11. CEILING RECESSED TYPE PACKAGED AIR-CONDITIONER

(Split system, Air to air heat pump type)

Refrigerant R22 use models

FDTN308HEN-SB	FDT308HEN-SB
308HES-SB	308HES-SB
408HES-SB	408HES-SB
508HES-SB	508HES-SB
FDTN258HEN-A	
258HEP-A	

Refrigerant R407C use models

FDTNP308HEN-SB
308HES-SB
408HES-SB
508HES-SB

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11.1 GENERAL INFORMATION

11.1.1 Specific features

(1) Less refrigerant charge amount due to use of double phase refrigerant flow system. The total refrigerant charge amount has been reduced by more than 50%.

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

(3) There are only five power lines between the outdoor and indoor unit. As no signal wire is used there is no need to separate the power line from the signal line. One cabtyre cable with 6 wires encased in one sheath is enough for conducting the wiring work between the outdoor unit and the indoor unit. This contributes to simpler wiring work in the field.

(4) All air supply ports have auto swing louvers. The indoor fan motor has two speeds of high and low.

(5) All models have service valves protruding from the outdoor unit for faster flare connection work in the field.

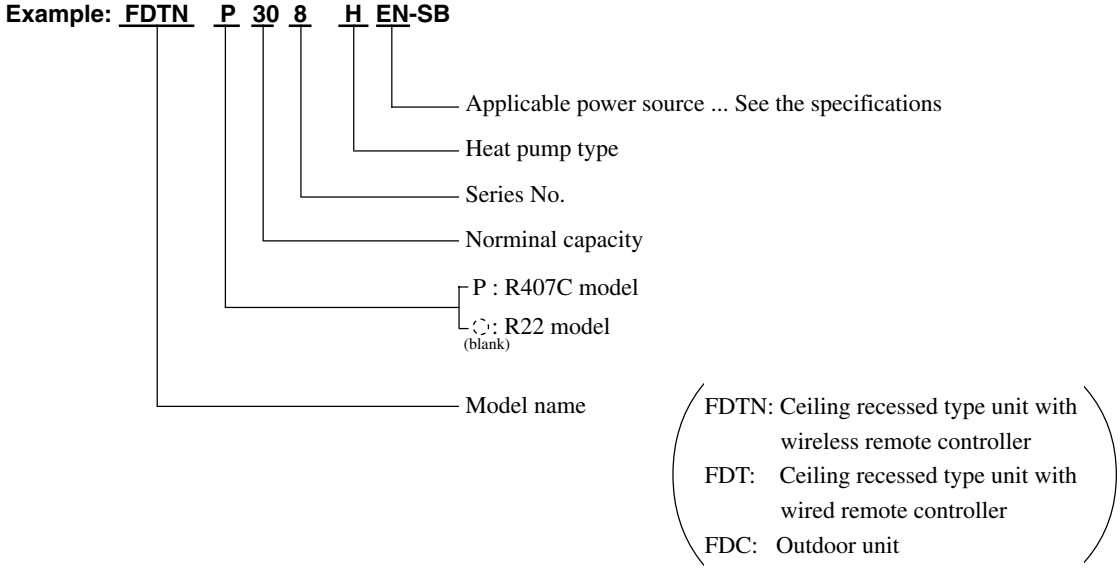
(6) Low sound level

Operating noise has been remarkably reduced due to adoption of the crescent turbo fan which cuts off wind-blowing noise and also console type of cabinet which is highly effective to protect vibration.

(7) 700mm high drain head

Adoption of drain pump with high drain head and high capacity (600cc/min) has made it possible to have maximum 700 mm(from below ceiling drain head.[In case 700mm drain head is required, set it up close to the unit. It is impossible to do piping on down slope.]

11.1.2 How to read the model name



11.2 SELECTION DATA

11.2.1 Specifications

(1) Refrigerant R22 use models

(a) Wireless remote controller type

Model FDTN308HEN-SB

Item		Model	FDTN308HEN-SB	
			FDTN308H	FDC308HEN3B
Nominal cooling capacity(1)		W	**7100**	
Nominal heating capacity(1)		W	**8000**	
Power source			**1 Phase, 220/240V, 50Hz**	
Operation data(3)	Cooling input	kW	2.98/3.18	
	Running current (Cooling)	A	13.9/14.4	
	Power factor (Cooling)	%	97/92	
	Heating input	kW	2.84/3.00	
	Running current (Heating)	A	13.3/13.7	
	Power factor (Heating)	%	97/91	
	Inrush current (L.R.A)	A	95	
	Noise level(4)	dB(A)	Hi 41 Lo:35	52
Exterior dimensions Height × Width × Depth		**mm**	**Unit 260 × 840 × 840 Panel 30 × 950 × 950**	**845 × 880 × 340**
Net weight		**kg**	**30 (Unit:24 Panel:6)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**GT-A5534EN41 × 1**
Motor		kW	–	**2.5**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R22**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.45 (BARREL FREEZE 32SAM)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**30 × 1**	**55 × 1**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:17 Lo:12**	**58**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wireless remote control switch	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Wireless remote controller. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 220/240V 50Hz.

(4) Indicates the value at mild mode.

Model FDTN308HES-SB

Item		Model	FDTN308HES-SB	
			FDTN308H	FDC308HES3B
Nominal cooling capacity(1)		W	**7100**	
Nominal heating capacity(1)		W	**8000**	
Power source			**3 Phase, 380/415V 50Hz**	
Operation data(3)	Cooling input	kW	2.90/2.96	
	Running current (Cooling)	A	5.1/5.5	
	Power factor (Cooling)	%	86/75	
	Heating input	kW	2.54/2.60	
	Running current (Heating)	A	4.6/4.8	
	Power factor (Heating)	%	84/75	
	Inrush current (L.R.A)	A	45	
	Noise level(4)	dB(A)	Hi:41 Lo:35	52
Exterior dimensions Height × Width × Depth		**mm**	**Unit 260 × 840 × 840 Panel 30 × 950 × 950**	**845 × 880 × 340**
Net weight		**kg**	**30 (Unit:24 Panel:6)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**GT-A5534ES41 × 1**
Motor		kW	–	**2.5**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R22**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.45 (BARREL FREEZE 32SAM)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**30 × 1**	**55 × 1**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:17 Lo:12**	**58**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wireless remote control switch	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Wireless remote controller. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1 JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 380/415V 50Hz.

(4) Indicates the value at mild mode.

