipe B.
When φ 22.22 (OD) size of the indoor unit gas pipe is used, the accessory pipe B is unnecessary.

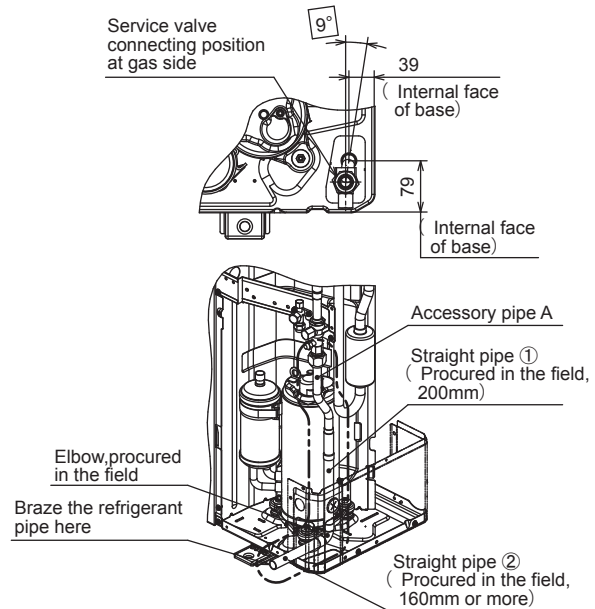


【 Connection example (A) – (D) applicable to the connecting direction.】

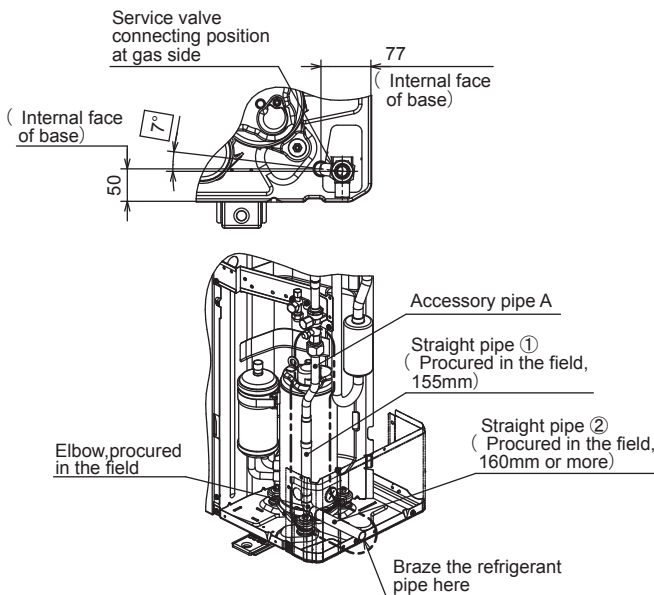
- The piping angle shown below is an example in case of 15mm of heat insulating material.
Adjust an angle, according to the thickness of heat insulating material.
Pass the connecting pipe in a hole after angle adjustment.



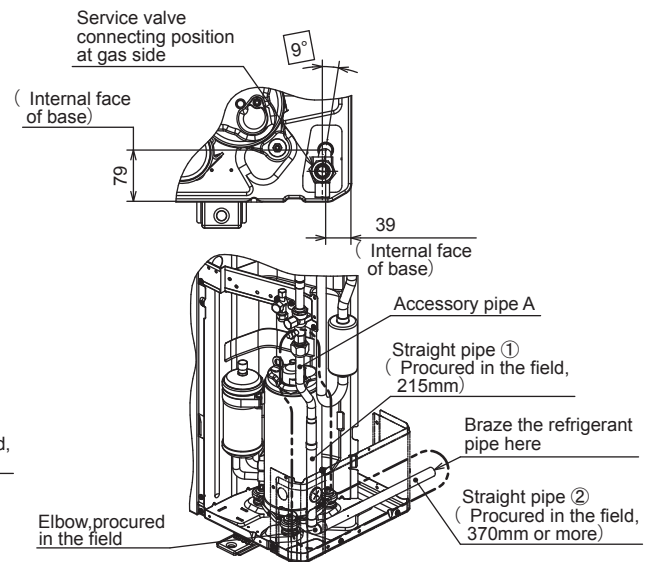
Connection example of refrigerant pipe-(A)
(Downward connection)



Connection example of refrigerant pipe-(B)
(Forward connection)



Connection example of refrigerant pipe-(C)
(Rightward connection)



Connection example of refrigerant pipe-(D)
(Backward connection)

Model FDC250VSA

PSC012D028C 

- Be sure to use the accessory pipe to connect the service valve on the gas side with the field pipe.
- Be sure to use the straight pipe (Procured at the field) shown in the table 1 applicable to the model of outdoor unit.
- When tightening the flare, connect the pipe securely by pressing the flared face of pipe against the service valve.
- When brazing between the pipe in place and the attached pipe, confirm that no excessive force is applied to the flare joint. Otherwise gas could leak from the flare joint.

• Connect the attached pipe according to the following steps ① – ⑤.

- ① Referring to Table 2 and Table 3, prepare the straight pipe and the elbow in the field, which are used in the construction examples (A) – (D) applicable to the connecting direction.
- ② Firstly, use the accessory pipe to assemble the connecting pipe assembly outside the outdoor unit.
(As shown in the figure of connecting examples (A) – (D).)
- ③ After assembling the connecting pipe, connect it to the service valve on the gas side inside the outdoor unit. Tighten the flare nut with appropriate torque.

Proper torque	
φ 19.05	100 – 120N · m

- ④ After connection of the connecting pipe assembly to the service valve on the gas side, braze the connecting pipe assembly and the field pipe.
- ⑤ When connecting pipe contacts wiring, attach heat insulating material to the pipe in order to prevent from contacting of the pipe and wiring. (If the wiring is rubbed with the pipe and the cover of wiring is teared, there is a risk of a short circuit or an electric shock.)

About brazing

- Be sure to braze while supplying nitrogen gas.
If no nitrogen gas is supplied, a large amount of impurity (oxidized film) will be generated, which may clog the capillary tube and the expansion valve, resulting in fatal malfunction.

Table 1 Pipe specification

		Refrigerant line (one way) length (m)	
Single type	FDC250V	≤35 (m)	φ 22.22 x T1.0
		≤70 (m)	φ 25.4 x T1.0 or φ 28.58 x T1.0
Multi type	FDC224KXZPE1	≤90 (m)	φ 19.05 x T1.0
		≤120 (m)	φ 22.22 x T1.0
	FDC280KXZPE1	≤90 (m)	φ 22.22 x T1.0
		≤120 (m)	φ 25.4 x T1.0 or φ 28.58 x T1.0

- Be sure to use pipes of 1/2H material, and wall thickness above 1mm. (Pressure resistance of O-type pipe is not enough)


Table 2 Parts used for the connecting pipe assembly

No.	Name	Quantity	Remark
1	Accessory pipe A	1	Accessory
2	Straight pipe ①	1	Procured at the field
3	Straight pipe ②	1 or 0	Procured at the field (Not required for downward direction)
4	Elbow	1 or 0	Procured at the field (Not required for downward direction)

Table 3 Length and specification of straight pipe (Procured in the field)

	Ⓐ Downward	Ⓑ Forward	Ⓒ Rightward	Ⓓ Backward
Straight pipe ①	400mm or more	192.5 – 202.5mm	192.5 – 202.5mm	210mm
Straight pipe ②	—	105mm or more	155mm or more	370mm or more

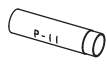
A



Accessory pipe A x 1 pc
(Except FDC224KXZPE1)

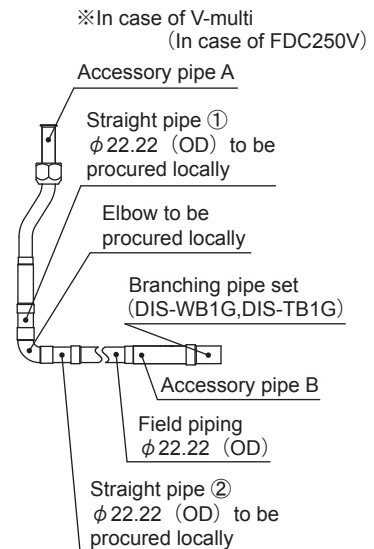
Heat insulating material is attached to the accessory pipe with band. When installing the heat insulating material, cut the band and retrieve it.

B



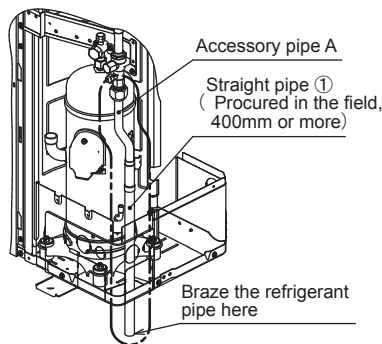
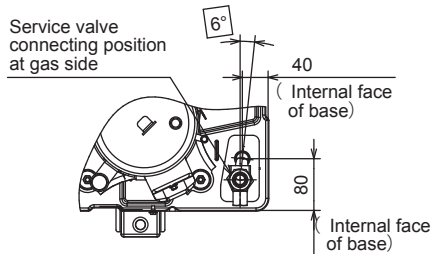
Accessory pipe B x 1 pc
(Only use for FDC250V)

- Branching pipe set can be used by using the accessory pipe B.
When φ 22.22 (OD) size of the indoor unit gas pipe is used, the accessory pipe B is unnecessary.

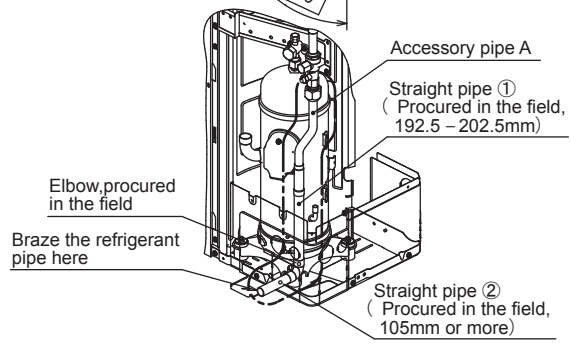
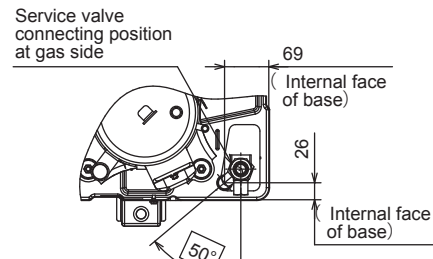


【 Connection example (A) – (D) applicable to the connecting direction.】

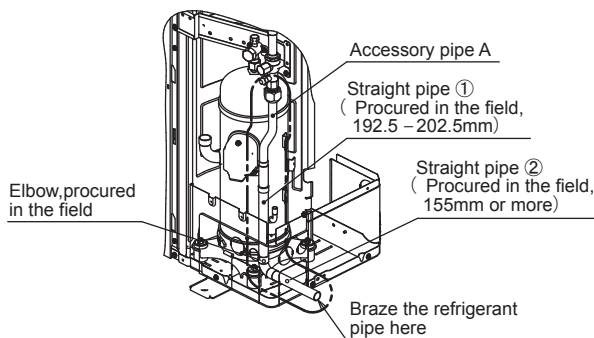
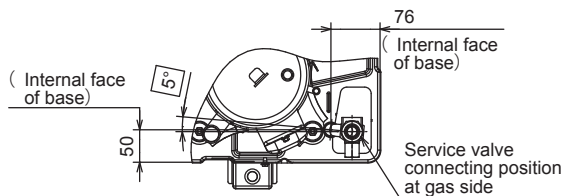
- The piping angle shown below is an example in case of 15mm of heat insulating material.
Adjust an angle, according to the thickness of heat insulating material.
Pass the connecting pipe in a hole after angle adjustment.



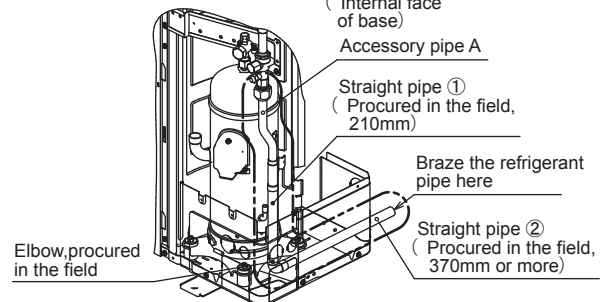
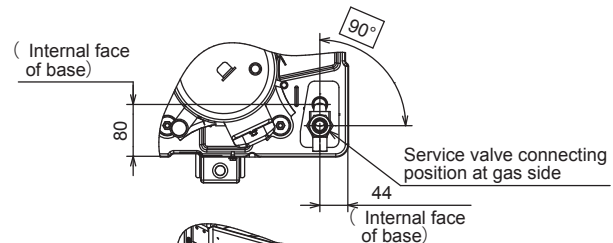
Connection example of refrigerant pipe-(A)
(Downward connection)



Connection example of refrigerant pipe-(B)
(Forward connection)



Connection example of refrigerant pipe-(C)
(Rightward connection)



Connection example of refrigerant pipe-(D)
(Backward connection)

**2.9.6 Instructions for branching pipe set (DIS-WA1, WB1, TA1, TB1)
See page 89.**

3. OPTION PARTS

CONTENTS

3.1 WIRELESS KIT (RCN-TC-5AW-E2)	149
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3.1 WIRELESS KIT (RCN-TC-5AW-E2)

Safety precautions

• Please read this manual carefully before starting installation work to install the unit properly. All of the following are 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 symbols 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 the 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.
-  • **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.

⚠ WARNING



• **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.



• **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 PCB case removed.**
If dew, water, insect, etc. enter through the hole, it could cause electric shocks, fire or break-down.

⚠ CAUTION



• Do not install the wireless kit at the following places in order to avoid malfunction. It could cause break-down or deformation of remote control.

(1) Places exposed to direct sunlight	(8) Places where the receiver is influenced by fluorescent lamp (especially inverter type) or sunlight
(2) Places near heat-generating devices	(9) Places where the receiver is affected by infrared rays of any other communication devices
(3) High humidity places	(10) Places where some object may obstruct the communication with the remote control
(4) Hot surface or cold surface enough to generate condensation	
(5) Places exposed to oil mist or steam directly	
(6) Uneven surface	
(7) Places affected by the direct air flow of the AC unit	

① Accessories

Please make sure that you have all of the following accessories.

① Receiver		1	⑤ Bracket mounting screw		1
② PCB		1	⑥ Wiring (For communication)		1
③ PCB mounting support		2	⑦ Wiring (For receiving)		1
④ Bracket (Sheet metal)		1	⑧ Installation manual		1
			⑨ Parts set		1

① Wireless remote control		1
② Remote control holder		1
③ Screw for holder		2
④ AAA dry cell battery (LR03)		2
⑤ User's manual		1

② Preparation before installation

Setting of PCB

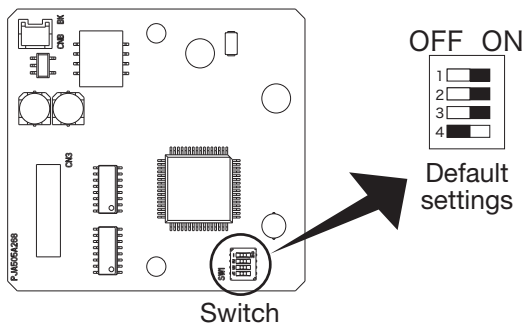
Accessory PCB has the following switches to set the functions. Default setting is shown with mark.

SW1	Prevents interference during multiple setting	<input type="checkbox"/> ON : Normal	<input type="checkbox"/> OFF : Remote
SW2	Receiver master/slave setting	<input type="checkbox"/> ON : Master	<input type="checkbox"/> OFF : Slave
SW3	Buzzer	<input type="checkbox"/> ON : Valid	<input type="checkbox"/> OFF : Invalid
SW4	Auto restart	<input type="checkbox"/> ON : Valid	<input type="checkbox"/> OFF : Invalid

② Preparation before installation (continued)

To change setting

1. Change the setting of switches on the accessory PCB.



Master/Slave setting when using multiple remote controls

Up to two receivers or wired remote controls can be installed on one indoor unit group. In such occasion, it is necessary to change the setting to slave on either one.

To change the setting on the receiver, refer to the instruction manual of the receiver.

2. When SW1 is turned to OFF position, change the wireless remote control setting.

For the method of changing the setting, refer to **Setting to avoid mixed communication** of

④ Wireless remote control

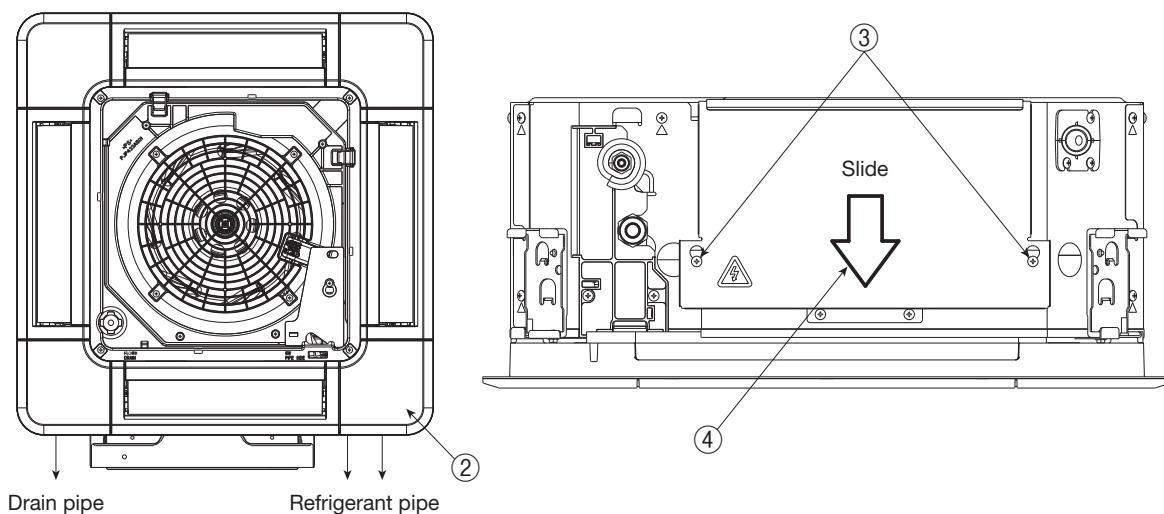
*For the receivable area of the signal, refer to **⑤ Receiver**.

③ How to install the receiver

It is possible to install the receiver by replacing the corner lid on the panel.