Model FDTN408HES-SB

Item		Model	FDTN408HES-SB	
			FDTN408H	FDC408HES3B
Nominal cooling capacity(1)		W	**10000**	
Nominal heating capacity(1)		W	**11200**	
Power source			**3 Phase, 380/415V 50Hz**	
Operation data(3)	Cooling input	kW	4.50/4.60	
	Running current (Cooling)	A	7.8/8.1	
	Power factor (Cooling)	%	88/79	
	Heating input	kW	3.88/3.92	
	Running current (Heating)	A	7.1/7.5	
	Power factor (Heating)	%	83/73	
	Inrush current (L.R.A)	A	53	
	Noise level(4)	dB(A)	Hi: 48 Lo:40	54
Exterior dimensions Height × Width × Depth		**mm**	**Unit 320 × 840 × 840 Panel 30 × 950 × 950**	**1050 × 920 × 340**
Net weight		**kg**	**34 (Unit:28 Panel:6)**	**90**
Refrigerant equipment Compressor type & Q'ty			–	**GU-A5550ES41 × 1**
Motor		kW	–	**2.8**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R22**	
Quantity		**kg**	**–**	**1.7 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.6 (BARREL FREEZE 32SAM)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**80 × 1**	**40 × 2**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:26 Lo:19**	**70**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	40 (Crank case heater)
Operation control Operation switch			Wireless remote control switch	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ19.05 (3/4″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Wireless remote controller. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 380/415V 50Hz.

(4) Indicates the value at mild mode.

Model FDTN508HES-SB

Item		Model	FDTN508HES-SB	
			FDTN508H	FDC508HES3B
Nominal cooling capacity(1)		W	**12500**	
Nominal heating capacity(1)		W	**14000**	
Power source			**3 Phase, 380/415V 50Hz**	
Operation data(3)	Cooling input	kW	5.30/5.55	
	Running current (Cooling)	A	9.5/10.3	
	Power factor (Cooling)	%	85/75	
	Heating input	kW	4.85/4.98	
	Running current (Heating)	A	9.0/9.9	
	Power factor (Heating)	%	82/70	
	Inrush current (L.R.A)	A	74	
	Noise level(4)	dB(A)	Hi:49 Lo:43	55
Exterior dimensions Height × Width × Depth		**mm**	**Unit 320 × 840 × 840 Panel 30 × 950 × 950**	**1250 × 920 × 340**
Net weight		**kg**	**36 (Unit:30 Panel:6)**	**101**
Refrigerant equipment Compressor type & Q'ty			–	**GU-A5570ES41 × 1**
Motor		kW	–	**3.75**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R22**	
Quantity		**kg**	**–**	**1.9 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.6 (BARREL FREEZE 32SAM)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**130 × 1**	**65 × 2**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:28 Lo:20**	**110**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	40 (Crank case heater)
Operation control Operation switch			Wireless remote control switch	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ19.05 (3/4″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Wireless remote controller. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 380/415V 50Hz.

(4) Indicates the value at mild mode.

Model FDTN258HEN-A

Item		Model	FDTN258HEN-A	
			FDTN258H	FDC256HEN3A
Nominal cooling capacity(1)		W	**5900**	
Nominal heating capacity(1)		W	**6100**	
Power source			**1 Phase, 220/240V, 50Hz**	
Operation data(3)	Cooling input	kW	2.59/2.63	
	Running current (Cooling)	A	12.6/13.2	
	Power factor (Cooling)	%	93/83	
	Heating input	kW	2.38/2.42	
	Running current (Heating)	A	11.6/12.2	
	Power factor (Heating)	%	93/83	
	Inrush current (L.R.A)	A	64	
	Noise level(4)	dB(A)	Hi: 39 Lo: 35	57
Exterior dimensions Height × Width × Depth		**mm**	**Unit 260 × 840 × 840 Panel 30 × 950 × 950**	**615 × 850 × 290 + 30**
Net weight		**kg**	**30 (Unit:24 Panel:6)**	**57**
Refrigerant equipment Compressor type & Q'ty			–	**RC5527ENE1 × 1**
	Motor	kW	–	**1.87**
	Starting method		–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R22**	
Quantity		**kg**	**–**	**1.25 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.63 (SUNISO 3GS)**
Defrost control			IC controlled de-icer	
High pressure control			High pressure regulator valve	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
	Motor	W	25 × 1	55 × 1
	Starting method		Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:16 Lo:11**	**42**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	40 (Crank case heater)
Operation control Operation switch			Wireless remote control switch	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal protector for compressor. Internal thermostat for fan motor. Internal pressure relief valve for compressor.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Wireless remote controller. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	12˚C	7˚C	6˚C	

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

(3) The operation data indicate when the air conditioner is operated at 220V and 240V respectively.

(4) Indicates the value at mild mode.

Model FDTN258HEP-A

Item				Model	FDTN258HEP-A	
					FDTN258H	FDC256HEP3A
Nominal cooling capacity(1)			ISO-T1	W	**6200**	
			ISO-T3		**5200**	
Nominal heating capacity(1)			ISO-T1	W	**6400**	
Power source					**1 Phase, 220V, 60Hz**	
Operation data(3)	ISO-T1	Cooling input		kW	2.68	
		Running current (Cooling)		A	12.4	
		Power factor (Cooling)		%	98	
		Heating input		kW	2.47	
		Running current (Heating)		A	11.7	
		Power factor (Heating)		%	96	
	ISO-T3	Cooling input		kW	3.06	
		Running current (Cooling)		A	14.4	
		Power factor (Cooling)		%	97	
	Inrush current (L.R.A)			A	66	
	Noise level(4)			dB(A)	Hi:39 Lo:35	57
Exterior dimensions Height × Width × Depth				**mm**	**Unit 260 × 840 × 840 Panel 30 × 950 × 950**	**615 × 850 × 290 + 30**
Net weight				**kg**	**30 (Unit:24 Panel:6)**	**57**
Refrigerant equipment Compressor type & Q'ty					–	**RC5528EPE1 × 1**
Motor				kW	–	**1.68**
Starting method					–	Line starting
Heat exchanger					Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control					Capillary tube	
Refrigerant					**R22**	
Quantity				**kg**	**–**	**1.25 [Pre-charged up to the piping length of 5m]**
Refrigerant oil				ℓ	–	**1.63 (SUNISO 3GS)**
Defrost control					IC controlled de-icer	
High pressure control					High pressure regulator valve	
Air handling equipment Fan type & Q'ty					Turbo fan × 1	Propeller fan × 1
Motor				W	25 × 1	55 × 1
Starting method					Line starting	Line starting
Air flow (Standard)				**CMM**	**Hi:16 Lo:11**	**44**
Fresh air intake					Available	–
Air filter, Q'ty					Long life filter ×1(washable)	–
Shock & vibration absorber					Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater				W	–	40 (Crank case heater)
Operation control Operation switch					Wireless remote control switch	– (Indoor unit side)
Room temperature control					Thermostat by electronics	–
Safety equipment					Internal thermostat for fan motor. Frost protection thermostat.	Internal protector for compressor. Internal thermostat for fan motor. Internal pressure relief valve for compressor.
Installation data Refrigerant piping size				**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method					**Flare piping**	
Drain hose					(Connectable with VP25)	–
Insulation for piping					Necessary (both Liquid & Gas lines)	
Accessories					Mounting kit. Wireless remote controller. Drain hose	
Optional parts					Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	
Cooling	29˚C	19˚C	46˚C	24˚C	ISO-T3, SASO