Preparation before installation

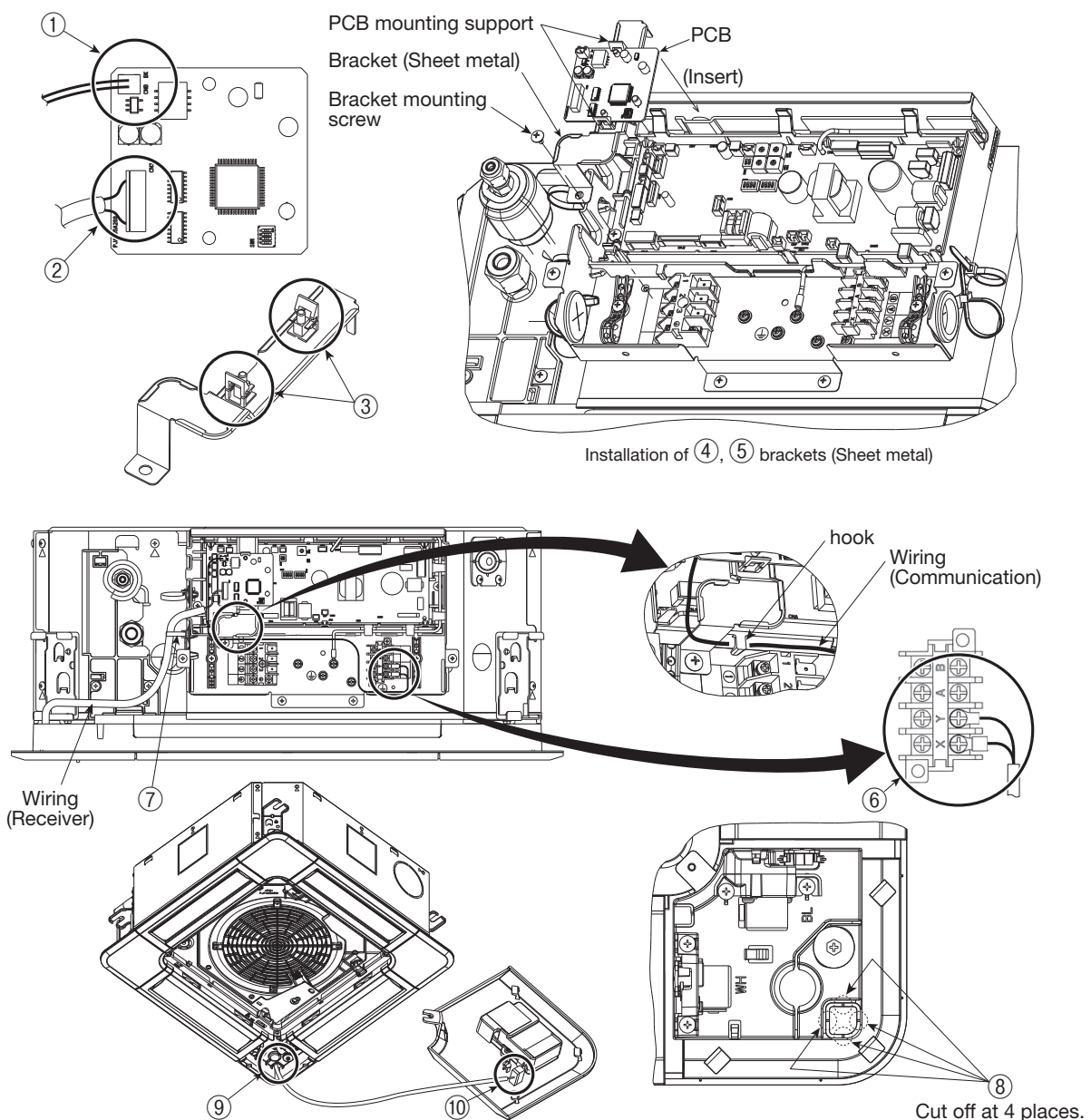
- ① Remove the inlet grille according to the installation manual of the panel.
- ② Remove the corner lid at the refrigerant pipe side.
- ③ Loosen screws (2 pcs) on the control box of the unit.
- ④ Slide the control lid in the arrow direction, and remove it.



③ How to install the receiver(continued)

Installation of the receiver

- ① Connect the wire connector (Communication) to CNB on PCB.
- ② Connect the wire connector (Receiver) to CN3 on PCB.
- ③ Install the PCB mounting supports on the bracket (Sheet metal).
- ④ Install PCB on the PCB mounting supports.
- ⑤ Insert the bracket (Sheet metal) in one side of control box, and fix the other side with screws as shown in the figure.
- ⑥ Connect round terminals of wires (Communication) to the terminal block (X, Y) in the control box. The wires have no polarity.
- ⑦ Fix wires with bands as shown in the figure.
- ⑧ Cut off the half-blanks on the panel (at 4 places) as shown in the figure.
- ⑨ Pass the wiring (Communication) through the opening on the panel.
- ⑩ Connect connectors of the wiring (Communication) and the receiver.
- ⑪ Install the receiver on the panel according to the installation manual of the panel.
- ⑫ Install the control box lid with care not to pinch wires, and fix with screws (2 pcs).



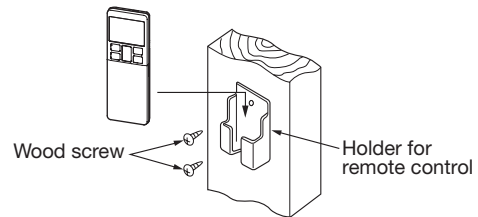
④ Wireless remote control

Installation tips for the remote control holder

Fix the remote control holder using the screws supplied with this product.

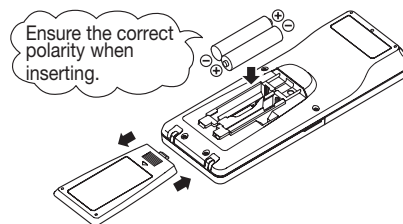
* Precautions for installing the holder

- Adjust the position so that it is upright.
- Ensure that the screw heads are not protruding.
- Do not attach the holder on plaster wall.



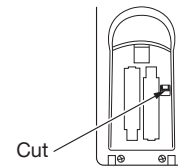
How to insert batteries

1. Detach the back lid.
2. Insert the batteries. (two AAA batteries)
3. Reattach the back lid.



Setting to avoid mixed communication

1. Detach the back lid, and remove the batteries.
2. Cut off the switching wire in the battery compartment using nippers.
3. Insert the batteries, and attach the back lid.



Changing the remote control setting

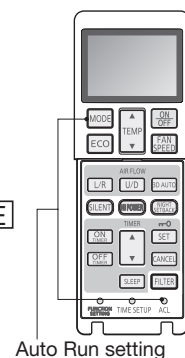
How to change the Auto Run setting

The Auto Run mode is not available on the building air-conditioning and gas heat pump series (excluding the cooling/heating free multi system).

When using the remote control to operate those models, set the remote control to disable the Auto Run mode.

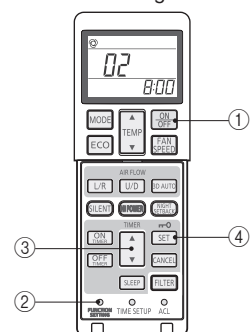
To disable the Auto Run mode, press the **[ACL]** switch while holding down the **[MODE]** button, or insert batteries while holding down the **[MODE]** button.

* Note: Once the batteries are removed, the setting is reset to the factory default.
When the batteries are removed, repeat the steps described above.



Indoor function settings

1. How to set indoor functions
 - ① Press the ON/OFF button to stop the unit.
 - ② Press the desired one of the buttons shown item 2. while holding down the FUNCTION SETTING switch.
 - ③ Use the selection buttons ▲ and ▼ to change the setting.
 - ④ Press the SET button.
The buzzer on the remote control signal receiver beeps twice, and the LED lamp flashes four times at two-second intervals.



④ Wireless remote control (continued)

2. Setting details

The following functions can be set.

Button	Number indicator	Function setting
FAN SPEED	00	Fan speed setting : Standard
	01	Fan speed setting : Setting 1 *
	02	Fan speed setting : Setting 2 *
MODE	00	Room heating temperature adjustment : Disable
	01	Room heating temperature adjustment : +1°C
	02	Room heating temperature adjustment : +2°C
	03	Room heating temperature adjustment : +3°C
FILTER	00	Filter sign display : OFF
	01	Filter sign display : 180 hours
	02	Filter sign display : 600 hours
	03	Filter sign display : 1000 hours
	04	Filter sign display : Operation stop after 1000 hours have elapsed
U/P (Up/Down)	00	Anti draft setting : Disable
	01	Anti draft setting : Enable
SILENT	00	Infrared sensor setting (Motion sensor setting) : Disable
	01	Infrared sensor setting (Motion sensor setting) : Enable
HI POWER	00	Infrared sensor control (Motion sensor control) : Disable
	01	Infrared sensor control (Motion sensor control) : Power control only
	02	Infrared sensor control (Motion sensor control) : Auto OFF only
	03	Infrared sensor control (Motion sensor control) : Power control + Auto OFF
ON TIMER	00	Cooling fan residual-period running : Disable
	01	Cooling fan residual-period running : 0.5 hours
	02	Cooling fan residual-period running : 2 hours
	03	Cooling fan residual-period running : 6 hours
OFF TIMER	00	Heating fan residual-period running : Disable
	01	Heating fan residual-period running : 0.5 hours
	02	Heating fan residual-period running : 2 hours
	03	Heating fan residual-period running : 6 hours
NIGHT SETBACK	00	Remote control signal receiver LED : Brightness High
	01	Remote control signal receiver LED : Brightness Low
	02	Remote control signal receiver LED : OFF

* Refer to technical data.

⑤ Receiver

1 Control multiple indoor units with one remote control

Up to 16 indoor units can be connected.

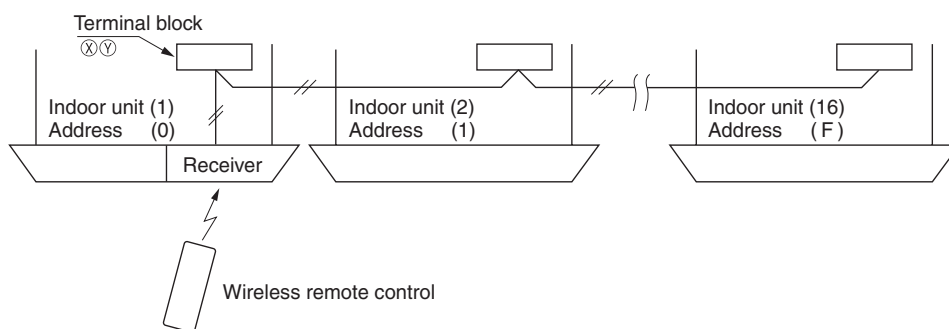
1. Connect the XY terminal with 2 cores wire. As for the size, refer to the note on the right.
2. For Packaged air-conditioner series, set the indoor unit address with SW2 on the indoor unit PCB from [1] to [F] so as not to duplicate.

Restrictions on the thickness and length of wire (Maximum length is 600m.)

Standard	Within	0.3 mm ² × 100m
	Within	0.5 mm ² × 200m
	Within	0.75mm ² × 300m
	Within	1.25mm ² × 400m
	Within	2.0 mm ² × 600m

For the shop series

For VRF series, set the indoor unit address with SW1, SW2 and SW5-2 on the indoor unit PCB from [000] to [127] so as not to duplicate.



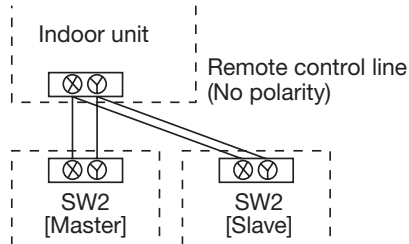
For the building air-conditioning and gas heat pump series

Set the indoor unit and outdoor unit numbers by manually specifying the addresses.

Use the rotary switches SW1 and SW2 provided on the indoor unit PCB (printed circuit board) to set the indoor unit numbers so that they are not duplicated.

Master/Slave setting when using multiple remote control

Up to two receivers can be installed in one indoor unit group.



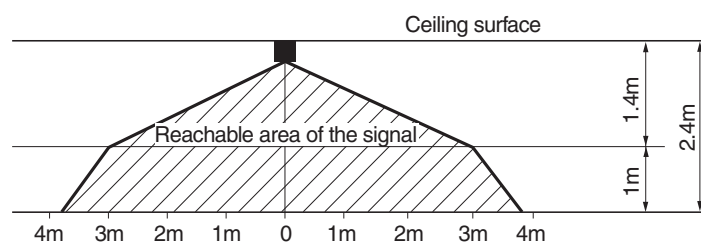
Switch	Setting	Function
SW2	ON	Master
	OFF	Slave

Wireless remote control's operable area

1. Standard reachable area of the signal

[Condition] Illuminance at the receiver: 300lux

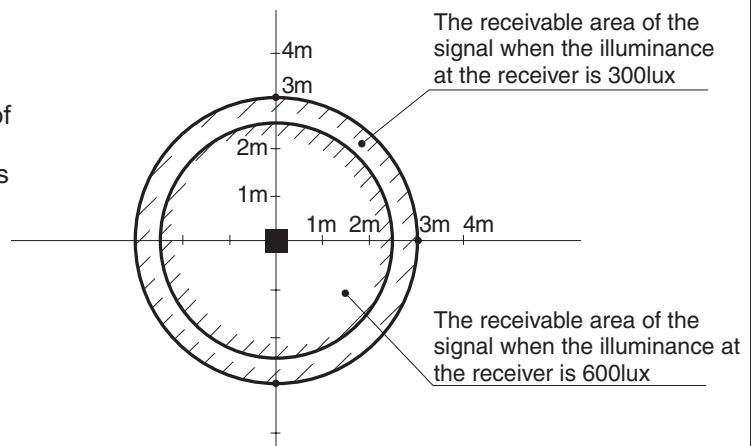
(When no lighting is installed within 1m of the receiver in an ordinary office)



⑤ Receiver (continued)

2. Correlation between illuminance at the receiver and reachable area of the signal in a plain view.

The drawing in the right shows the correlation between the reachable area of the signal and illuminance at the receiver when the remote control is operated at 1m high under the condition of ceiling height of 2.4m. When the illuminance becomes double, the area is narrowed down to two thirds.



3. Installation tips when several receivers are installed close to one another.

Minimum distance between the indoor units which can avoid cross communication is 5m under the condition of 300lux of illuminance at the receiver.

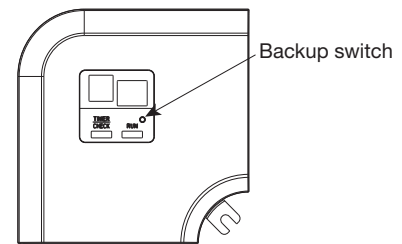
(When no lighting is installed within 1m of the receiver in an ordinary office)

Backup switch

A backup switch is provided on the receiver section of the panel surface.

When operation from the wireless remote control unit is not possible (due to flat batteries, a mislaid unit, a unit failure), you can use it as an emergency means. You should operate this switch manually.

1. If pressed while the air-conditioner is in a halt, it will cause the air-conditioner to start operation in the automatic mode (In case of cooling only, it is in the cooling mode).
Wind speed: Hi fan, Temperature setting: 23°C, Louver: horizontal
2. If pressed while the air-conditioner is in operation, it will stop the air-conditioner.



Cooling test run operation

- After safety confirmation, turn on the power.
- Transmit a cooling operation command with the wireless remote control unit, while the backup switch on the receiver is pressed.
- If the backup switch on the receiver is pressed during a test run, it will end the test run.
- If you cannot operate the unit properly during a test run, please check wiring by consulting with inspection guides.

How to read the two-digit display



On the receiver of a wireless kit, a two-digit (7-segment) display is provided.

1. An indication will be displayed for one hour after power on.
2. An indication will be displayed for 3.5 seconds after transmitting a "STOP" command from the wireless remote control or the operation of the backup switch to stop the unit.
3. An indication appearing in (1) or (2) above will go off as soon as the unit starts operation.
4. When there are no error records to indicate, addresses of all the connected units are displayed.
5. When there are some error records remaining, the error records are displayed.
6. Error records can be cleared by transmitting a "STOP" command from the wireless remote control, while the backup button is pressed.

3.2 MOTION SENSOR KIT (LB-TC-5W-E)


PJF012D504

WARNING

- Connect the wiring to the PCB in the control box on the indoor unit and fix the wiring securely so as not to apply unexpected stress on the PCB. Loose connection or fixing will cause abnormal heat generation or fire. 
- Make sure the power source is turned off during electrical wiring work. Otherwise, electric shock, malfunction and abnormal operation may occur. 

CAUTION

- Do not install the motion sensor kit at the following places in order to avoid malfunction.

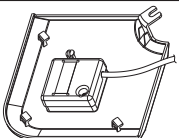
<ul style="list-style-type: none"> (1) Places exposed to direct sunlight (2) Places near heat-generating devices (3) High humidity places (4) Hot surface or cold surface enough to generate condensation (5) Places directly exposed to oil mist or steam (6) Places affected by the direct air flow of the indoor unit (7) Places where the motion sensor may be influenced by fluorescent lamp or sunlight 	<ul style="list-style-type: none"> (8) Places where the motion sensor may be affected by infrared rays of any other communication devices (9) Places where some object may obstruct the motion sensor (10) Places where there may be impact on the motion sensor (11) Places with strong radio wave or static electricity (12) Dusty place where the motion sensor lens may become tainted or be damaged
--	---
- Do not leave the motion sensor without the cover. In case the cover needs to be detached, protect the motion sensor with a packaging or bag in order to keep it away from water and dust. 

Attention

- Instruct the customer how to operate the motion sensor kit correctly by referring to the instruction manual.
- For the installation method of the air-conditioner itself, refer to the installation manual enclosed in the package.

① Accessories

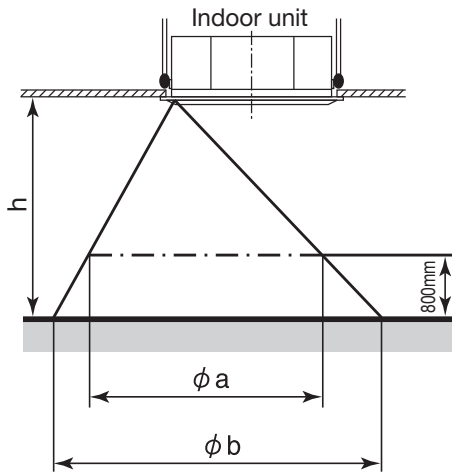
Please make sure that all components are in the package.

Motion sensor		1
---------------	---	---

② Installing the motion sensor

It is possible to install the motion sensor by replacing the corner lid on the panel.

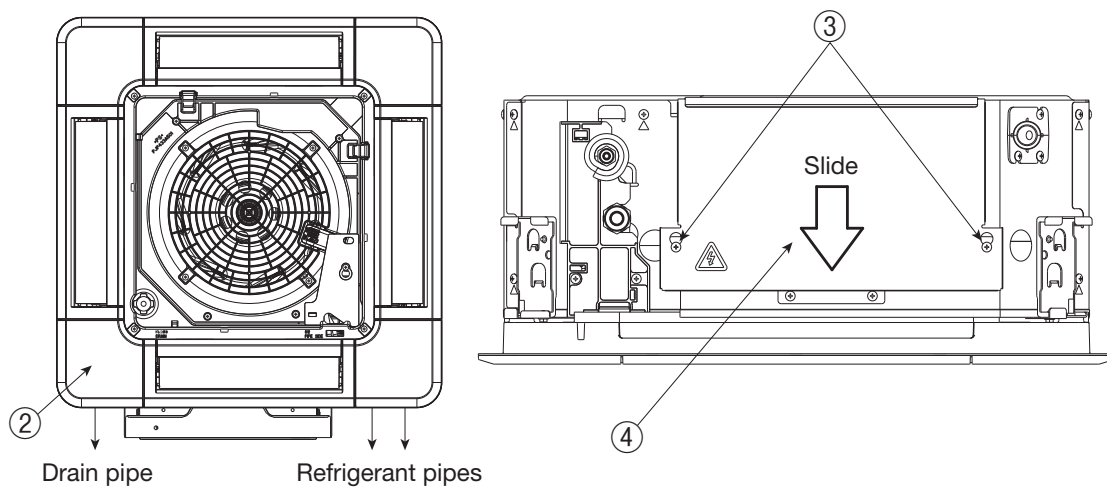
The detectable area



Height of the ceiling	h[m]	2.7	3.5	4.0
Detectable area①	ϕ a[m]	about 4.5	about 6.4	about 7.6
Detectable area②	ϕ b[m]	about 6.4	about 8.3	about 9.5

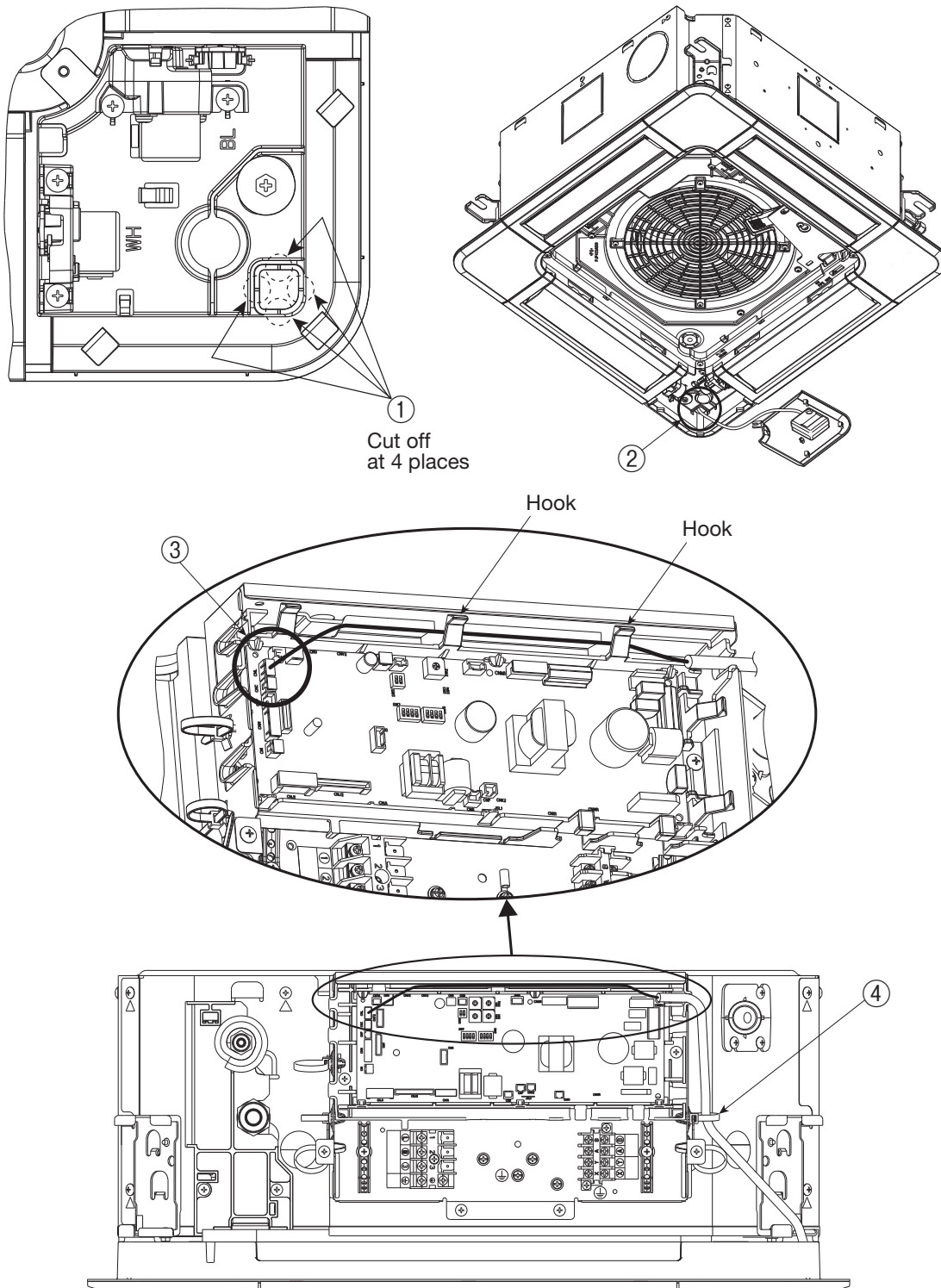
Preparation before installation

- ① Remove the inlet grille according to the installation manual of the panel.
- ② Remove the corner lid at the drain pipe side.
- ③ Loosen screws (2 pcs) on the control box of the unit. (It is not necessary to remove the screws.)
- ④ Slide the control lid in the arrow direction, and remove it.



Installation of the motion sensor

- ① Cut the half blanking (4 sections) of the panel as shown in the following figure.
- ② Pass the motion sensor wiring through the opening of the panel.
- ③ Connect the wiring connector to CNL (3P, black) on the PCB in the control box.
- ④ Fix the wiring with a band as shown below.
- ⑤ Install the motion sensor on the panel according to the installation manual of the panel.
- ⑥ Install the control lid with care not to pinch the wiring, and reinstall the control lid with screws (2 pcs.).



③ Setting the motion sensor

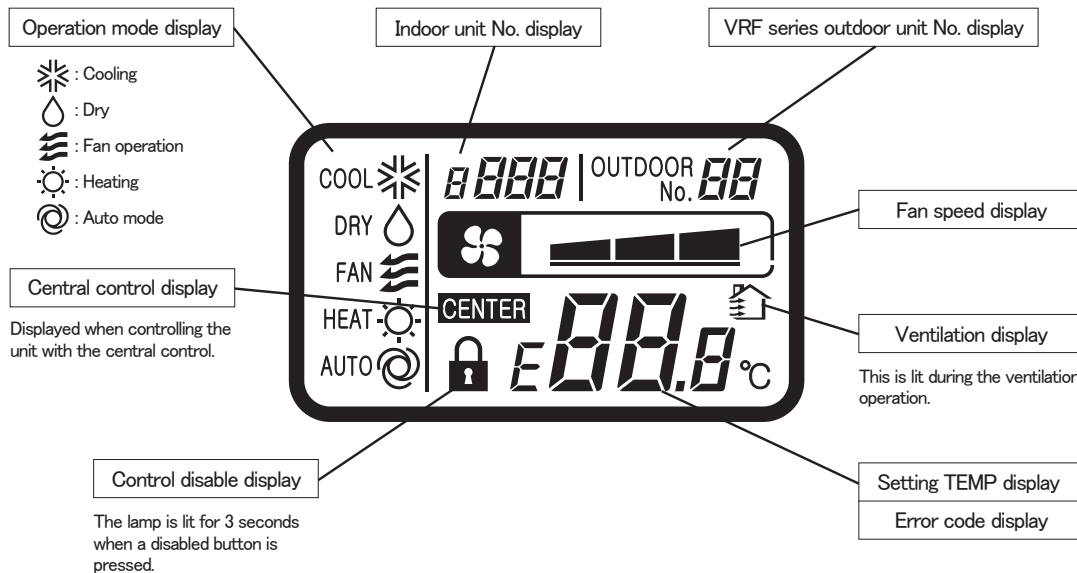
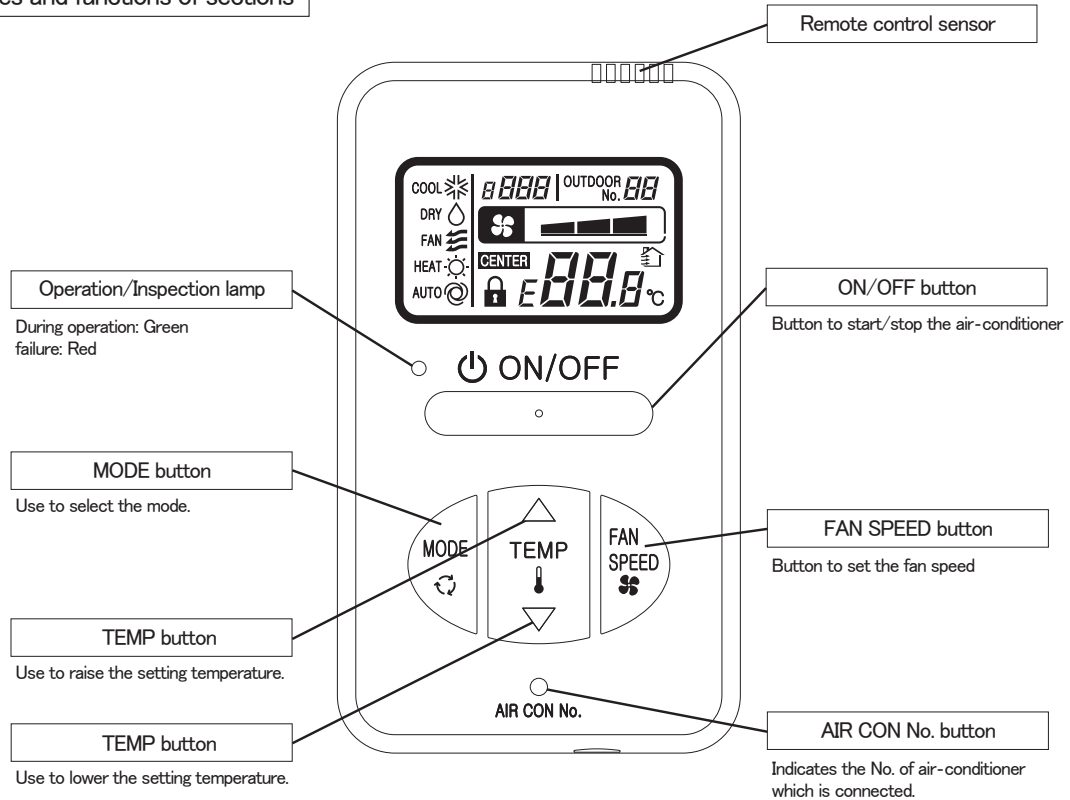
The motion sensor will not function if it is only installed.
Set the function of the motion sensor by the wired or wireless remote control.
Refer to the manual instruction of each remote control for the setting procedure.

Note: It is not possible to set by the following remote control models or older ones.
Wired: RC-EX1A, RC-E5, RCH-E3
Wireless: RCN-E1R

3.3 SIMPLE WIRED REMOTE CONTROL (RCH-E3)

Notes:
 Following functions of FDU indoor unit series are not able to be set with this simple wired remote control (RCH-E3).
 1. 4-fan speed setting (P-Hi/Hi/Me/Lo)→ 3-fan speed setting (Hi/Me/Lo)

Names and functions of sections

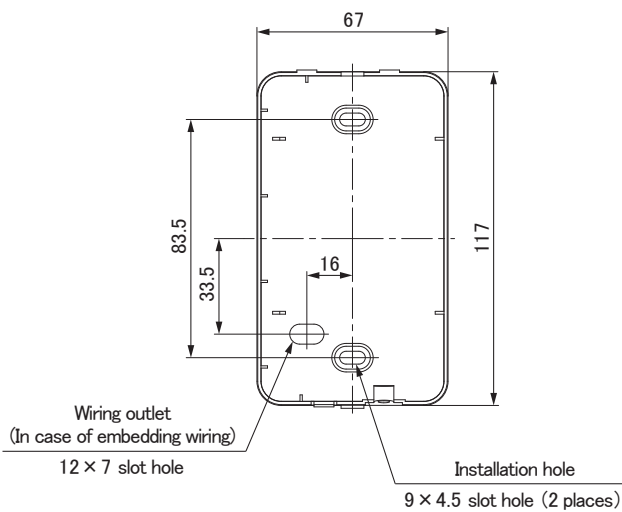


Installation of remote control

- 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

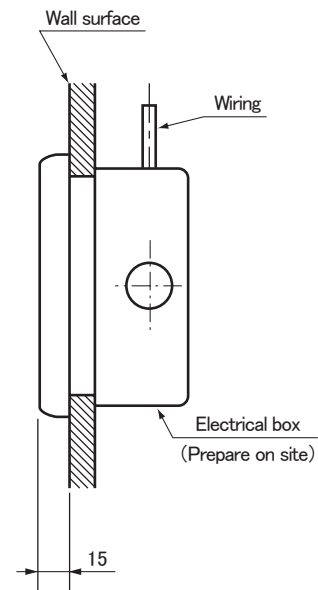
PJZ000Z272

Remote control installation dimensions

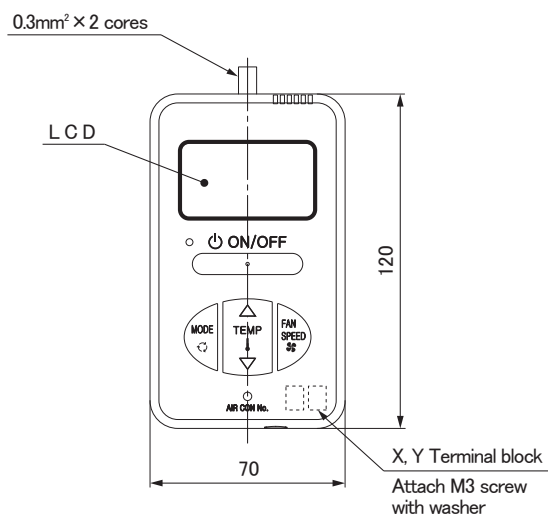


Note: Installation screw for remote control
M4 screw (2 pieces)

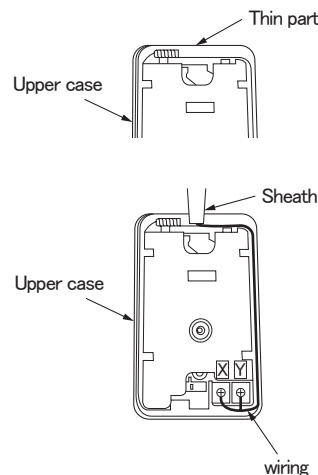
In case of embedding wiring



In case of exposing wiring

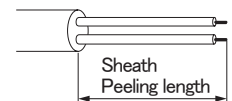


The remote control wiring can be extracted from the upper center. After the thin part in the upper side of the remote control upper case is scraped with a nipper or knife, remove burr with a file.



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	0.5mm ² × 2 cores
Under 300m	0.75mm ² × 2 cores
Under 400m	1.25mm ² × 2 cores
Under 600m	2.0mm ² × 2 cores



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.

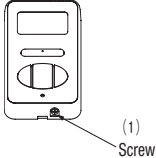
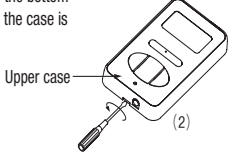
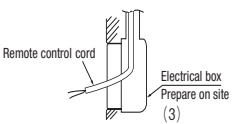
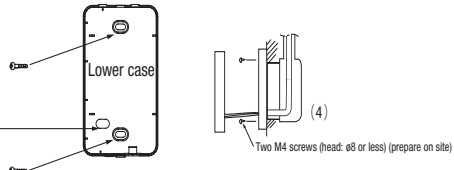
CAUTION

- **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 case 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)

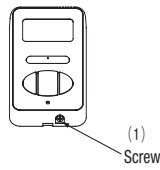
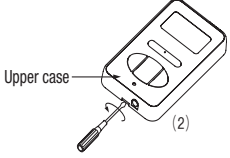
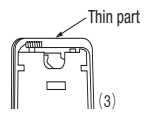
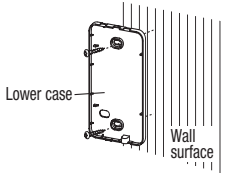
1. Installation procedure

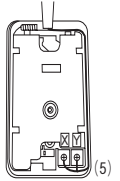
In case of embedding cord

- (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 mm² (recommended) to 0.5 mm² at maximum.

Further, peel off the sheath.

The peeling length of each wiring is as follows:

X wiring : 160mm
Y wiring : 150mm



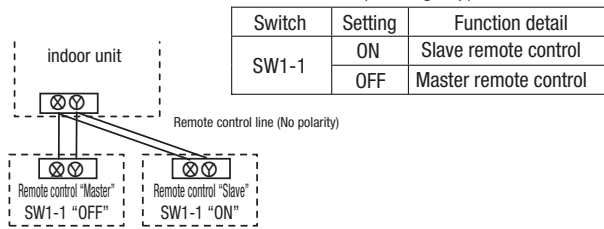
- (6) Mount the upper case for restoring to its former state so as not to crimp the remote control cord, and secure with the removed screw.
- (7) In the case of exposing installation, secure the remote control cord to the wall surface with a cord clamp so as not to loosen the remote control cord.

2. Installation and wiring of remote control

- (1) Wiring of remote control should use 0.3mm² × 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 0.3mm² (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.
 - 100 - 200m ······ 0.5mm² × 2 cores
 - Under 300m ······ 0.75mm² × 2 cores
 - Under 400m ······ 1.25mm² × 2 cores
 - Under 600m ······ 2.0mm² × 2 cores

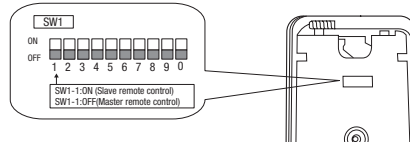
3. Master/ slave setting when more than one remote control are used

- (1) Up to two remote controls can be connected to one unit (or one group) of indoor unit.



- (2) Set the switch SW1-1 of the slave remote control is "Slave" (ON). The factory default is set as "Master" (OFF).

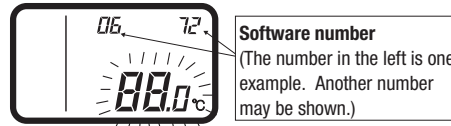
- (Note) • The remote control thermistor enabled setting can be set only to the master remote control.
 • Install the master remote control at the position to detect room temperature.
 • The air-conditioner operation follows the last operation of the remote control in case of the master / slave setting.



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.



- (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 Δ** or **TEMP ▽** button.
 Select the indoor unit No.

- (3) Press **MODE** button.
 Decider 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.

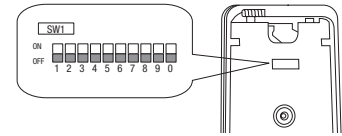
6. Function setting

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 would 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 thermistor enabled	
	OFF	Remote control thermistor 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		
	OFF	Not used	



- 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, offset 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	Ventilator 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	
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 heating 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:

Swth 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) Fan speed: two steps (Hi-Me) Fan: one step	Product model whose indoor unit fan speed is two steps
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 FDU5
		Intermittent operation	FDU5

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	UHi - Hi - Mid	UHi - Mid	UHi - Hi

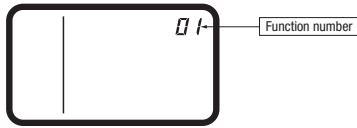
Initial setting of some indoor unit is "High speed".