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

(3) The operation data indicate when the air conditioner is operated at 220V.

(4) Indicates the value at mild mode.

(b) Wired remote controller type
Model FDT308HEN-SB

Item		Model	FDT308HEN-SB	
			FDT308-A	FDC308HEN3B
Nominal cooling capacity(1)		W	**7100**	
Nominal heating capacity(1)		W	**8000**	
Power source			**1 Phase, 220/240V, 50Hz**	
Operation data(3)	Cooling input	kW	2.98/3.18	
	Running current (Cooling)	A	13.9/14.4	
	Power factor (Cooling)	%	97/92	
	Heating input	kW	2.84/3.00	
	Running current (Heating)	A	13.3/13.7	
	Power factor (Heating)	%	97/91	
	Inrush current (L.R.A)	A	95	
	Noise level(4)	dB(A)	Hi 41 Lo:35	52
Exterior dimensions **Height × Width × Depth**		**mm**	**Unit 260 × 840 × 840** **Panel 30 × 950 × 950**	**845 × 880 × 340**
Net weight		**kg**	**30 (Unit:24 Panel:6)**	**74**
Refrigerant equipment **Compressor type & Q'ty**			–	**GT-A5534EN41 × 1**
Motor		kW	–	**2.5**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R22**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.45 (BARREL FREEZE 32SAM)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**30 × 1**	**55 × 1**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:17 Lo:12**	**58**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RCD-H-S-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection.
Installation data **Refrigerant piping size**		**mm** **(in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature		Outdoor air temperature		Standards
	DB	WB	DB	WB	
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 220/240V 50Hz.

(4) Indicates the value at mild mode.

Model FDT308HES-SB

Item		Model	FDT308HES-SB	
			FDT308-A	FDC308HES3B
Nominal cooling capacity(1)		W	**7100**	
Nominal heating capacity(1)		W	**8000**	
Power source			**3 Phase, 380/415V 50Hz**	
Operation data(3)	Cooling input	kW	2.90/2.96	
	Running current (Cooling)	A	5.1/5.5	
	Power factor (Cooling)	%	86/75	
	Heating input	kW	2.54/2.60	
	Running current (Heating)	A	4.6/4.8	
	Power factor (Heating)	%	84/75	
	Inrush current (L.R.A)	A	45	
	Noise level(4)	dB(A)	Hi:41 Lo:35	52
Exterior dimensions Height × Width × Depth		**mm**	**Unit 260 × 840 × 840 Panel 30 × 950 × 950**	**845 × 880 × 340**
Net weight		**kg**	**30 (Unit:24 Panel:6)**	**74**
Refrigerant equipment Compressor type & Q'ty			–	**GT-A5534ES41 × 1**
Motor		kW	–	**2.5**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R22**	
Quantity		**kg**	**–**	**1.4 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.45 (BARREL FREEZE 32SAM)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**30 × 1**	**55 × 1**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:17 Lo:12**	**58**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RCD-H-S-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1 JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 380/415V 50Hz.

(4) Indicates the value at mild mode.

Model FDT408HES-SB

Item		Model	FDT408HES-SB	
			FDT408-A	FDC408HES3B
Nominal cooling capacity(1)		W	**10000**	
Nominal heating capacity(1)		W	**11200**	
Power source			**3 Phase, 380/415V 50Hz**	
Operation data(3)	Cooling input	kW	4.50/4.60	
	Running current (Cooling)	A	7.8/8.1	
	Power factor (Cooling)	%	88/79	
	Heating input	kW	3.88/3.92	
	Running current (Heating)	A	7.1/7.5	
	Power factor (Heating)	%	83/73	
	Inrush current (L.R.A)	A	53	
	Noise level(4)	dB(A)	Hi: 48 Lo:40	54
Exterior dimensions Height × Width × Depth		**mm**	**Unit 320 × 840 × 840 Panel 30 × 950 × 950**	**1050 × 920 × 340**
Net weight		**kg**	**34 (Unit:28 Panel:6)**	**90**
Refrigerant equipment Compressor type & Q'ty			–	**GU-A5550ES41 × 1**
Motor		kW	–	**2.8**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R22**	
Quantity		**kg**	**–**	**1.7 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.6 (BARREL FREEZE 32SAM)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**80 × 1**	**40 × 2**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:26 Lo:19**	**70**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	40 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RCD-H-S-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ19.05 (3/4″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 380/415V 50Hz.

(4) Indicates the value at mild mode.

Model FDT508HES-SB

Item		Model	FDT508HES-SB	
			FDT508-A	FDC508HES3B
Nominal cooling capacity(1)		W	**12500**	
Nominal heating capacity(1)		W	**14000**	
Power source			**3 Phase, 380/415V 50Hz**	
Operation data(3)	Cooling input	kW	5.30/5.55	
	Running current (Cooling)	A	9.5/10.3	
	Power factor (Cooling)	%	85/75	
	Heating input	kW	4.85/4.98	
	Running current (Heating)	A	9.0/9.9	
	Power factor (Heating)	%	82/70	
	Inrush current (L.R.A)	A	74	
	Noise level(4)	dB(A)	Hi:49 Lo:43	55
Exterior dimensions Height × Width × Depth		**mm**	**Unit 320 × 840 × 840 Panel 30 × 950 × 950**	**1250 × 920 × 340**
Net weight		**kg**	**36 (Unit:30 Panel:6)**	**101**
Refrigerant equipment Compressor type & Q'ty			–	**GU-A5570ES41 × 1**
Motor		kW	–	**3.75**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R22**	
Quantity		**kg**	**–**	**1.9 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.6 (BARREL FREEZE 32SAM)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**130 × 1**	**65 × 2**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:28 Lo:20**	**110**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	40 (Crank case heater)
Operation control Operation switch			Wired remote control switch (Optional : RCD-H-S-E)	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ19.05 (3/4″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 380/415V 50Hz.

(4) Indicates the value at mild mode.

(2) Refrigerant R407C use models

Model FDTNP308HEN-SB

Item		Model	FDTNP308HEN-SB	
			FDTN308H	FDCP308HEN3B
Nominal cooling capacity(1)		W	**7100**	
Nominal heating capacity(1)		W	**8000**	
Power source			**1 Phase, 220/240V, 50Hz**	
Operation data(3)	Cooling input	kW	3.21/3.36	
	Running current (Cooling)	A	14.9/15.3	
	Power factor (Cooling)	%	98/92	
	Heating input	kW	2.96/3.10	
	Running current (Heating)	A	13.9/14.3	
	Power factor (Heating)	%	97/90	
	Inrush current (L.R.A)	A	95	
	Noise level(4)	dB(A)	Hi 41 Lo:35	52
Exterior dimensions Height × Width × Depth		**mm**	**Unit 260 × 840 × 840 Panel 30 × 950 × 950**	**845 × 880 × 340**
Net weight		**kg**	**30 (Unit:24 Panel:6)**	**76**
Refrigerant equipment Compressor type & Q'ty			–	**GT-A5534HN41 × 1**
	Motor	kW	–	**2.5**
	Starting method		–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R407C**	
Quantity		**kg**	**–**	**1.75 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.45 (MA32)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
	Motor	W	**30 × 1**	**55 × 1**
	Starting method		Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:17 Lo:12**	**58**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	33 (Crank case heater)
Operation control Operation switch			Wireless remote control switch	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection. High pressure switch for protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Wireless remote controller. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 220/240V 50Hz.

(4) Indicates the value at mild mode.

Model FDTNP308HES-SB

Item		Model	FDTNP308HES-SB	
			FDTN308H	FDCP308HES3B
Nominal cooling capacity(1)		W	**7100**	
Nominal heating capacity(1)		W	**8000**	
Power source			**3 Phase, 380/415V 50Hz**	
Operation data(3)	Cooling input	kW	3.13/3.28	
	Running current (Cooling)	A	5.5/5.8	
	Power factor (Cooling)	%	86/79	
	Heating input	kW	2.98/3.12	
	Running current (Heating)	A	5.5/5.8	
	Power factor (Heating)	%	82/75	
	Inrush current (L.R.A)	A	45	
	Noise level(4)	dB(A)	Hi:41 Lo:35	52
Exterior dimensions Height × Width × Depth		**mm**	**Unit 260 × 840 × 840 Panel 30 × 950 × 950**	**845 × 880 × 340**
Net weight		**kg**	**30 (Unit:24 Panel:6)**	**76**
Refrigerant equipment Compressor type & Q'ty			–	**GT-A5534HS41 × 1**
Motor		kW	–	**2.5**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R407C**	
Quantity		**kg**	**–**	**1.75 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.45 (MA32)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 1
Motor		W	**30 × 1**	**55 × 1**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:17 Lo:12**	**58**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	40 (Crank case heater)
Operation control Operation switch			Wireless remote control switch	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection. High pressure switch for protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ15.88 (5/8″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Wireless remote controller. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1 JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 380/415V 50Hz.

(4) Indicates the value at mild mode.

Model FDTNP408HES-SB

Item		Model	FDTNP408HES-SB	
			FDTN408H	FDCP408HES3B
Nominal cooling capacity(1)		W	**10000**	
Nominal heating capacity(1)		W	**11200**	
Power source			**3 Phase, 380/415V 50Hz**	
Operation data(3)	Cooling input	kW	4.55/4.67	
	Running current (Cooling)	A	8.0/8.4	
	Power factor (Cooling)	%	86/77	
	Heating input	kW	4.39/4.51	
	Running current (Heating)	A	7.6/8.4	
	Power factor (Heating)	%	88/75	
	Inrush current (L.R.A)	A	53	
	Noise level(4)	dB(A)	Hi: 48 Lo:40	54
Exterior dimensions Height × Width × Depth		**mm**	**Unit 320 × 840 × 840 Panel 30 × 950 × 950**	**1050 × 920 × 340**
Net weight		**kg**	**34 (Unit:28 Panel:6)**	**98**
Refrigerant equipment Compressor type & Q'ty			–	**GU-A5550HS41 × 1**
Motor		kW	–	**2.8**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			` Capillary tube	
Refrigerant			**R407C**	
Quantity		**kg**	**–**	**2.12 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.6 (MA32)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**80 × 1**	**40 × 2**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:26 Lo:19**	**70**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	40 (Crank case heater)
Operation control Operation switch			Wireless remote control switch	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection. High pressure switch for protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ19.05 (3/4″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Wireless remote controller. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 380/415V 50Hz.

(4) Indicates the value at mild mode.