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.

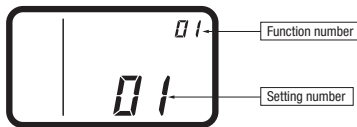


- (2) Press **TEMP**▲ or **TEMP**▼ button. Select the function number.

- (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)



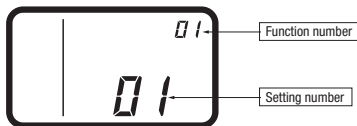
- ② Press **TEMP**▲ or **TEMP**▼ button. Select the setting number.

- 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.

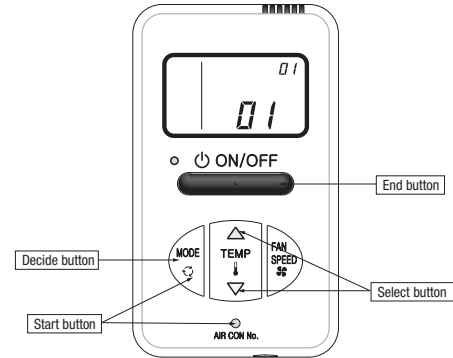
(Example)

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.

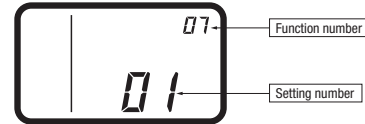
(blinking for approximately 2 to 10 seconds while data are read)



After that, the current setting number of the selected function number blinks.

(Example)

Function number: "07" (lighting)
 Setting number: "01" (blinking)



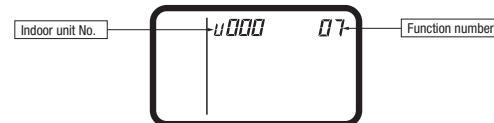
Proceed to ②.

[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.

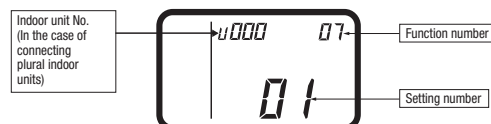
Light is on for approximately 3 to 20 seconds while data of the decided function No. and setting No. is transmitted.

(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.)

3.4 OA SPACER (FDTC series)

This manual describes the installation methods for OA spacer (TC-OAS-E2) and the duct joint (TC-OAD-E).
 ◎ This OA spacer is designed for assembling on the indoor unit (FDTC Series), not for be using independently.

PJZ012D125






Application model	FDTC15-56KXZE1 FDTC25-60VG
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- ◎ Prepare the duct (size: ø75) and the booster fan at site.
- ◎ For the installation of indoor unit, refer to the installation manual attached to the indoor unit.


SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.

⚠ WARNING

- **Installation should be performed by the specialist.**  If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Install the system correctly according to these installation manuals.**  Improper installation may cause explosion, injury, water leakage, electric shock, and fire.
- **Use the genuine accessories and the specified parts for installation.**  If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.
- **Turn off the power source during servicing or inspection work.**  If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.
- **Shut off the power before electrical wiring work.**  It could cause electric shock, unit failure and improper running.







⚠ CAUTION

- **Do not install and use the unit where corrosive gas (such as sulfuric acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled.**  It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire.





① Before installation

- Confirm the following parts are included:

OA spacer (TC-OAS-E2)

Spacer	Bracket 1	Bracket 2	Bracket 3	Bracket 4	Bolt
					
1	2	2	2	2	8

Duct joint (TC-OAD-E)

Duct Joint	Screw	Insulation 1 (120 × 54)	Insulation 2 (40 × 60)
			
1	6	1	2

② Prior study before installation (Usage limitation)

(1) Temperature conditions for OA spacer

- Adjust the temperature conditions of mixed air with outdoor air and indoor air within the usage range of suction air temperature for the air-conditioner.
- The usage temperature conditions of intake outdoor air and indoor air around the ducts are shown in the following table.
- If the temperature conditions of intake outdoor air do not meet, process the outdoor air before intaking.

Operation mode	Usage temperature conditions	
	Intake outdoor air	Indoor air around the ducts
In heating	5°C DB or higher	18.5°C WB or lower and 60% RH or lower
In cooling	29°C DB or lower and 80% RH or lower	20°C DB or higher

(2) Intake outdoor air volume

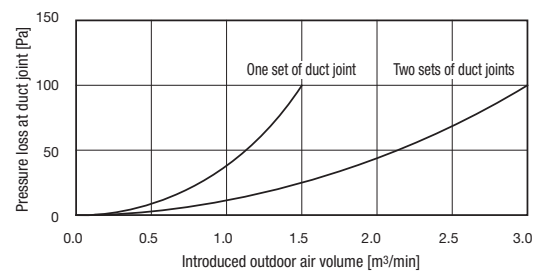
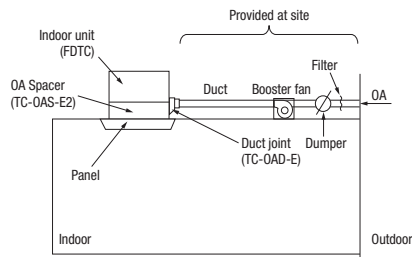
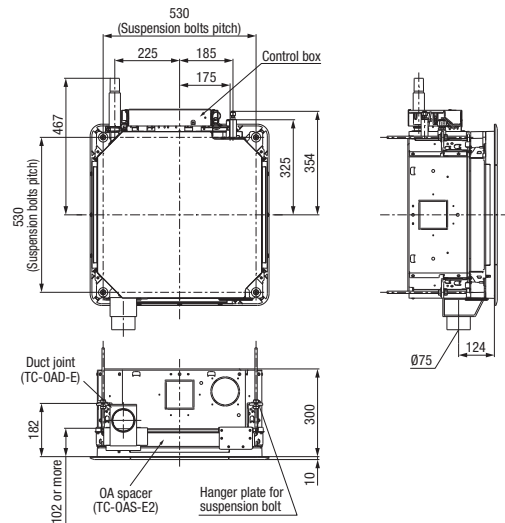
- Intake outdoor air volume is 3.0 m³/min at the maximum (when two sets of duct joints are used). Up to two sets of duct joint can be installed on OA spacer.
- In case one set of duct joint is installed: 1.5 m³/min max.
- In case two sets of duct joint is installed: 3.0 m³/min max.

(3) Selection of booster fan

- Select the booster fan based on the duct resistance plus the pressure loss at the duct joint. (See the figure)

(4) Other conditions

- Determine the capacity of air conditioner based on the calculation of air-conditioning load including the heat load of intake outdoor air.
- Install the filter for the intake outdoor air and the reverse flow prevention dumper during the duct work at site.
- Insulate the duct and duct joint in order to prevent dewing.
- Interlock the operation of booster fan with ON/OFF operation of the indoor unit. (See Section 7.)

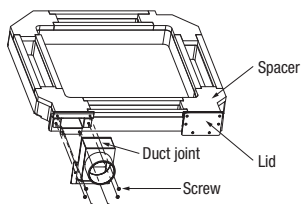


③ Installation of duct joint (TC-OAD-E) onto OA spacer

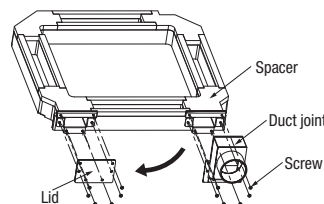
- There are two places where the duct joint can be installed.

When installing one duct joint

Install OA spacer at either one of two installation places on the duct joint.

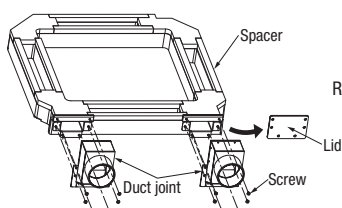


To install the duct joint, screw it in as shown at left.



When installing the duct joint at the lid side, remove the lid and reinstall it at the other end before installing the duct joint.

When installing two duct joints



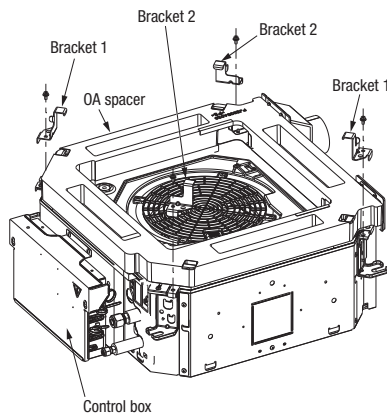
Remove the lid and then install two pieces of duct joint.

4 Installation of OA spacer on the indoor unit

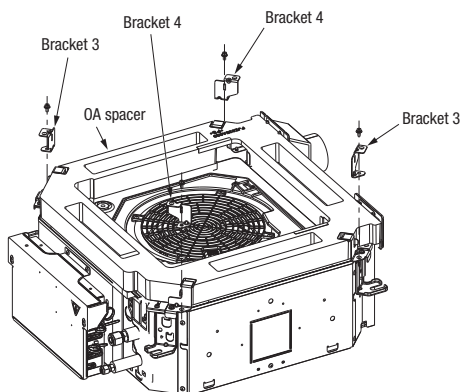
OA spacer can be installed regardless whether the indoor unit has already been hanged or not.
(It is recommended to install before hanging the unit for convenience of installation.)

1-1. When installing OA spacer before hanging the indoor unit

- ① Placing OA spacer on the indoor unit, fix the brackets 1 and 2 (2 pieces each) with bolts.
Install OA spacer in the appropriate position that the duct joint side of OA spacer becomes opposite to the control box of indoor unit (FDTC).



- ② Fix the brackets 3 and 4 (2 pieces each) with bolts.

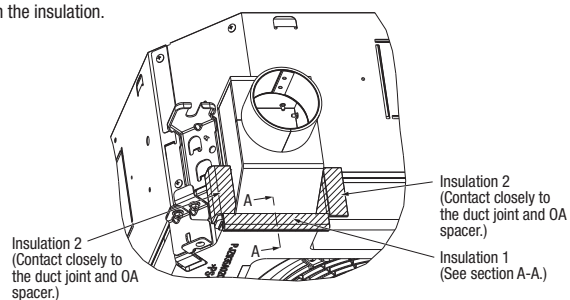
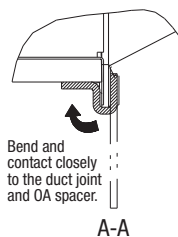


2. Applying insulation

Applying the insulation attached to duct joint set (TC-OAD-E)

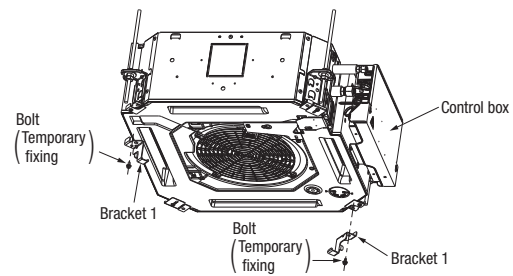
- ① Applying the insulation 1 as shown in the figure.
- ② Applying the insulation 2 as shown in the figure.

* Be sure to cover the entire surface of sheet metal of the duct joint with the insulation.

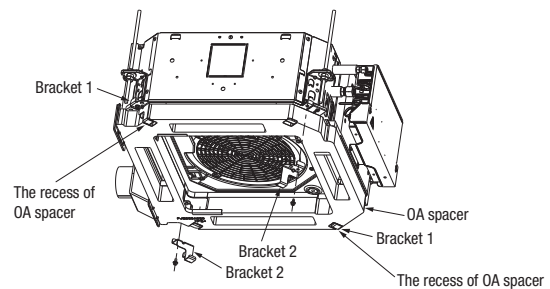


1-2. When installing OA spacer after hanging the indoor unit

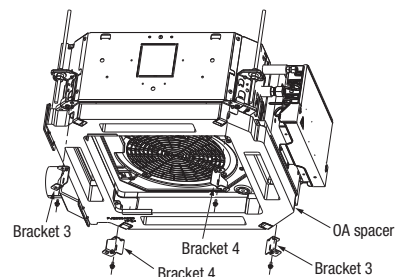
- ① After hanging the indoor unit (*), fix the bracket 1 (2 pieces) temporarily with bolt by 2 turns as shown in the figure.
* For the height (position) of hanging the indoor unit, refer to Section 5.



- ② Install OA spacer.
 - i. Install it in the way that the recess of OA spacer will fit on the bracket 1 fixed temporarily at the step ①.
 - ii. Tighten the bolt of bracket 1.
 - iii. Fix the bracket 2 with bolt. (Tighten up)



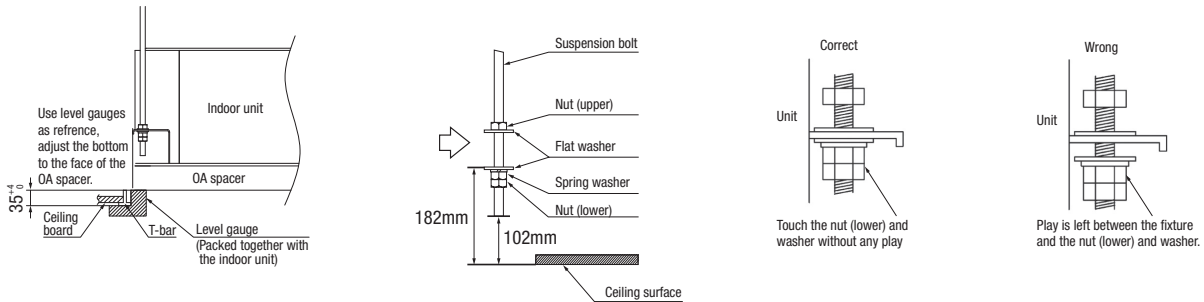
- ③ Fix the brackets 3 and 4 (2 pieces each) with bolts.



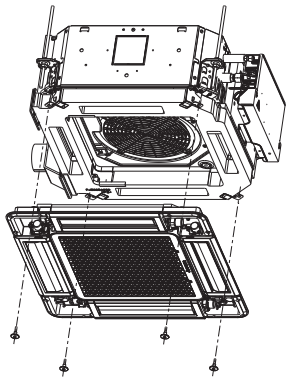
5 Installation of indoor unit

Work procedure

- This unit is designed for 2 × 2 grid ceiling.
If necessary, please detach the T bar temporarily before you install it.
If it is installed on a ceiling other than 2 × 2 grid ceiling, provide an inspection port on the control box side.
- Arrange the suspension bolt at the right position (530mm/530mm).
- Make sure to use four suspension bolts and fix them so as to be able to hold 500N load.
- Ensure that the lower end of the suspension bolt should be 102mm above the ceiling plane. Temporarily put the four lower nuts 182mm above the ceiling plane and the upper nuts on distant place from the lower nuts in order not to obstruct hanging the indoor unit or adjust the indoor unit position, and then hang the indoor unit.
- Adjust the indoor unit position after hanging it by inserting the level gauge (Packed together with the indoor unit.) attached on the package into the air supply port and checking if the gap between the ceiling plane and the indoor unit is appropriate. (*) In order to adjust the indoor unit position, adjust the lower nuts while the upper nuts are put on distant place. Confirm there is no backlash between the hanger plate for suspension bolt and the lower nut and washer.
* Use the level gauge only when OA spacer has been installed before hanging (④ 1-1 only).



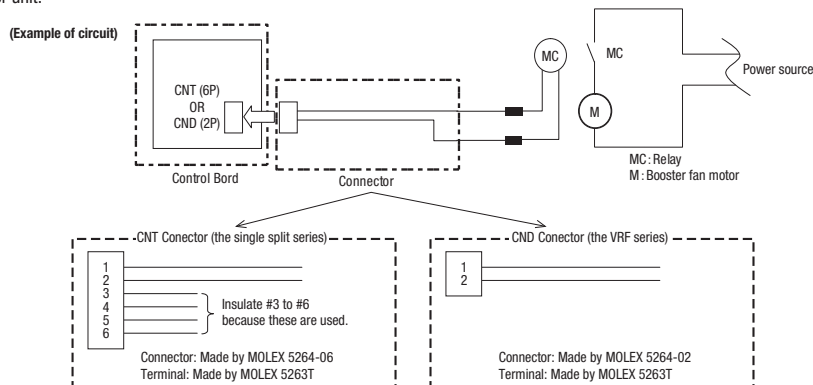
6 Installation of panel



Tighten the panels to the brackets 3 and 4 with bolts.
For further details, refer to the installation manual of panel.
(Caution) Connect the connector of lower motor within the control box.

7 Interlocking with the indoor unit fan

- Connect the Single split series and the VRF series to CNT on the indoor PCB and to CND on the indoor PCB respectively. If a ventilation device is connected, be geared with the motion of indoor device (ON: DC12V output, OFF: 0V output), the ventilation device is operated/stopped.
- Set it at "VENT LINK" by selecting "No. 11 VENT LINK SET" from the functional setting by remote control. For details, refer to the "ELECTRIC WIRING WORK INSTRUCTION" of indoor unit.



(Caution) Although the indoor unit fan stops during the defrosting or oil return operation, the booster fan is operating.
Use a total heat exchanger, if necessary.

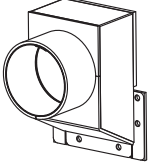
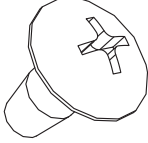
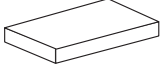

PJZ012D073

3.5 DUCT JOINT (FDTC series)

● This product is used by assembling on the spacer (TC-OAS-E2)

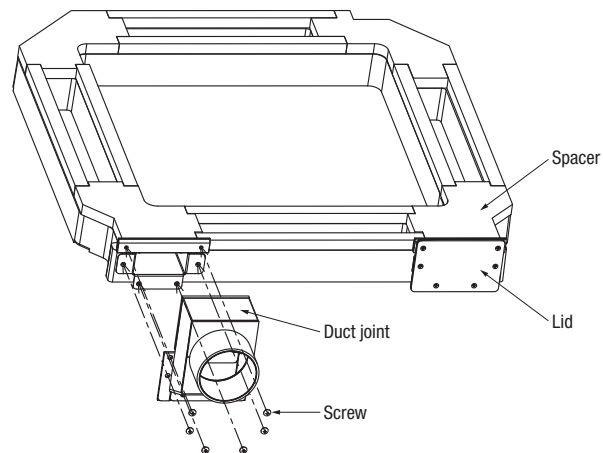
1. Before installation

● Confirm the following parts are included:

Duct joint	Screw	Insulation 1 (120 × 54)	Insulation 2 (40 × 60)
			
1	6	1	2

2. Regarding the use of this product

- Fix the product on the spacer (TC-OAS-E2) as shown below.
- For the installation method, refer to the installation manual of the spacer.



3.6 BASE HEATER KIT (CW-H-E1)

PCZ012D007A

Model Name: CW-H-E1

WARNING

- Follow the instruction and installation manual for outdoor unit when installing the heater.
- This heater must be installed by authorized personnel.
- Turn off the power source when the kit is installed.
- Failure to follow the above will result in serious accident like electrical shock or fire.

CAUTION

- Follow the law or regulation of the country where it is installed.
- Do not alter the heater.
- Lay down the heater so that the edge of the sheet metal does not damage the heater.
- Bending radius must be bigger than 25mm.
- Do not use the heater near flammable substances.
- Be sure to check the electrical insulation before use.
- Be sure to check the drain is not trapped by the heater.
- Do not leave refrigerant oil on the base.