Model FDTNP508HES-SB

Item		Model	FDTNP508HES-SB	
			FDTN508H	FDCP508HES3B
Nominal cooling capacity(1)		W	**12500**	
Nominal heating capacity(1)		W	**14000**	
Power source			**3 Phase, 380/415V 50Hz**	
Operation data(3)	Cooling input	kW	5.41/5.48	
	Running current (Cooling)	A	9.7/10.0	
	Power factor (Cooling)	%	84/76	
	Heating input	kW	5.29/5.36	
	Running current (Heating)	A	9.6/9.9	
	Power factor (Heating)	%	83/75	
	Inrush current (L.R.A)	A	74	
	Noise level(4)	dB(A)	Hi:49 Lo:43	55
Exterior dimensions Height × Width × Depth		**mm**	**Unit 320 × 840 × 840 Panel 30 × 950 × 950**	**1250 × 920 × 340**
Net weight		**kg**	**36 (Unit:30 Panel:6)**	**107**
Refrigerant equipment Compressor type & Q'ty			–	**GU-A5560HS41 × 1**
Motor		kW	–	**3.75**
Starting method			–	Line starting
Heat exchanger			Louver fins & inner grooved tubing	Slitted fins & bare tubing
Refrigerant control			Capillary tube	
Refrigerant			**R407C**	
Quantity		**kg**	**–**	**2.58 [Pre-charged up to the piping length of 5m]**
Refrigerant oil		ℓ	–	**1.6 (MA32)**
Defrost control			MC controlled de-icer	
High pressure control			High pressure switch	
Air handling equipment Fan type & Q'ty			Turbo fan × 1	Propeller fan × 2
Motor		W	**130 × 1**	**65 × 2**
Starting method			Line starting	Line starting
Air flow (Standard)		**CMM**	**Hi:28 Lo:20**	**110**
Fresh air intake			Available	–
Air filter, Q'ty			Long life filter ×1(washable)	–
Shock & vibration absorber			Rubber sleeve (for fan motor)	Rubber mount (for compressor)
Electric heater		W	–	40 (Crank case heater)
Operation control Operation switch			Wireless remote control switch	– (Indoor unit side)
Room temperature control			Thermostat by electronics	–
Safety equipment			Internal thermostat for fan motor. Frost protection thermostat.	Internal thermostat for fan motor. Abnormal discharge temperature protection. High pressure switch for protection.
Installation data Refrigerant piping size		**mm (in)**	**Liquid line: ϕ9.52 (3/8″) Gas line: ϕ19.05 (3/4″)**	
Connecting method			**Flare piping**	
Drain hose			(Connectable with VP25)	–
Insulation for piping			Necessary (both Liquid & Gas lines)	
Accessories			Mounting kit. Wireless remote controller. Drain hose	
Optional parts			Decorative Panel	

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

Item / Operation	Indoor air temperature DB	Indoor air temperature WB	Outdoor air temperature DB	Outdoor air temperature WB	Standards
Cooling	27˚C	19˚C	35˚C	24˚C	ISO-T1, JIS B8616
Heating	20˚C	–	7˚C	6˚C	

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

(3) The operation data indicate when the air-conditioner is operated at 380/415V 50Hz.

(4) Indicates the value at mild mode.

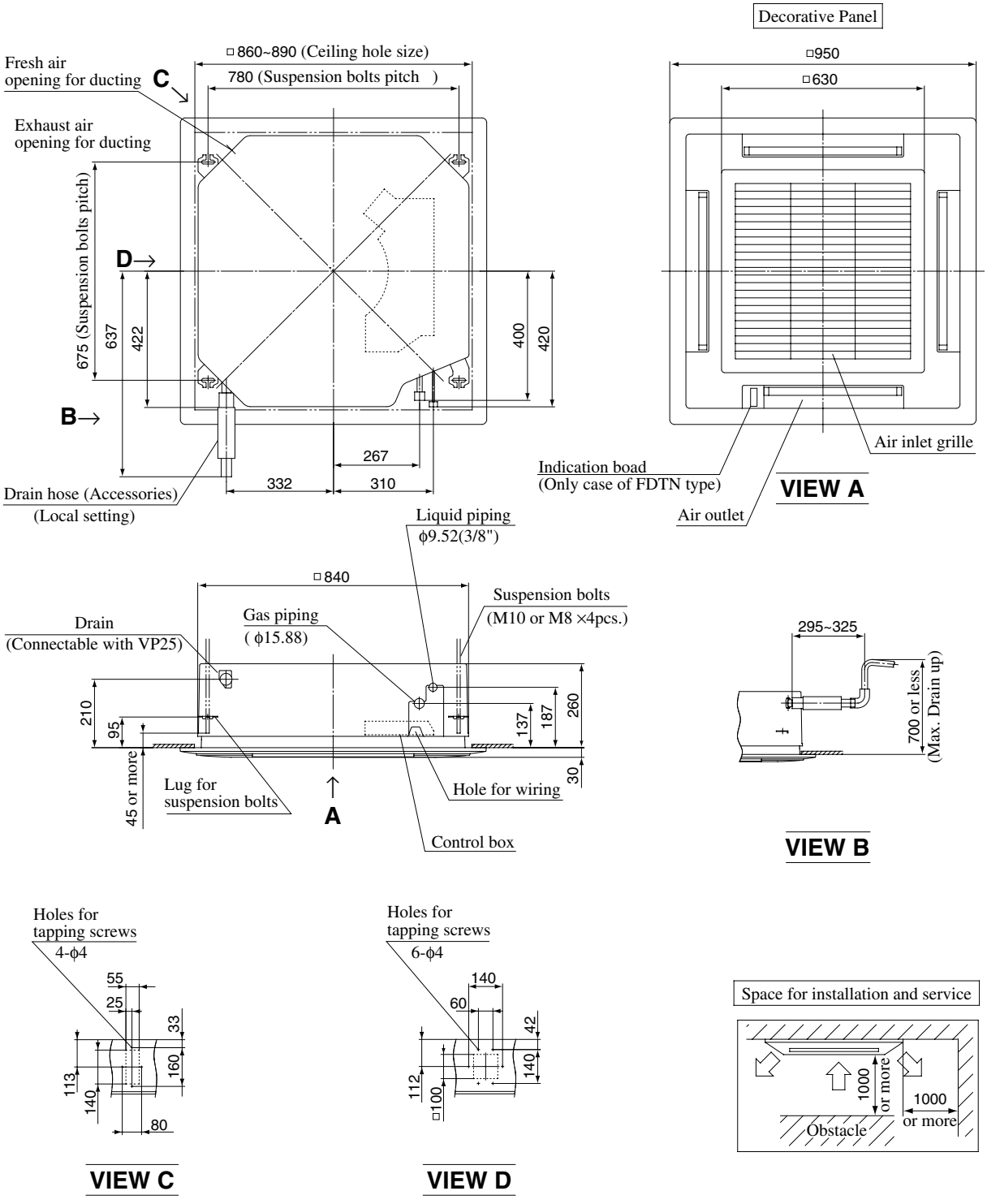
11.2.2 Range of usage & limitations

Item \ Models	FDT(N)308~508 FDTNP308~508	FDTN258
Indoor return air temperature (Upper, lower limits)	Refer to the selection chart	
Outdoor air temperature (Upper, lower limits)		
Indoor unit atmosphere (behind ceiling) temperature and humidity	Dew point temperature: 28˚C or less, relative humidity: 80% or less	
Refrigerant line (one way) length	**Max. 50m**	**Max. 30m**
Vertical height difference between outdoor unit and indoor unit	**Max. 30m (Outdoor unit is higher)** **Max. 15m (Outdoor unit is lower)**	**Max. 15m**
Power source voltage	Rating ± 10%	
Voltage at starting	Min. 85% of rating	
Frequency of ON-OFF cycle	Max. 10 times/h	
ON and OFF interval	Max. 3 minutes	

11.2.3 Exterior dimensions

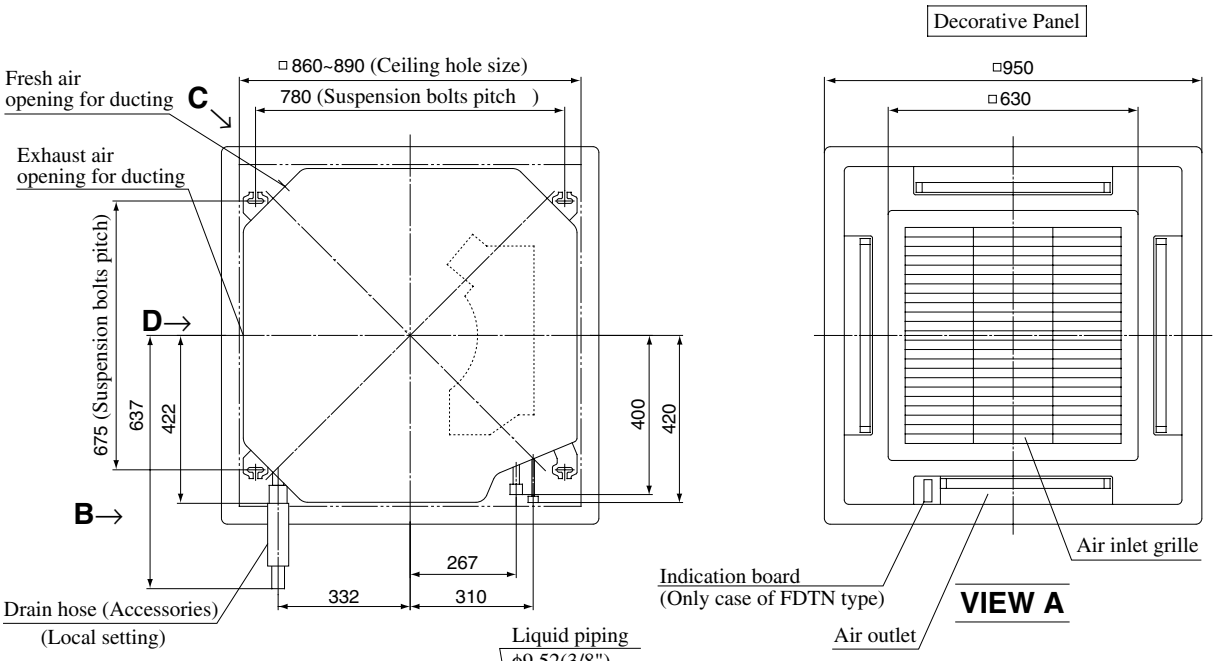
Models FDTN258H, 308H
FDT308-A

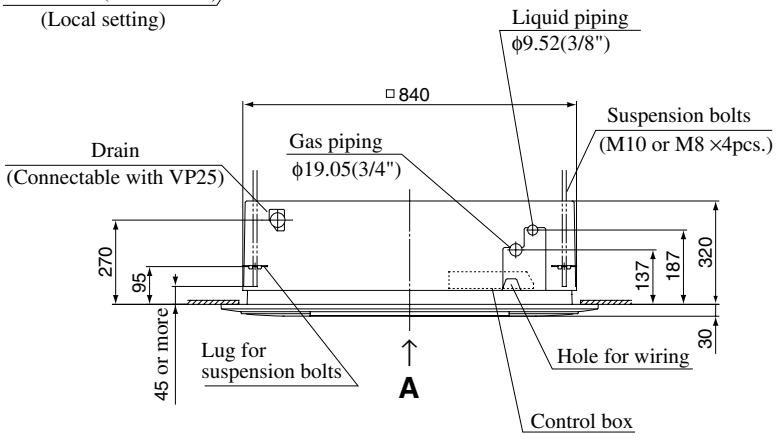
Unit : mm

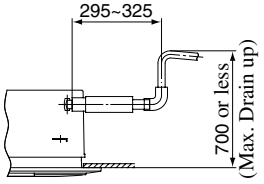


Models FDTN408H, 508H
FDT408-A, 508-A

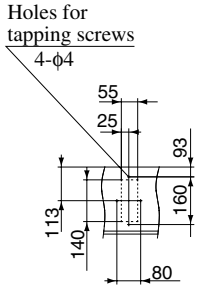
Unit : mm



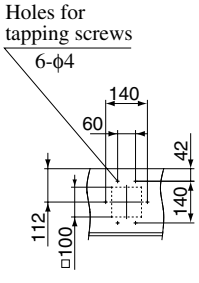




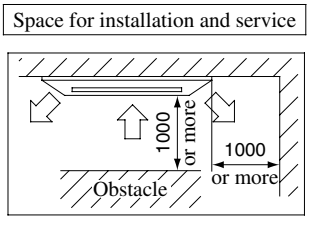
VIEW B



VIEW C



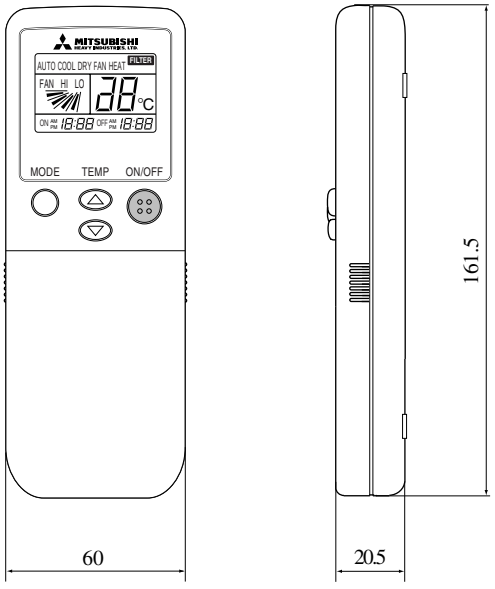
VIEW D



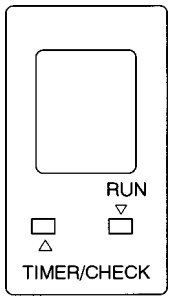