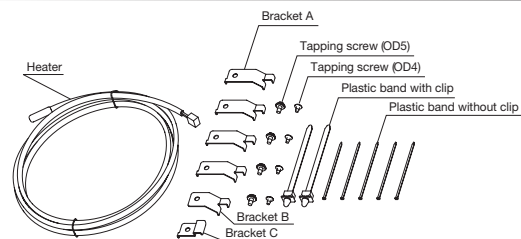
AREAS TO BE APPLIED

This kit is to be used in an area where the lowest temperature drops below zero.

Caution: In case the heater is not applied on the unit which is installed in an area mentioned above, it may be regarded as installation failure and warranty may not be given.

Components

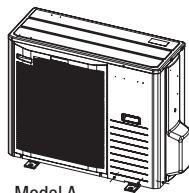
- Heater : 1pc
- Bracket A : 4pcs
- Bracket B : 1pcs
- Bracket C : 1pcs
- Tapping screw (OD5) : 4pcs
- Tapping screw (OD4) : 4pcs
- Plastic band with clip : 2pcs
- Plastic band : 5pcs



Applicable model

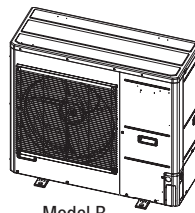
This heater kit is applicable for 3 different models.

<Model A>
Single fan with plastic fan guard model



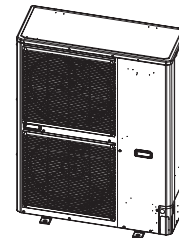
Model A

<Model B>
Single fan model



Model B

<Model C>
Double fan model

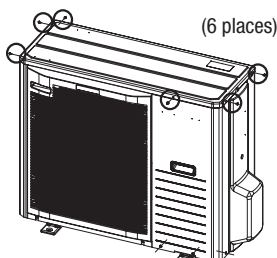


Model C

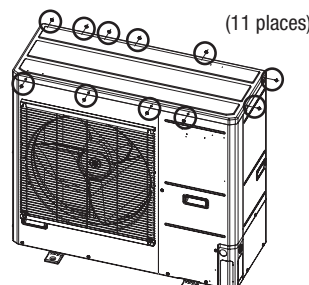
Installation procedure

Step 1

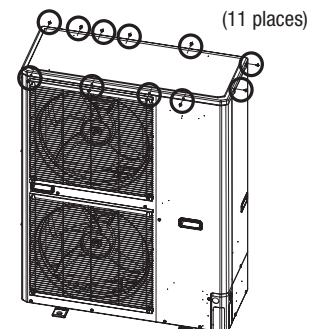
1. Remove the top panel of the outdoor unit.



Model A

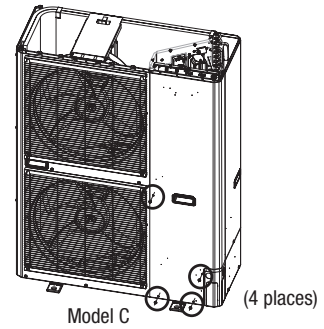
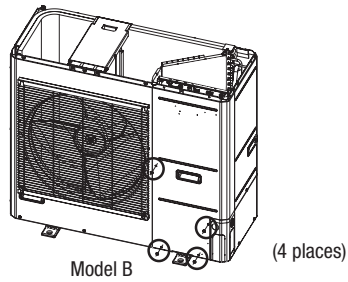
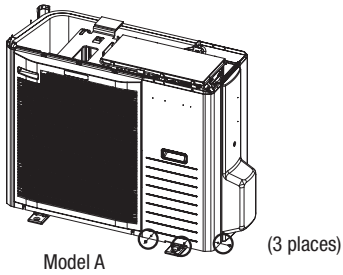


Model B

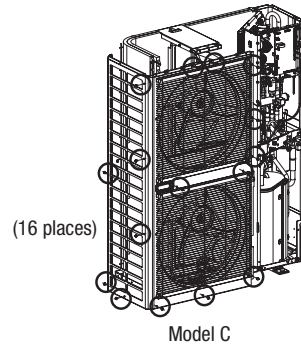
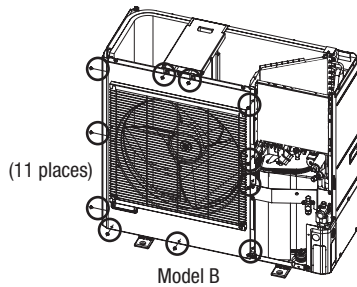
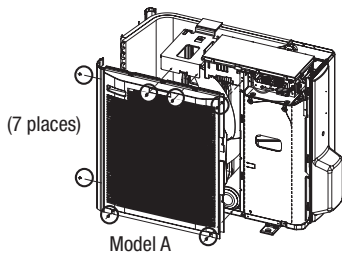


Model C

Step 2 2. Remove the service panel.

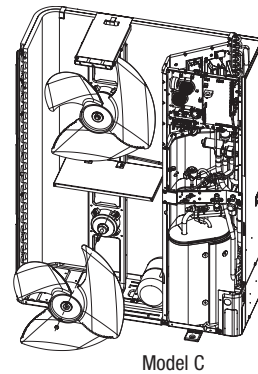
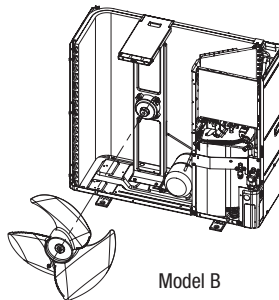
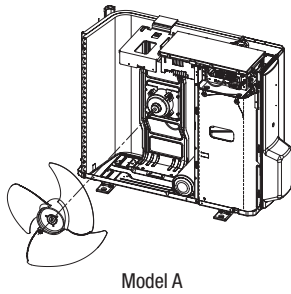


Step 3 3. Remove the front panel.
Pull the panel straightforward so that the panel doesn't touch the fan blade.

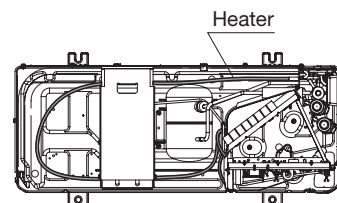
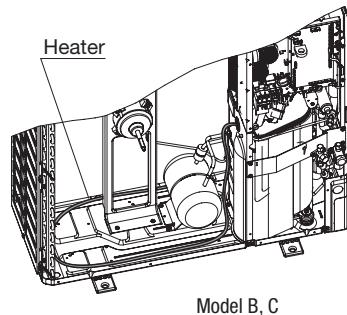
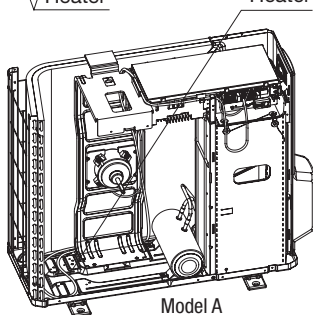
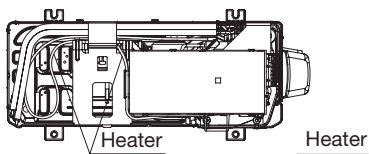


Step 4 4. Remove the fan blade if necessary. **<Note>**

Do not rotate the axis of fan motor when removing the fan blade. It may cause malfunction of the fan motor.

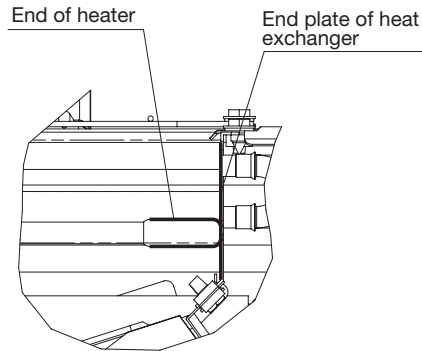


Step 5 5. Lay down the drain pan heater on the base.
For model A, put the cables rear the fan motor bracket.



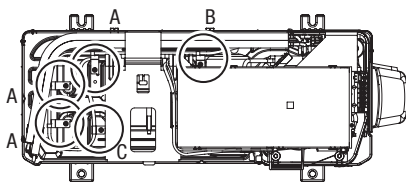
Step 6

6. Put the heater underneath the heat exchanger and align the end of heater with the end plate of heat exchanger.

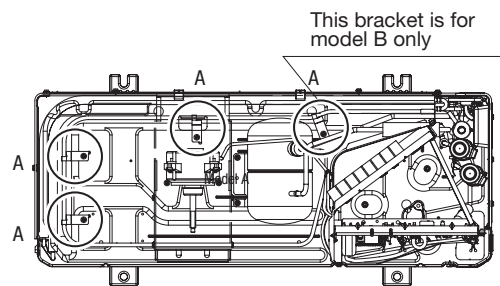


Step 7

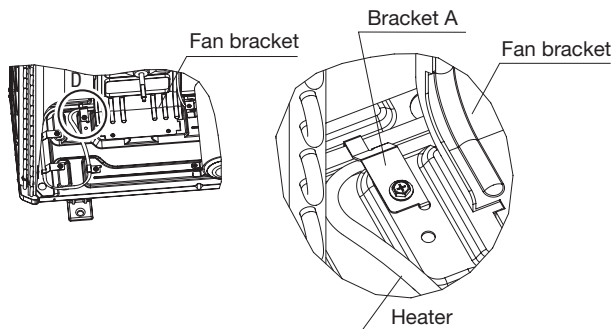
7. Fix the heater with brackets.



For model A, use 3 pcs of bracket A, 1pc of bracket B and C. Fix bracket A and C with the attached screw (OD4), and fix bracket B with the removed screw which is fastened at the same place.

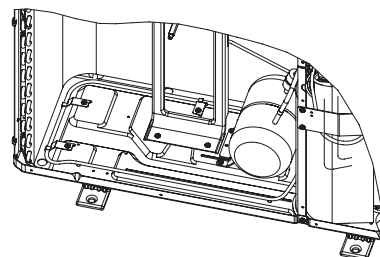


For model B and C, fix bracket A with the attached screw (OD5).



Model A

Detail view D



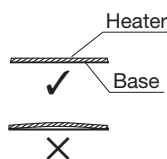
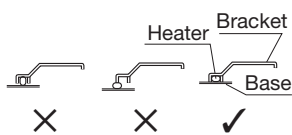
Model B, C

<Note for model A>

- 1) Put the end of heating part just after the bracket C.
- 2) Fix the incoming and out going cable with one bracket A on the left of fan bracket as figure shows.

<Note>

- 1) Fix the heater so that the bracket doesn't pinch the heater as figure shows.
- 2) Place the heater so as to touch the base completely.
- 3) In bending position, twist the heater to make it easier to bend, and get back to be able to fix it with bracket.
- 4) Be careful not to be injured by aluminum fin when fixing the heater with screw.



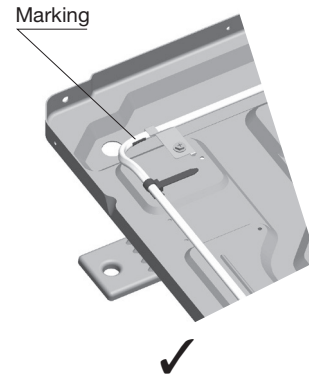
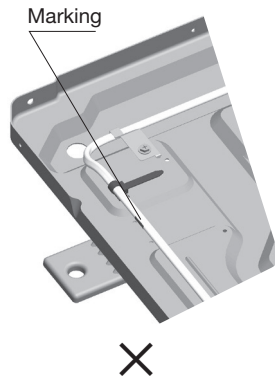
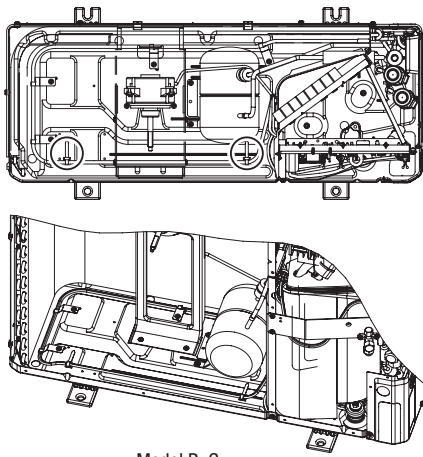
Step 8

8. Insert the plastic band with clip on the designated place (2 places), and fix the heater.(Model B,C only)

<Note>

1) Do not fasten the heating part with the plastic band.
There is a marking on the end of heating part.

2) When the heater is laid down correctly, the end of heating part comes to the corner of the base.



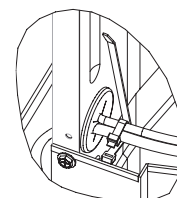
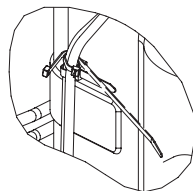
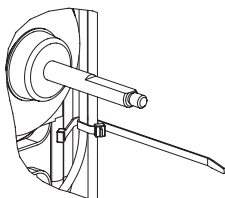
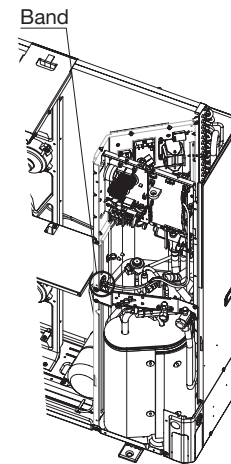
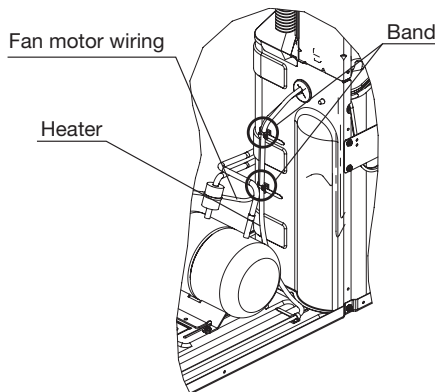
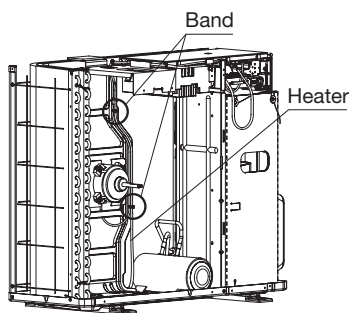
Step 9

9. Lay down the wiring on the same route of fan motor wiring, and fix the wire with attached plastic band at the same place where the fan motor wiring is banded.

Model A

Model B

Model C



<Note>

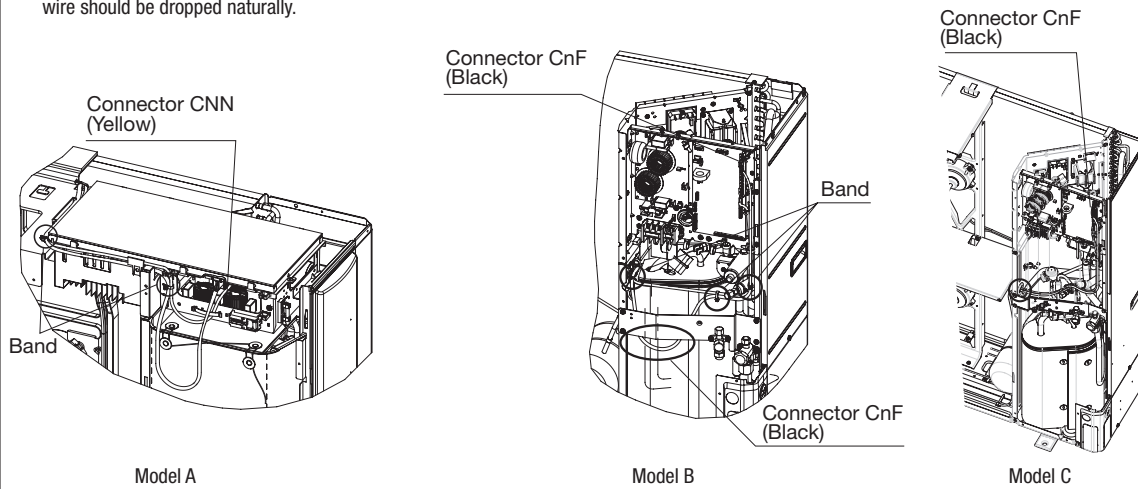
Fan motor wiring is banded on the bracket so that it doesn't loosen.
Do not loose the band for the motor wiring to band the heater wire together but use the attached plastic band.

Step 10

10. Insert the connector to the port (Model A: CNN, Model B,C:CNF) on the PCB, and fix the wire with bands. Excess part of the wire should be dropped naturally.

<Note>

Be sure to cut the excess part of plastic band. It may cause abnormal noise when hit by fan blade or misassembling of panels. Do not bundle excess part of the wire. It may damage the heater.



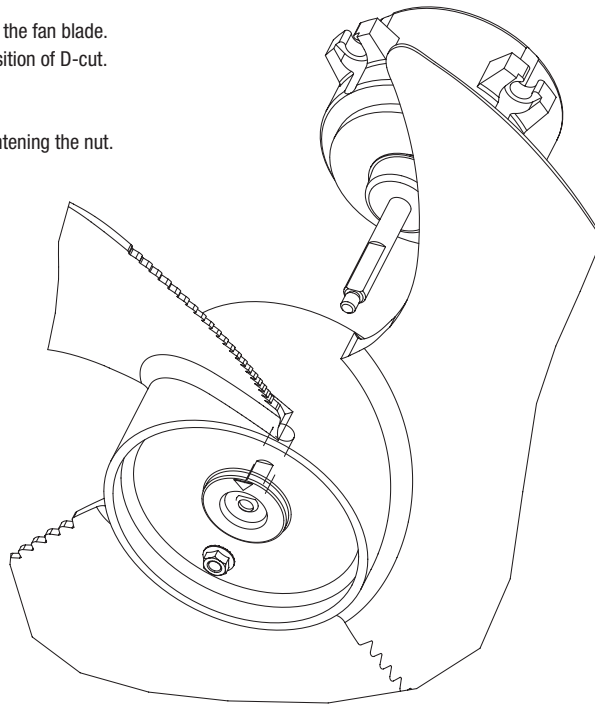
Step 11

11. Reassemble the fan blade.

Take care to align the D-cut of motor shaft and the fan blade. ▽ mark on the center of the fan shows the position of D-cut.

<Note>

1. Tightening torque of the nut is 4.0-4.9 N·m.
2. Do not rotate the axis of fan motor when tightening the nut. It may cause malfunction of the fan motor.



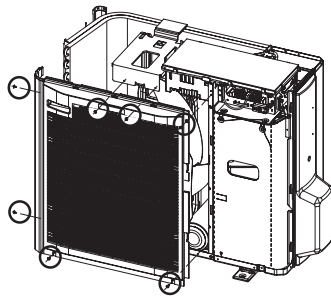
<Note>

- This heater should have bending radius of at least 25mm including non-heating part. Do not bundle the excess part of the wire. It may cause disconnection of the heater or insufficient capacity.
- Be sure to prevent the heater from touching any refrigerant piping. Especially, pay close attention not to make it touch with pipes which are close to the wiring route such as suction pipe, check valve and check joint.

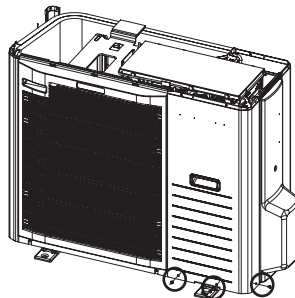
Step 12

12. Reassemble the panels.

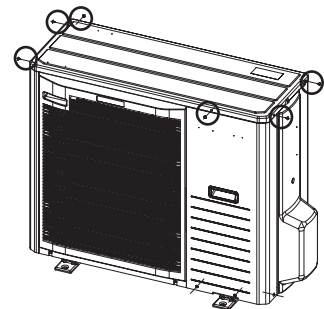
[Model A]



Front panel

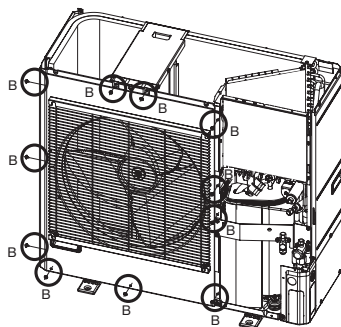


Service panel

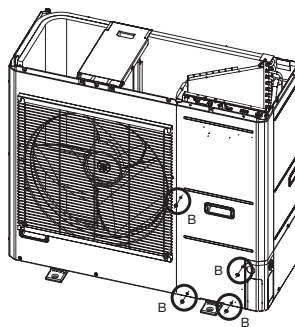


Top panel

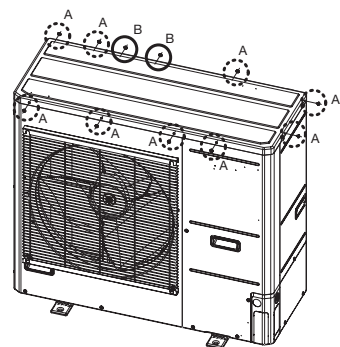
[Model B]



Front panel

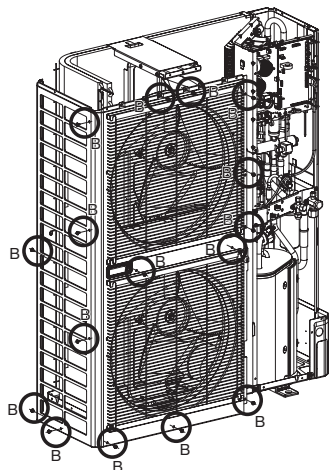


Service panel

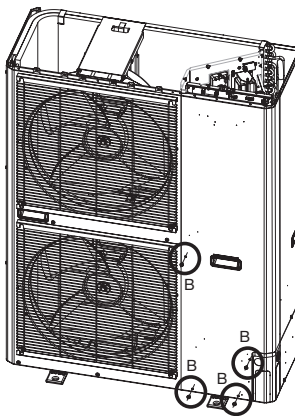


Top panel

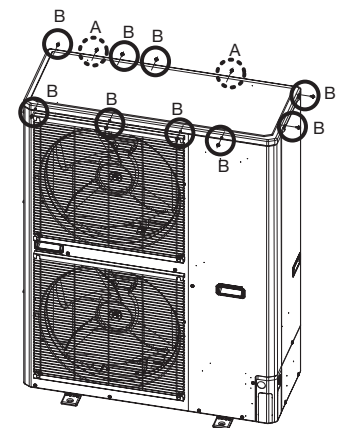
[Model C]



Front panel



Service panel



Top panel

<Note>

- 1) When reassembling the service panel, take care not to damage the front panel with the edge.
- 2) Top panel of model B and model C is fixed with two different screws.
Be sure to use correct screw as figure shows.



A



B

3.7 INTERFACE KIT (SC-BIKN2-E)

※ When RC-EX3A is connected, please use SC-BIKN2-E by all means.

RKZ012A099

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 clamp 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

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 environmental 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.

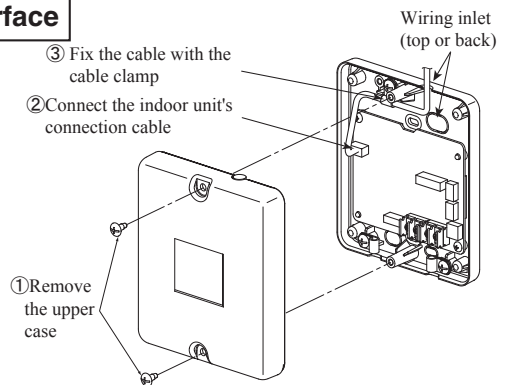
Warnings



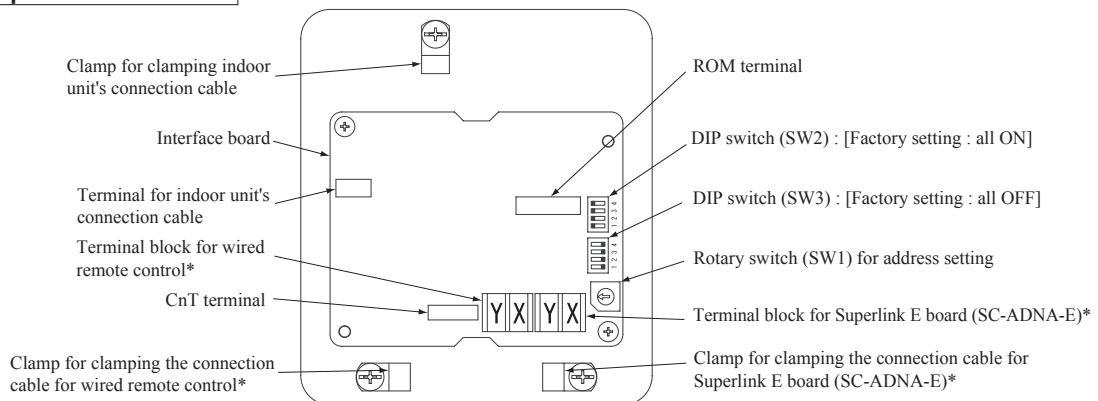
- **Installation must be carried out by a qualified installer.**
If you install it by yourself, it may cause an electric shock, fire and personal injury, as a result of a system malfunction.
- **Install it in full accordance with the installation manual.**
Incorrect installation may cause an electric 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 installation 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 personal injury.

Connecting the indoor unit's connection cable to the interface

- Remove the upper case of the interface.
 - Remove 2 screws from the interface casing before removal of upper casing.
- Connect 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.
- Fix 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.
- Connect 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 installation 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

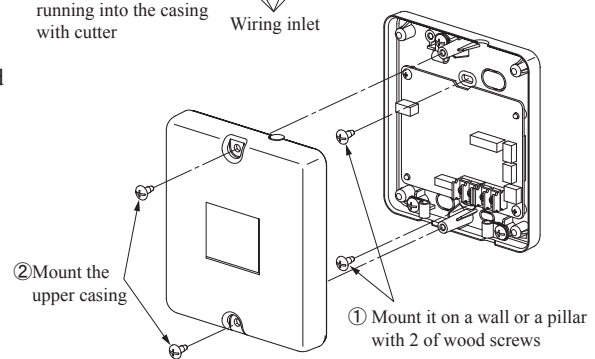
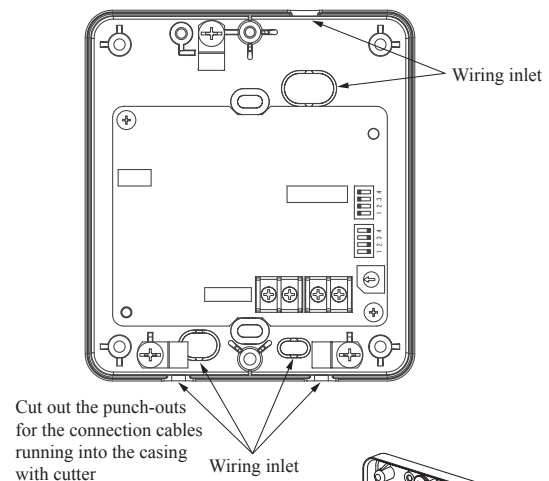
*** Indoor fan control at low outdoor air temperature in cooling

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.
- Don't 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

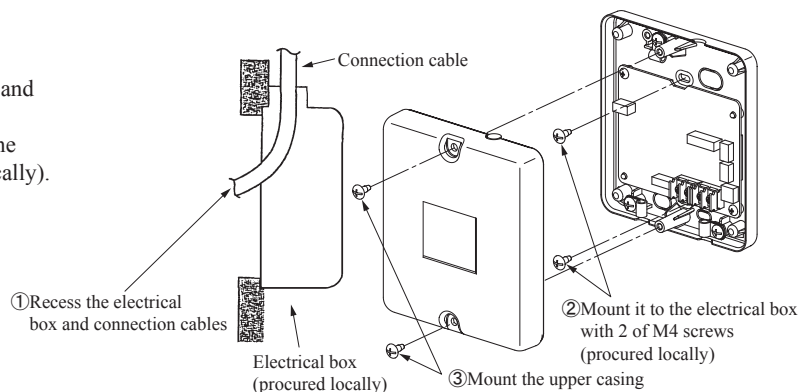
Mounting the interface directly on a wall

- ① Mount the lower casing of the interface on a flat surface with wood screws provided as standard accessory.
- ② Mount the upper casing.



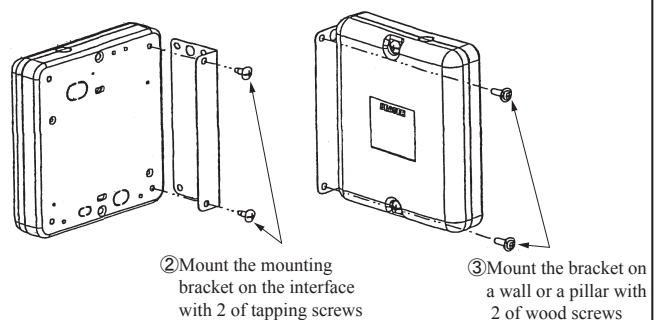
Recessing the interface in the wall

- ① Recess the electrical box (procured locally) and connection cables in the wall.
- ② Mount the lower casing of the interface to the electrical box with M4 screws (procured locally).
- ③ Mount the upper casing.



Mounting the interface with the mounting bracket

- ① Mount the upper casing.
- ② Mount the mounting bracket to the interface with tapping screws provided as standard accessory.
- ③ Mount the mounting bracket on wall or the like with wood screws provided as standard accessory.



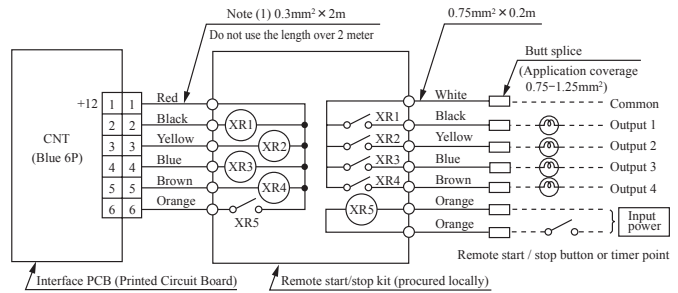
Installation check items

- 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 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.

- ① Connect a external remote control unit (procured locally) to CnT terminal.
- ② In case of the pulse input, switch OFF the DIP switch SW2-1 on the interface PCB.
- ③ When setting operation permission/prohibition mode, switch OFF the DIP switch SW2-3 on the interface PCB.



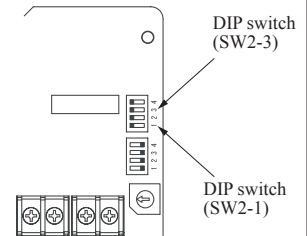
Input/Output	Function	Output signal		Content
		Relay	ON/OFF	
Output 1	Operation output	XR ₁	ON	During air-conditioner operation
Output 2	Heating output	XR ₂	ON	During heating operation
Output 3	Compressor operation output	XR ₃	ON	During compressor running
Output 4	Malfunction output	XR ₄	ON	During anomalous stop

- XR₁₋₄ are for the DC 12V relay
- XR₅ 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		Input signal						
				Level/Pulse	XR ₅					
Input	External control input	ON*	Level input	ON*	Level	OFF→ON ON→OFF	External input	ON OFF	Allowed	
				OFF	Level	OFF→ON ON→OFF	Operation permission Operation prohibition	OFF		Not allowed
		OFF	Pulse input	ON*	Pulse	OFF→ON	External input	OFF→ON ON→OFF	ON OFF	Allowed
				OFF	Level	OFF→ON ON→OFF	Operation permission Operation prohibition	ON OFF	Not allowed	

* Factory setting



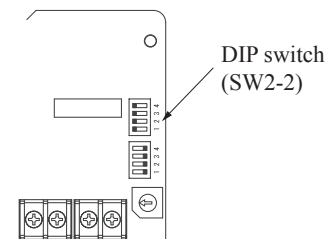
In case of the remote control (RC-EX3 or later model), the external outputs (1 – 4) and the external input can be changed using the function setting of remote control. For the setting method, refer to the installation manual. Also refer to the technical manual to know how it is adapted to the function setting for the external outputs and input, at the indoor unit side.

Connection of Superlink E board

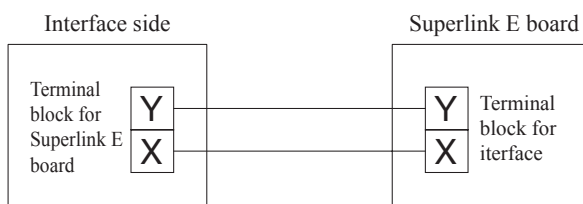
Regarding the connection of Superlink E board, refer to the installation manual of Superlink E board.

For electrical work, power source for all of units in the Superlink system must be turned OFF.

- ① Switch 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.



- ② Wiring 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

- ③ Clamp the connection cables with cable clamps.

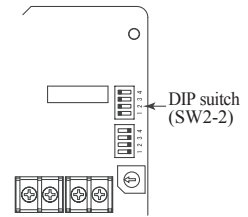
Connection of wired remote control

Regarding the connection of wired remote control, refer to the installation manual of wired remote control.

- ① Switch 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.

- ② Wiring connection between the interface and the wired remote control.



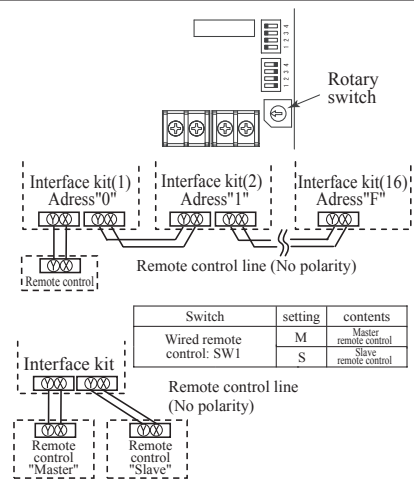
Installation and wiring of wired remote control

- Install the wired remote control with reference to the attached installation manual of wired remote control.
 - 0.3mm² × 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 × 2 cores, 300m or less: 0.75mm² × 2 cores, 400m or less: 1.25mm² × 2 cores, 600m or less: 2.0mm² × 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).
- ③ Clamp 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.

- ① Connect all the interface with 2 cores cables of wired remote control line.
- ② Set the address of indoor unit for remote control communication from "0" to "F" with the rotary switch SW1 on the interface PCB.
- ③ After 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

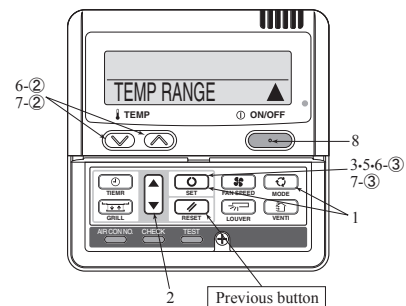
Maximum two wired remote control can be connected to one indoor unit (or one group of indoor units)

- ① Set the DIP switch SW1 on the wired remote control to "Slave" for the slave remote control. (Factory setting : Master)
○ Caution : Remote control sensor of the slave remote control 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 setting 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. ① Indication: "UPPER 28°C ▼ ▲"
② Select the upper limit value 30°C with temperature setting button [▲]. "UPPER 30°C ▼" (blinking)
③ Press [○] (SET) button to fix. "UPPER 30°C" (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.
① Indication: "LOWER 20°C ▼ ▲"
② Select the lower limit value 18°C with temperature setting button [▲]. "LOWER 18°C ▲" (blinking)
③ Press [○] (SET) button to fix. "LOWER 18°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.
Temperature setting range



- It is possible to quit in the middle by pressing [ON/OFF] button, but the change of setting is incomplete.
- During setting, if pressing [RESET] button, it returns to the previous screen.

Mode	Temperature setting range
Cooling, Heating, Dry, Auto	18-30°C

3.8 SUPERLINK E BOARD (SC-ADNA-E)

PJZ012D029K 

- 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.

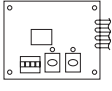
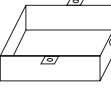
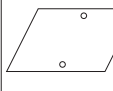
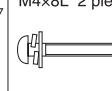
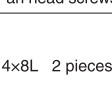
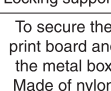


⚠Caution

- 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 M4x8L 2 pieces 
Pan head screws φ4x8L 2 pieces 	Locking supports To secure the print board and the metal box Made of nylon 4 pieces 	Binding band 	Grommet 

3 Function

Allowing the center console SL1N-E, SL2N-E, and SL3N-AE/BE to control and monitor the commercial air-conditioner unit.

4 Control switching

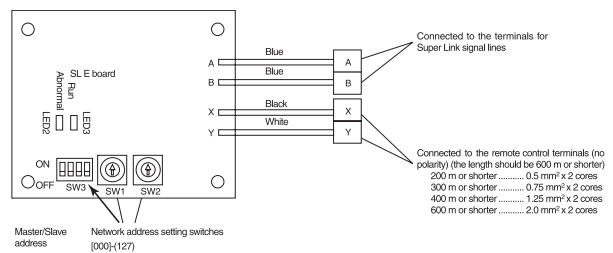
Settings can be changed by the switch SW3 on the SL E board as in the following.

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 - 1.25mm ²	0.75/1.25mm ²
Signal line (total length)	up to 1000m	up to 1500/1000m (*2)
Signal line (maximum length)	up to 1000m	up to 1000m

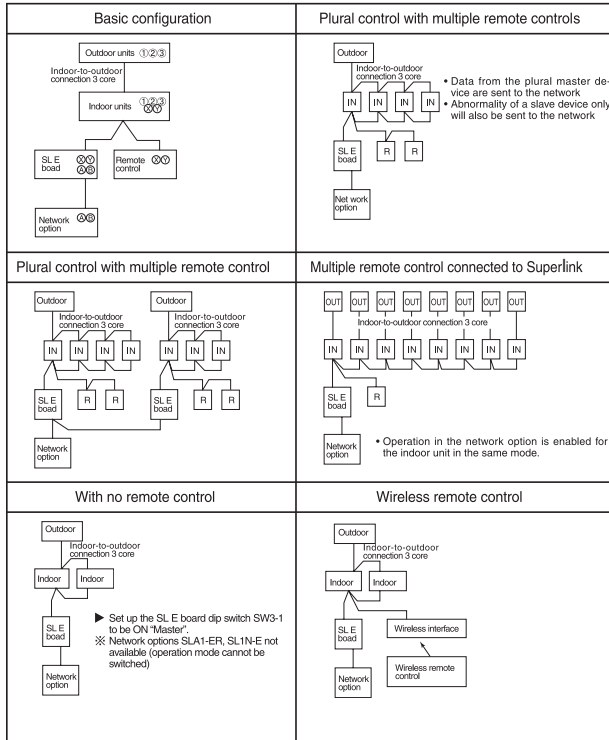
(*2) Up to 1500 m for 0.75 mm², and up to 1000 m for 1.25 mm².