(2) Remote controller

(a) Wireless remote controller

Unit: mm

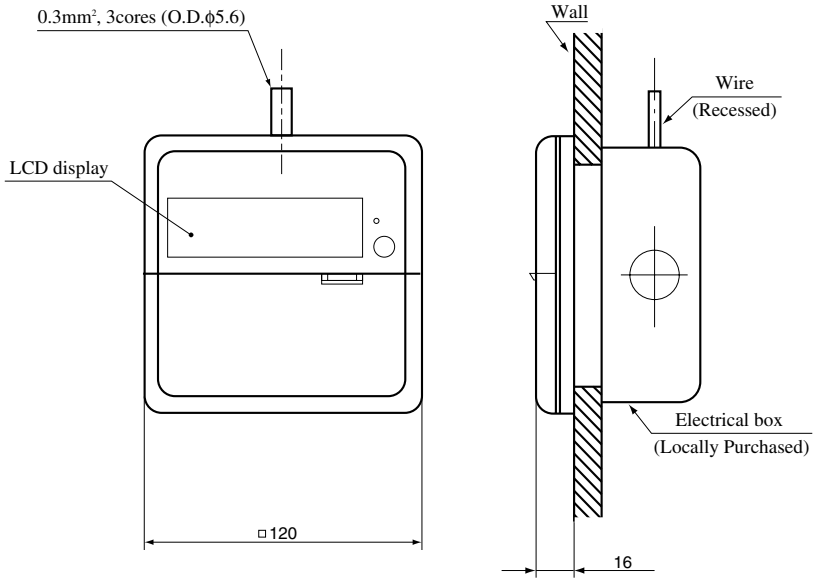


- **Indication board of indoor unit**

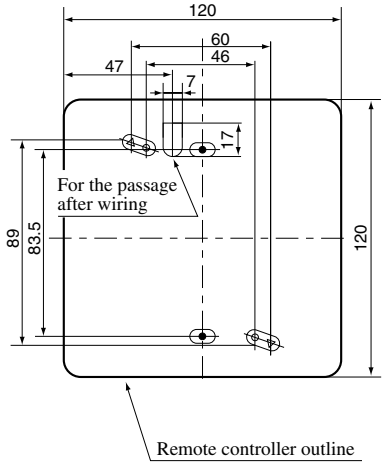


(b) Wired remote controller

Unit: mm



Remote controller mounting dimensions



Allowable rang of wire thickness and length

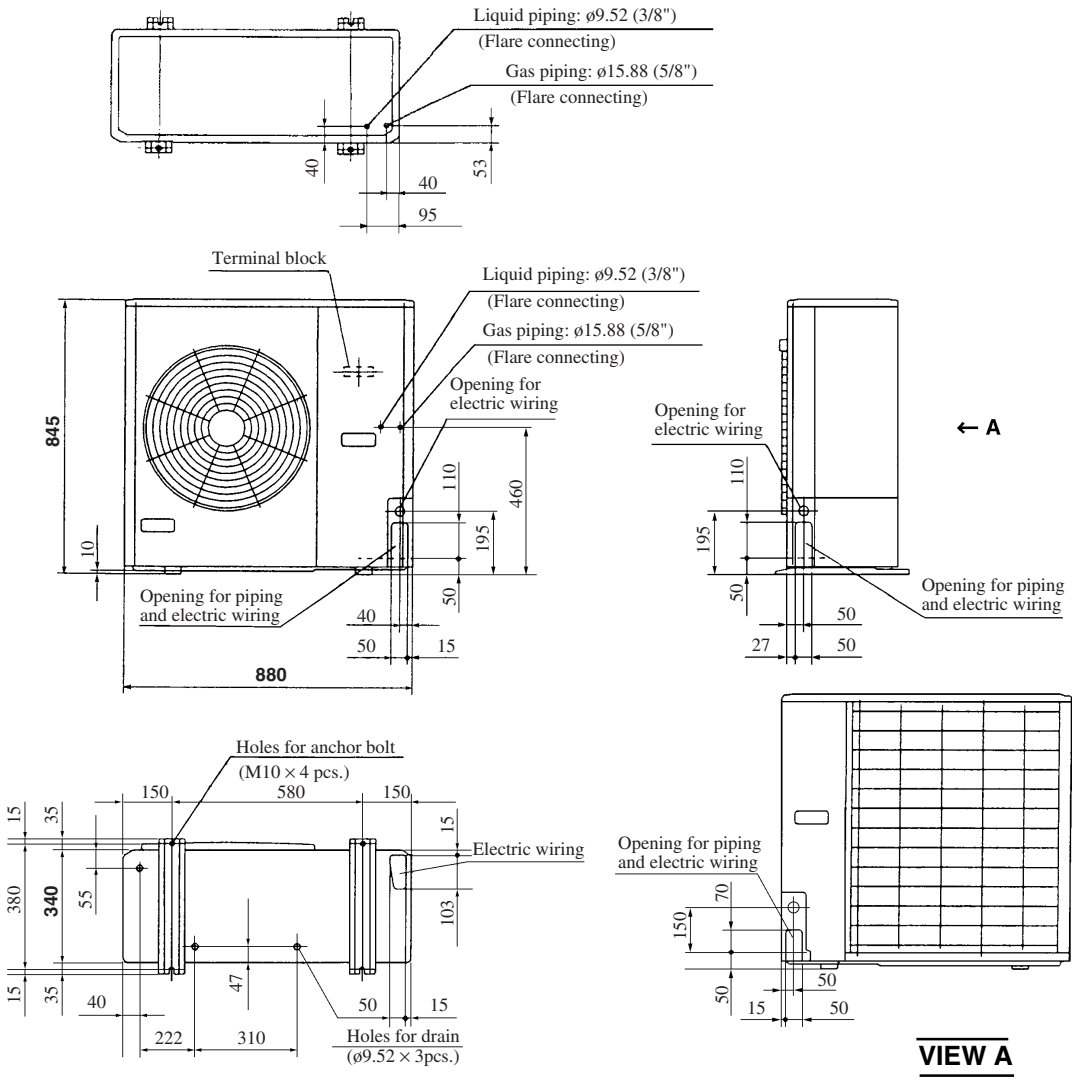
Standard Within	0.3 mm²	× Within 100 m
	0.5 mm²	× Within 200 m
	0.75 mm²	× Within 300 m
	1.25 mm²	× Within 400 m
	2 mm²	× Within 600 m