Do not use 2.0 mm². It may cause an error.

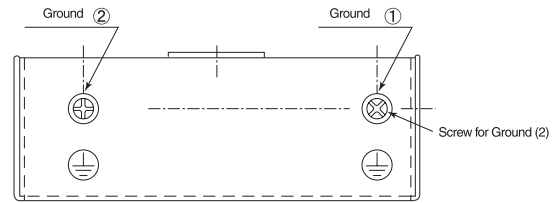
(*3) Connect grounding on both ends of the shielding wire.

For the grounding method, refer to the section “[6](#) Installation”.

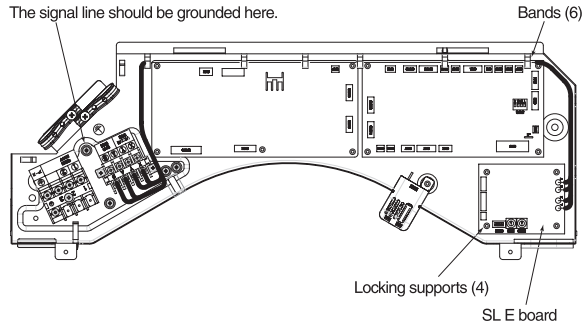
- (1) Set the Superlink network address with SW1 (tens place), SW2 (ones place), and SW3 (hundreds place).
- (2) Set the SL E board SW3-1 to be ON (Master) when using this without any remote control (no wired remote controller nor wireless remote control).
- (3) Set up the plural master/slave device 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.



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.



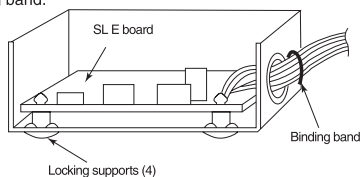
Electrical shock hazard! Make sure to turn the power off for servicing. Be cautious so that no abnormal force should be applied to the wiring. Do not let the SL E board hung by the wiring. Do not damage the board with a screw driver. The board is sensitive to static electricity. Release the static electricity of your body before servicing. (you can do this by touching the control board which is grounded).

Location of installation

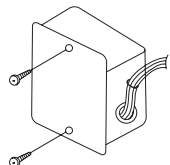
Install the device at the location where there are no electromagnetic waves nor where there is water and dust. The specified temperature range of the device is 0 to 40°C. Install the device at the location where the ambient temperature stays within the range. If it exceeds the specification, make sure to provide solution such as installing a cooling fan. When used outside of the range, it may cause abnormal operation.

6 Installation

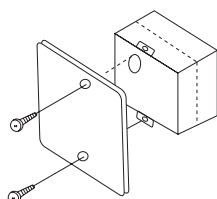
1. When using the metal box (mounted on the indoor unit / mounted on the back of the remote control):
 - (1) Mount the SL E board in the metal box using the locking supports.
 - (2) Wiring should go through the provided grommet since then through the wiring to the hole on the Metal box. Secure the grommet 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.



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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • SL E board parent not set up when used without a remote control • Faulty remote control communication circuit 	E1
Four flashes	Flashing	<ul style="list-style-type: none"> • Address overlapping for the SL E board and the Superlink network connected indoor unit 	E2
Off	Flashing	<ul style="list-style-type: none"> • Number of connected devices exceeds the specification for the multiple indoor unit control 	E10


2.10 TECHNICAL INFORMATION

FDTC100VNAPVG

Information to identify the model(s) to which the information relates to:				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'.			
Indoor unit model name		FDTC50VG (x2 units)		Average (mandatory)		Yes	
Outdoor unit model name		FDC100VNA		Warmer (if designated)		No	
Function (indicate if present)				Colder (if designated)			
cooling		Yes					
heating		Yes					
Item				Item			
		symbol value unit				symbol value class	
Design load				Seasonal efficiency and energy efficiency class			
cooling		Pdesignc 10.0 kW		cooling		SEER 6.00 A+	
heating / Average		Pdesignh 8.4 kW		heating / Average		SCOP/A 4.38 A+	
heating / Warmer		Pdesignh - kW		heating / Warmer		SCOP/W - -	
heating / Colder		Pdesignh - kW		heating / Colder		SCOP/C - -	
				unit			
Declared capacity at outdoor temperature Tdesignh				Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10°C)		Pdh 8.4 kW		heating / Average (-10°C)		elbu 0 kW	
heating / Warmer (2°C)		Pdh - kW		heating / Warmer (2°C)		elbu - kW	
heating / Colder (-22°C)		Pdh - kW		heating / Colder (-22°C)		elbu - kW	
Declared capacity for cooling, at indoor temperature 27(19)°C and outdoor temperature Tj				Declared energy efficiency ratio, at indoor temperature 27(19)°C and outdoor temperature Tj			
Tj=35°C		Pdc 10.00 kW		Tj=35°C		EERd 3.03 -	
Tj=30°C		Pdc 7.37 kW		Tj=30°C		EERd 5.08 -	
Tj=25°C		Pdc 4.74 kW		Tj=25°C		EERd 7.52 -	
Tj=20°C		Pdc 3.17 kW		Tj=20°C		EERd 10.06 -	
Declared capacity for heating / Average season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		Pdh 7.43 kW		Tj=-7°C		COPd 3.10 -	
Tj=2°C		Pdh 4.52 kW		Tj=2°C		COPd 4.43 -	
Tj=7°C		Pdh 2.91 kW		Tj=7°C		COPd 5.29 -	
Tj=12°C		Pdh 2.60 kW		Tj=12°C		COPd 5.71 -	
Tj=bivalent temperature		Pdh 6.20 kW		Tj=bivalent temperature		COPd 2.37 -	
Tj=operating limit		Pdh 8.40 kW		Tj=operating limit		COPd 2.80 -	
Declared capacity for heating / Warmer season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=2°C		Pdh - kW		Tj=2°C		COPd - -	
Tj=7°C		Pdh - kW		Tj=7°C		COPd - -	
Tj=12°C		Pdh - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		Pdh - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		Pdh - kW		Tj=operating limit		COPd - -	
Declared capacity for heating / Colder season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		Pdh - kW		Tj=-7°C		COPd - -	
Tj=2°C		Pdh - kW		Tj=2°C		COPd - -	
Tj=7°C		Pdh - kW		Tj=7°C		COPd - -	
Tj=12°C		Pdh - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		Pdh - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		Pdh - kW		Tj=operating limit		COPd - -	
Tj=-15°C		Pdh - kW		Tj=-15°C		COPd - -	
Bivalent temperature				Operating limit temperature			
heating / Average		Tbiv -10 °C		heating / Average		Tol -20 °C	
heating / Warmer		Tbiv - °C		heating / Warmer		Tol - °C	
heating / Colder		Tbiv - °C		heating / Colder		Tol - °C	
Cycling interval capacity				Cycling interval efficiency			
for cooling		Pcycc - kW		for cooling		EERcyc - -	
for heating		Pcyhc - kW		for heating		COPcyc - -	
Degradation coefficient				Degradation coefficient			
cooling		Cdc 0.25 -		heating		Cdh 0.25 -	
Electric power input in power modes other than 'active mode'				Annual electricity consumption			
off mode		Poff 8 W		cooling		Qce 584 kWh/a	
standby mode		Psb 8 W		heating / Average		Qhe 2682 kWh/a	
thermostat-off mode		Pto 20 W		heating / Warmer		Qhe - kWh/a	
crankcase heater mode		Pck 8 W		heating / colder		Qhe - kWh/a	
Capacity control (indicate one of three options)				Other items			
fixed		No		Sound power level (indoor)		Lwa 59 dB(A)	
staged		No		Sound power level (outdoor)		Lwa 70 dB(A)	
variable		Yes		Global warming potential		GWP 2088 kgCO2eq.	
				Rated air flow (indoor)		- 780 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. 5 The Square, Stockley Park, Uxbridge, Middlesex, UB11 1ET, United Kingdom					

FDTC100VSAPVG

Information to identify the model(s) to which the information relates to:				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'.			
Indoor unit model name		FDTC50VG (x2 units)		Average (mandatory)		Yes	
Outdoor unit model name		FDC100VSA		Warmer (if designated)		No	
Function (indicate if present)				Colder (if designated)			
cooling		Yes					
heating		Yes					
Item				Item			
		symbol value unit				symbol value class	
Design load				Seasonal efficiency and energy efficiency class			
cooling		Pdesignc 10.0 kW		cooling		SEER 6.00 A+	
heating / Average		Pdesignh 8.4 kW		heating / Average		SCOP/A 4.38 A+	
heating / Warmer		Pdesignh - kW		heating / Warmer		SCOP/W - -	
heating / Colder		Pdesignh - kW		heating / Colder		SCOP/C - -	
				unit			
Declared capacity at outdoor temperature Tdesignh				Back up heating capacity at outdoor temperature Tdesignh			
heating / Average (-10°C)		PdH 8.4 kW		heating / Average (-10°C)		elbu 0 kW	
heating / Warmer (2°C)		PdH - kW		heating / Warmer (2°C)		elbu - kW	
heating / Colder (-22°C)		PdH - kW		heating / Colder (-22°C)		elbu - kW	
Declared capacity for cooling, at indoor temperature 27(19)°C and outdoor temperature Tj				Declared energy efficiency ratio, at indoor temperature 27(19)°C and outdoor temperature Tj			
Tj=35°C		Pdc 10.00 kW		Tj=35°C		EERd 3.03 -	
Tj=30°C		Pdc 7.37 kW		Tj=30°C		EERd 5.08 -	
Tj=25°C		Pdc 4.74 kW		Tj=25°C		EERd 7.52 -	
Tj=20°C		Pdc 3.17 kW		Tj=20°C		EERd 10.06 -	
Declared capacity for heating / Average season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		PdH 7.43 kW		Tj=-7°C		COPd 3.10 -	
Tj=2°C		PdH 4.52 kW		Tj=2°C		COPd 4.43 -	
Tj=7°C		PdH 2.91 kW		Tj=7°C		COPd 5.29 -	
Tj=12°C		PdH 2.60 kW		Tj=12°C		COPd 5.71 -	
Tj=bivalent temperature		PdH 6.20 kW		Tj=bivalent temperature		COPd 2.37 -	
Tj=operating limit		PdH 8.40 kW		Tj=operating limit		COPd 2.80 -	
Declared capacity for heating / Warmer season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=2°C		PdH - kW		Tj=2°C		COPd - -	
Tj=7°C		PdH - kW		Tj=7°C		COPd - -	
Tj=12°C		PdH - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		PdH - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		PdH - kW		Tj=operating limit		COPd - -	
Declared capacity for heating / Colder season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance / Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj=-7°C		PdH - kW		Tj=-7°C		COPd - -	
Tj=2°C		PdH - kW		Tj=2°C		COPd - -	
Tj=7°C		PdH - kW		Tj=7°C		COPd - -	
Tj=12°C		PdH - kW		Tj=12°C		COPd - -	
Tj=bivalent temperature		PdH - kW		Tj=bivalent temperature		COPd - -	
Tj=operating limit		PdH - kW		Tj=operating limit		COPd - -	
Tj=-15°C		PdH - kW		Tj=-15°C		COPd - -	
Bivalent temperature				Operating limit temperature			
heating / Average		Tbiv -10 °C		heating / Average		Tol -20 °C	
heating / Warmer		Tbiv - °C		heating / Warmer		Tol - °C	
heating / Colder		Tbiv - °C		heating / Colder		Tol - °C	
Cycling interval capacity				Cycling interval efficiency			
for cooling		Pcyc 0 kW		for cooling		EERcyc - -	
for heating		Pcyc 0 kW		for heating		COPcyc - -	
Degradation coefficient				Degradation coefficient			
cooling		Cdc 0.25 -		heating		Cdh 0.25 -	
Electric power input in power modes other than 'active mode'				Annual electricity consumption			
off mode		Poff 8 W		cooling		Qce 584 kWh/a	
standby mode		Psb 8 W		heating / Average		Qhe 2682 kWh/a	
thermostat-off mode		Pto 20 W		heating / Warmer		Qhe - kWh/a	
crankcase heater mode		Pck 8 W		heating / colder		Qhe - kWh/a	
Capacity control (indicate one of three options)				Other items			
fixed		No		Sound power level (indoor)		Lwa 59 dB(A)	
staged		No		Sound power level (outdoor)		Lwa 70 dB(A)	
variable		Yes		Global warming potential		GWP 2088 kgCO2eq.	
				Rated air flow (indoor)		- 780 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. 5 The Square, Stockley Park, Uxbridge, Middlesex, UB11 1ET, United Kingdom					

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FDTC125VNAPVG

Model(s) : FDC125VNA / FDTC60VG (x2 units)							
Outdoor side heat exchanger of air conditioner : air							
Indoor side heat exchanger of air conditioner : air							
Type : vapour compression							
if applicable : electric motor							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	12.5	kW	Seasonal space cooling energy efficiency ηs,c		232	%
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)				Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	Pdc	12.5	kW	Tj=+35°C	EERd or GUEc,bin / AEFc,bin	255	%
Tj=+30°C	Pdc	9.2	kW	Tj=+30°C	EERd or GUEc,bin / AEFc,bin	461	%
Tj=+25°C	Pdc	5.9	kW	Tj=+25°C	EERd or GUEc,bin / AEFc,bin	694	%
Tj=+20°C	Pdc	3.2	kW	Tj=+20°C	EERd or GUEc,bin / AEFc,bin	1000	%
Degradation coefficient for air conditioners**	Cdc	0.25	-				
Power consumption in other than 'active mode'							
Off mode	P _{OFF}	0.008	kW	Crankcase heater mode	P _{CK}	0.008	kW
Thermostat-off mode	P _{TO}	0.000	kW	Standby mode	P _{SB}	0.008	kW
Other items				For air-to-air air conditioner: air flow-rate,outdoor measured			
Capacity control		variable				4500	m ³ /h
Sound power level, outdoor	L _{WA}	71.0	dB				
If engine driven: Emissions of nitrogen oxides	NOx ^{***}	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details	Mitsubishi heavy industries thermal systems,LTD						
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

Information to identify the model(s) to which the information relates :				FDC125VNA / FDTC60VG (x2 units)			
Outdoor side heat exchanger of heat pump :				air			
Indoor side heat exchanger of heat pump :				air			
Indication if the heater is equipped with a supplementary heater :				No			
if applicable :				electric motor			
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	14.0	kW	Seasonal space heating energy efficiency ηs,h		169	%
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	Pdh	8.7	kW	Tj=-7°C	COPd or GUEh,bin / AEFh,bin	294	%
Tj=+2°C	Pdh	5.3	kW	Tj=+2°C	COPd or GUEh,bin / AEFh,bin	432	%
Tj=+7°C	Pdh	3.4	kW	Tj=+7°C	COPd or GUEh,bin / AEFh,bin	526	%
Tj=+12°C	Pdh	2.6	kW	Tj=+12°C	COPd or GUEh,bin / AEFh,bin	572	%
Tbiv=bivalent temperature	Pdh	9.8	kW	Tbiv=bivalent temperature	COPd or GUEh,bin / AEFh,bin	263	%
TOL=operation limit	Pdh	7.5	kW	TOL=operation limit	COPd or GUEh,bin / AEFh,bin	230	%
For air-to-water heat pumps : Tj=-15°C (if TOL < -20°C)	Pdh	-	kW	For air-to-water heat pumps:Tj=-15°C (if TOL < -20°C)	COPd or GUEh,bin / AEFh,bin	-	%
Bivalent temperature	Tbiv	-10.0	°C	For water-to-air heat pumps:Operation limit TOL temperature		-	°C
Degradation coefficient heat pumps**	Cdh	0.25	-				
Power consumption in modes other than 'active mode'				Supplementary heater back-up heating capacity			
Off mode	P _{OFF}	0.008	kW	elbu		-	kW
Thermostat-off mode	P _{TO}	0.015	kW	Type of energy input	P _{SB}	0.008	kW
Crankcase heater mode	P _{CK}	0.008	kW	Standby mode			
Other items				For air-to-air heat pumps: air flow-rate,outdoor measured			
Capacity control		variable				4380	m3/h
Sound power level, outdoor measured	L _{WA}	71.0	dB	For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m3/h
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details				Mitsubishi heavy industries thermal systems,LTD			
** If Cdh is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

FDTC140VNATVG

Model(s) : FDC140VNA / FDTC50VG (x3 units)			
Outdoor side heat exchanger of air conditioner : air			
Indoor side heat exchanger of air conditioner : air			
Type : vapour compression			
if applicable : electric motor			
Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	13.6	kW
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)			
Tj=+35°C	Pdc	13.6	kW
Tj=+30°C	Pdc	10.0	kW
Tj=+25°C	Pdc	6.5	kW
Tj=+20°C	Pdc	3.5	kW
Degradation coefficient for air conditioners**	Cdc	0.25	-
Power consumption in other than 'active mode'			
Off mode	P _{OFF}	0.008	kW
Thermostat-off mode	P _{TO}	0.000	kW
Other items			
Capacity control		variable	
Sound power level, outdoor	L _{WA}	73.0	dB
If engine driven: Emissions of nitrogen oxides	NO _x ***	-	mg/kWh fuel input GCV
GWP of the refrigerant		2088	kg CO _{2eq} (100years)
Seasonal space cooling energy efficiency ηs,c			
		253	%
Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	EERd or GUEc,bin / AEFc,bin	286	%
Tj=+30°C	EERd or GUEc,bin / AEFc,bin	482	%
Tj=+25°C	EERd or GUEc,bin / AEFc,bin	772	%
Tj=+20°C	EERd or GUEc,bin / AEFc,bin	1078	%
Crankcase heater mode			
		0.008	kW
Standby mode			
		0.008	kW
For air-to-air air conditioner: air flow-rate,outdoor measured			
		4500	m ³ /h
Contact details Mitsubishi heavy industries thermal systems,LTD			
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.			
*** from 26 September 2018			
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.			

Information to identify the model(s) to which the information relates :				FDC140VNA / FDTC50VG (x3 units)			
Outdoor side heat exchanger of heat pump :				air			
Indoor side heat exchanger of heat pump :				air			
Indication if the heater is equipped with a supplementary heater :				No			
if applicable :				electric motor			
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	15.5	kW	Seasonal space heating energy efficiency ηs,h		178	%
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	Pdh	9.3	kW	Tj=-7°C	COPd or GUEh,bin / AEFh,bin	310	%
Tj=+2°C	Pdh	5.7	kW	Tj=+2°C	COPd or GUEh,bin / AEFh,bin	456	%
Tj=+7°C	Pdh	3.6	kW	Tj=+7°C	COPd or GUEh,bin / AEFh,bin	554	%
Tj=+12°C	Pdh	2.7	kW	Tj=+12°C	COPd or GUEh,bin / AEFh,bin	600	%
T _{biv} =bivalent temperature	Pdh	10.5	kW	T _{biv} =bivalent temperature	COPd or GUEh,bin / AEFh,bin	276	%
T _{OL} =operation limit	Pdh	7.8	kW	T _{OL} =operation limit	COPd or GUEh,bin / AEFh,bin	236	%
For air-to-water heat pumps : Tj=-15°C (if T _{OL} <-20°C)	Pdh	-	kW	For air-to-water heat pumps:Tj=-15°C (if T _{OL} <-20°C)	COPd or GUEh,bin / AEFh,bin	-	%
Bivalent temperature	T _{biv}	-10.0	°C	For water-to-air heat pumps:Operation limit T _{ol} temperature		-	°C
Degradation coefficient heat pumps**	C _{dh}	0.25	-				
Power consumption in modes other than 'active mode'				Supplementary heater back-up heating capacity			
Off mode	P _{OFF}	0.008	kW	elbu		-	kW
Thermostat-off mode	P _{TO}	0.015	kW	Type of energy input Standby mode	P _{SB}	0.008	kW
Crankcase heater mode	P _{CK}	0.008	kW				
Other items				For air-to-air heat pumps: air flow-rate,outdoor measured			
Capacity control		variable				4380	m3/h
Sound power level, outdoor measured	L _{WA}	73.0	dB	For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m3/h
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details				Mitsubishi heavy industries thermal systems,LTD			
** If C _{dh} is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25. *** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

FDTC125VSAPVG

Model(s) : FDC125VSA / FDTC60VG (x2 units)							
Outdoor side heat exchanger of air conditioner : air							
Indoor side heat exchanger of air conditioner : air							
Type : vapour compression							
if applicable : electric motor							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	12.5	kW	Seasonal space cooling energy efficiency ηs,c		232	%
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)				Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	Pdc	12.5	kW	Tj=+35°C	EERd or GUEc,bin / AEFc,bin	255	%
Tj=+30°C	Pdc	9.2	kW	Tj=+30°C	EERd or GUEc,bin / AEFc,bin	461	%
Tj=+25°C	Pdc	5.9	kW	Tj=+25°C	EERd or GUEc,bin / AEFc,bin	694	%
Tj=+20°C	Pdc	3.2	kW	Tj=+20°C	EERd or GUEc,bin / AEFc,bin	1000	%
Degradation coefficient for air conditioners**	Cdc	0.25	-				
Power consumption in other than 'active mode'							
Off mode	P _{OFF}	0.008	kW	Crankcase heater mode	P _{CK}	0.008	kW
Thermostat-off mode	P _{TO}	0.000	kW	Standby mode	P _{SB}	0.008	kW
Other items				For air-to-air air conditioner: air flow-rate,outdoor measured			
Capacity control		variable				4500	m ³ /h
Sound power level, outdoor	L _{WA}	71.0	dB				
If engine driven: Emissions of nitrogen oxides	NOx ^{***}	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details	Mitsubishi heavy industries thermal systems,LTD						
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

Information to identify the model(s) to which the information relates :				FDC125VSA / FDTC60VG (x2 units)			
Outdoor side heat exchanger of heat pump :				air			
Indoor side heat exchanger of heat pump :				air			
Indication if the heater is equipped with a supplementary heater :				No			
if applicable :				electric motor			
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	14.0	kW	Seasonal space heating energy efficiency ηs,h		169	%
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	Pdh	8.7	kW	Tj=-7°C	COPd or GUEh,bin / AEFh,bin	294	%
Tj=+2°C	Pdh	5.3	kW	Tj=+2°C	COPd or GUEh,bin / AEFh,bin	432	%
Tj=+7°C	Pdh	3.4	kW	Tj=+7°C	COPd or GUEh,bin / AEFh,bin	526	%
Tj=+12°C	Pdh	2.6	kW	Tj=+12°C	COPd or GUEh,bin / AEFh,bin	572	%
Tbiv=bivalent temperature	Pdh	9.8	kW	Tbiv=bivalent temperature	COPd or GUEh,bin / AEFh,bin	263	%
TOL=operation limit	Pdh	7.5	kW	TOL=operation limit	COPd or GUEh,bin / AEFh,bin	230	%
For air-to-water heat pumps : Tj=-15°C (if TOL < -20°C)	Pdh	-	kW	For air-to-water heat pumps:Tj=-15°C (if TOL < -20°C)	COPd or GUEh,bin / AEFh,bin	-	%
Bivalent temperature	Tbiv	-10.0	°C	For water-to-air heat pumps:Operation limit TOL temperature		-	°C
Degradation coefficient heat pumps**	Cdh	0.25	-				
Power consumption in modes other than 'active mode'				Supplementary heater back-up heating capacity			
Off mode	P _{OFF}	0.008	kW		elbu	-	kW
Thermostat-off mode	P _{TO}	0.015	kW	Type of energy input Standby mode	P _{SB}	0.008	kW
Crankcase heater mode	P _{CK}	0.008	kW				
Other items				For air-to-air heat pumps: air flow-rate,outdoor measured			
Capacity control		variable				4380	m3/h
Sound power level, outdoor measured	L _{WA}	71.0	dB	For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m3/h
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details				Mitsubishi heavy industries thermal systems,LTD			
** If Cdh is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

FDTC140VSATVG

Model(s) : FDC140VSA / FDTC50VG (x3 units)			
Outdoor side heat exchanger of air conditioner : air			
Indoor side heat exchanger of air conditioner : air			
Type : vapour compression			
if applicable : electric motor			
Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	13.6	kW
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)			
Tj=+35°C	Pdc	13.6	kW
Tj=+30°C	Pdc	10.0	kW
Tj=+25°C	Pdc	6.5	kW
Tj=+20°C	Pdc	3.5	kW
Degradation coefficient for air conditioners**	Cdc	0.25	-
Power consumption in other than 'active mode'			
Off mode	P _{OFF}	0.008	kW
Thermostat-off mode	P _{TO}	0.000	kW
Other items			
Capacity control		variable	
Sound power level, outdoor	L _{WA}	73.0	dB
If engine driven: Emissions of nitrogen oxides	NOx ***	-	mg/kWh fuel input GCV
GWP of the refrigerant		2088	kg CO _{2eq} (100years)
Seasonal space cooling energy efficiency ηs,c			
		253	%
Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	EERd or GUEc,bin / AEFc,bin	286	%
Tj=+30°C	EERd or GUEc,bin / AEFc,bin	482	%
Tj=+25°C	EERd or GUEc,bin / AEFc,bin	772	%
Tj=+20°C	EERd or GUEc,bin / AEFc,bin	1078	%
Crankcase heater mode	P _{CK}	0.008	kW
Standby mode	P _{SB}	0.008	kW
For air-to-air air conditioner: air flow-rate,outdoor measured		4500	m ³ /h
Contact details Mitsubishi heavy industries thermal systems,LTD			
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.			
*** from 26 September 2018			
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.			

Information to identify the model(s) to which the information relates :				FDC140VSA / FDTCS50VG (x3 units)			
Outdoor side heat exchanger of heat pump :				air			
Indoor side heat exchanger of heat pump :				air			
Indication if the heater is equipped with a supplementary heater :				No			
if applicable :				electric motor			
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	15.5	kW	Seasonal space heating energy efficiency ηs,h		178	%
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	Pdh	9.3	kW	Tj=-7°C	COPd or GUEh,bin / AEFh,bin	310	%
Tj=+2°C	Pdh	5.7	kW	Tj=+2°C	COPd or GUEh,bin / AEFh,bin	456	%
Tj=+7°C	Pdh	3.6	kW	Tj=+7°C	COPd or GUEh,bin / AEFh,bin	554	%
Tj=+12°C	Pdh	2.7	kW	Tj=+12°C	COPd or GUEh,bin / AEFh,bin	600	%
Tbiv=bivalent temperature	Pdh	10.5	kW	Tbiv=bivalent temperature	COPd or GUEh,bin / AEFh,bin	276	%
TOL=operation limit	Pdh	7.8	kW	TOL=operation limit	COPd or GUEh,bin / AEFh,bin	236	%
For air-to-water heat pumps : Tj=-15°C (if TOL < -20°C)	Pdh	-	kW	For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	COPd or GUEh,bin / AEFh,bin	-	%
Bivalent temperature	Tbiv	-10.0	°C	For water-to-air heat pumps: Operation limit TOL temperature		-	°C
Degradation coefficient heat pumps**	Cdh	0.25	-				
Power consumption in modes other than 'active mode'				Supplementary heater back-up heating capacity			
Off mode	P _{OFF}	0.008	kW		elbu	-	kW
Thermostat-off mode	P _{TO}	0.015	kW	Type of energy input Standby mode	P _{SB}	0.008	kW
Crankcase heater mode	P _{CK}	0.008	kW				
Other items				For air-to-air heat pumps: air flow-rate,outdoor measured			
Capacity control		variable				4380	m3/h
Sound power level, outdoor measured	L _{WA}	73.0	dB	For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m3/h
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details				Mitsubishi heavy industries thermal systems,LTD			
** If Cdh is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

FDTC200VSADVG

Model(s) : FDC200VSA / FDTC50VG (x4 units)			
Outdoor side heat exchanger of air conditioner : air			
Indoor side heat exchanger of air conditioner : air			
Type : vapour compression			
if applicable : electric motor			
Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	19.0	kW
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)			
Tj=+35°C	Pdc	19.0	kW
Tj=+30°C	Pdc	14.0	kW
Tj=+25°C	Pdc	9.0	kW
Tj=+20°C	Pdc	4.1	kW
Degradation coefficient for air conditioners**	Cdc	0.25	-
Power consumption in other than 'active mode'			
Off mode	P _{OFF}	0.010	kW
Thermostat-off mode	P _{TO}	0.000	kW
Other items			
Capacity control		variable	
Sound power level, outdoor	L _{WA}	72.0	dB
If engine driven: Emissions of nitrogen oxides	NOx ***	-	mg/kWh fuel input GCV
GWP of the refrigerant		2088	kg CO _{2eq} (100years)
Seasonal space cooling energy efficiency ηs,c			
		250	%
Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	EERd or GUEc,bin / AEFc,bin	273	%
Tj=+30°C	EERd or GUEc,bin / AEFc,bin	446	%
Tj=+25°C	EERd or GUEc,bin / AEFc,bin	825	%
Tj=+20°C	EERd or GUEc,bin / AEFc,bin	986	%
Crankcase heater mode	P _{CK}	0.010	kW
Standby mode	P _{SB}	0.010	kW
For air-to-air air conditioner: air flow-rate,outdoor measured		8100	m ³ /h
Contact details	Mitsubishi heavy industries thermal systems,LTD		
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.			
*** from 26 September 2018			
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.			

Information to identify the model(s) to which the information relates :				FDC200VSA / FDTC50VG (x4 units)			
Outdoor side heat exchanger of heat pump :				air			
Indoor side heat exchanger of heat pump :				air			
Indication if the heater is equipped with a supplementary heater :				No			
if applicable :				electric motor			
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	22.4	kW	Seasonal space heating energy efficiency $\eta_{s,h}$		166	%
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	Pdh	11.1	kW	Tj=-7°C	COPd or GUEh,bin / AEFh,bin	254	%
Tj=+2°C	Pdh	6.7	kW	Tj=+2°C	COPd or GUEh,bin / AEFh,bin	440	%
Tj=+7°C	Pdh	4.3	kW	Tj=+7°C	COPd or GUEh,bin / AEFh,bin	498	%
Tj=+12°C	Pdh	3.5	kW	Tj=+12°C	COPd or GUEh,bin / AEFh,bin	675	%
T _{biv} =bivalent temperature	Pdh	12.5	kW	T _{biv} =bivalent temperature	COPd or GUEh,bin / AEFh,bin	256	%
T _{OL} =operation limit	Pdh	10.3	kW	T _{OL} =operation limit	COPd or GUEh,bin / AEFh,bin	224	%
For air-to-water heat pumps : Tj=-15°C (if T _{OL} < -20°C)	Pdh	-	kW	For air-to-water heat pumps: Tj=-15°C (if T _{OL} < -20°C)	COPd or GUEh,bin / AEFh,bin	-	%
Bivalent temperature	T _{biv}	-10.0	°C	For water-to-air heat pumps: Operation limit T _{ol} temperature		-	°C
Degradation coefficient heat pumps**	C _{dh}	0.25	-				
Power consumption in modes other than 'active mode'				Supplementary heater back-up heating capacity			
Off mode	P _{OFF}	0.010	kW		elbu	-	kW
Thermostat-off mode	P _{TO}	0.010	kW	Type of energy input Standby mode	P _{SB}	0.010	kW
Crankcase heater mode	P _{CK}	0.015	kW				
Other items				For air-to-air heat pumps: air flow-rate, outdoor measured			
Capacity control		variable				8100	m ³ /h
Sound power level, outdoor measured	L _{WA}	74.0	dB	For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m ³ /h
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details				Mitsubishi heavy industries thermal systems,LTD			
** If C _{dh} is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

FDTC250VSADVG

Model(s) : FDC250VSA / FDTC60VG (x4 units)							
Outdoor side heat exchanger of air conditioner : air							
Indoor side heat exchanger of air conditioner : air							
Type : vapour compression							
if applicable : electric motor							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	Prated,c	24.0	kW	Seasonal space cooling energy efficiency ηs,c		199	%
Declared cooling capacity for part load at given outdoor temperatures Tj and indoor 27°C/19°C(dry/wet bulb)				Declared energy efficiency ratio or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=+35°C	Pdc	24.0	kW	Tj=+35°C	EERd or GUEc,bin / AEFc,bin	225	%
Tj=+30°C	Pdc	17.7	kW	Tj=+30°C	EERd or GUEc,bin / AEFc,bin	385	%
Tj=+25°C	Pdc	11.4	kW	Tj=+25°C	EERd or GUEc,bin / AEFc,bin	625	%
Tj=+20°C	Pdc	6.4	kW	Tj=+20°C	EERd or GUEc,bin / AEFc,bin	775	%
Degradation coefficient for air conditioners**	Cdc	0.25	-				
Power consumption in other than 'active mode'							
Off mode	P _{OFF}	0.010	kW	Crankcase heater mode	P _{CK}	0.010	kW
Thermostat-off mode	P _{TO}	0.000	kW	Standby mode	P _{SB}	0.010	kW
Other items				For air-to-air air conditioner: air flow-rate,outdoor measured			
Capacity control		variable				8580	m ³ /h
Sound power level, outdoor	L _{WA}	73.0	dB				
If engine driven: Emissions of nitrogen oxides	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details	Mitsubishi heavy industries thermal systems,LTD						
** If Cdc is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

Information to identify the model(s) to which the information relates :				FDC250VSA / FDTC60VG (x4 units)			
Outdoor side heat exchanger of heat pump :				air			
Indoor side heat exchanger of heat pump :				air			
Indication if the heater is equipped with a supplementary heater :				No			
if applicable :				electric motor			
Parameters shall be declared for the average heating season , parameters for the warmer and colder heating seasons are optional.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heating capacity	Prated,h	27.0	kW	Seasonal space heating energy efficiency ηs,h		160	%
Declared heating capacity for part load at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance or gas utilization efficiency / auxiliary energy factor for part load at given outdoor temperatures Tj			
Tj=-7°C	Pdh	12.6	kW	Tj=-7°C	COPd or GUEh,bin / AEFh,bin	270	%
Tj=+2°C	Pdh	7.7	kW	Tj=+2°C	COPd or GUEh,bin / AEFh,bin	407	%
Tj=+7°C	Pdh	5.6	kW	Tj=+7°C	COPd or GUEh,bin / AEFh,bin	513	%
Tj=+12°C	Pdh	6.0	kW	Tj=+12°C	COPd or GUEh,bin / AEFh,bin	632	%
T _{biv} =bivalent temperature	Pdh	14.2	kW	T _{biv} =bivalent temperature	COPd or GUEh,bin / AEFh,bin	252	%
T _{OL} =operation limit	Pdh	12.5	kW	T _{OL} =operation limit	COPd or GUEh,bin / AEFh,bin	242	%
For air-to-water heat pumps : Tj=-15°C (if T _{OL} <-20°C)	Pdh	-	kW	For air-to-water heat pumps:Tj=-15°C (if T _{OL} <-20°C)	COPd or GUEh,bin / AEFh,bin	-	%
Bivalent temperature	T _{biv}	-10.0	°C	For water-to-air heat pumps:Operation limit T _{ol} temperature		-	°C
Degradation coefficient heat pumps**	C _{dh}	0.25	-				
Power consumption in modes other than 'active mode'				Supplementary heater back-up heating capacity			
Off mode	P _{OFF}	0.010	kW		elbu	-	kW
Thermostat-off mode	P _{TO}	0.010	kW	Type of energy input Standby mode	P _{SB}	0.010	kW
Crankcase heater mode	P _{CK}	0.015	kW				
Other items				For air-to-air heat pumps: air flow-rate,outdoor measured			
Capacity control		variable				9060	m3/h
Sound power level, outdoor measured	L _{WA}	75.0	dB	For water-/brine-to-air heat pumps : Rated brine or water flow-rate, outdoor side heat exchanger		-	m3/h
Emissions of nitrogen oxides(if applicable)	NOx ***	-	mg/kWh fuel input GCV				
GWP of the refrigerant		2088	kg CO _{2eq} (100years)				
Contact details				Mitsubishi heavy industries thermal systems,LTD			
** If C _{dh} is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.							
*** from 26 September 2018							
Where information relates to multi-split air conditioners,the test result and performance data be obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.							

Models FDTC40VG, 50VG, 60VG

Model(s) : FDTC40VG							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Cooling capacity (sensible)	$P_{rated,c}$	3.4	kW	Total electric power input	P_{elec}	0.050	kW
Cooling capacity (latent)	$P_{rated,c}$	0.6	kW	Sound power level (per speed setting,if applicable)	L_{WA}	59.0	dB
Heating capacity	$P_{rated,h}$	4.5	kW				
Contact details	Mitsubishi heavy industries thermal systems,LTD						

Model(s) : FDTC50VG							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Cooling capacity (sensible)	$P_{rated,c}$	3.8	kW	Total electric power input	P_{elec}	0.050	kW
Cooling capacity (latent)	$P_{rated,c}$	1.2	kW	Sound power level (per speed setting,if applicable)	L_{WA}	59.0	dB
Heating capacity	$P_{rated,h}$	5.4	kW				
Contact details	Mitsubishi heavy industries thermal systems,LTD						

Model(s) : FDTC60VG							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Cooling capacity (sensible)	$P_{rated,c}$	3.9	kW	Total electric power input	P_{elec}	0.060	kW
Cooling capacity (latent)	$P_{rated,c}$	1.7	kW	Sound power level (per speed setting,if applicable)	L_{WA}	60.0	dB
Heating capacity	$P_{rated,h}$	6.7	kW				
Contact details	Mitsubishi heavy industries thermal systems,LTD						

INVERTER PACKAGED AIR-CONDITIONERS



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