Note (1) Allowable length of remote controller cable: 600 m

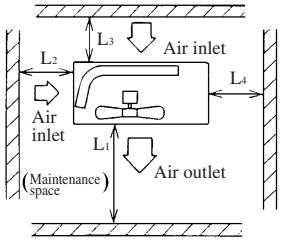
(3) Outdoor unit

Models FDC308HEN3B, 308HES3B
FDCP308HEN3B, 308HES3B

Unit: mm



Required space for maintenance and air flow



Minimum allowable space to the obstacles

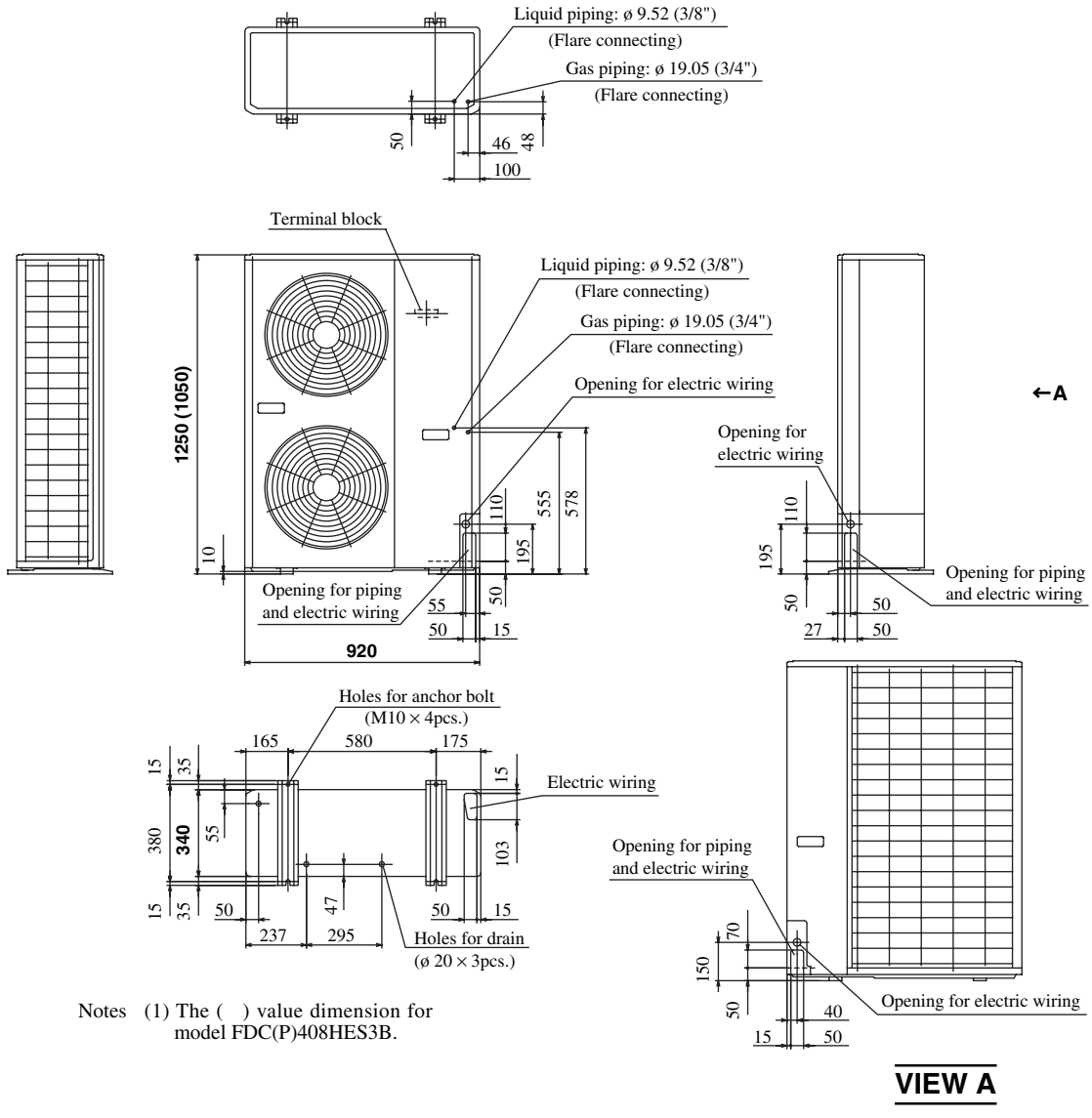
Unit:mm

Mark \ Installation type	Ⅰ	Ⅱ	Ⅲ
L_1	Open	Open	500
L_2	300	5	Open
L_3	100	150	100
L_4	5	5	5

Notes
(1) Avoid the location where four sides are entirely surrounded by walls.
(2) Fix the unit by anchor bolts without fail. Restrict the protrusion length of anchor bolt to 15 mm and under.
(3) When strong wind blows against the unit, direct the discharge port at a right angle to the wind direction.
(4) Secure the space of 1 m and over at the top of unit.
(5) Make the height of obstruction wall in front of discharge port lower than the height of unit.

Models FDC408HES3B, 508HES3B
FDCP408HES3B, 508HES3B

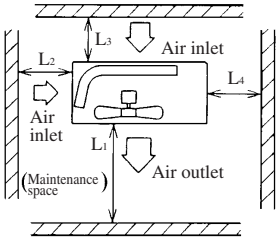
Unit: mm



Notes (1) The ( ) value dimension for model FDC(P)408HES3B.

VIEW A

Required space for maintenance and air flow



Minimum allowable space to the obstacles

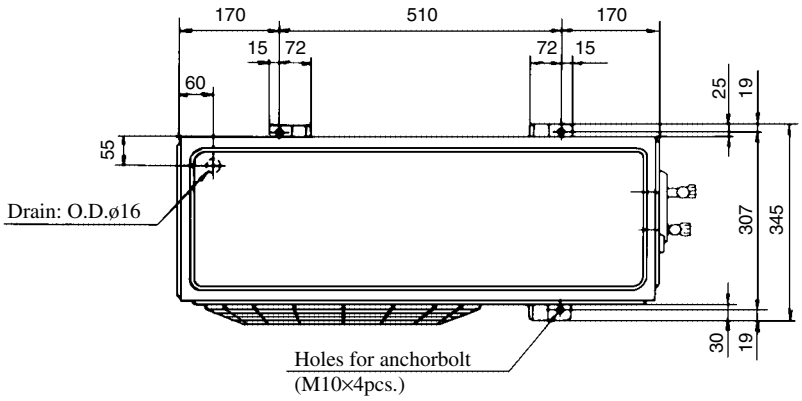
Unit:mm

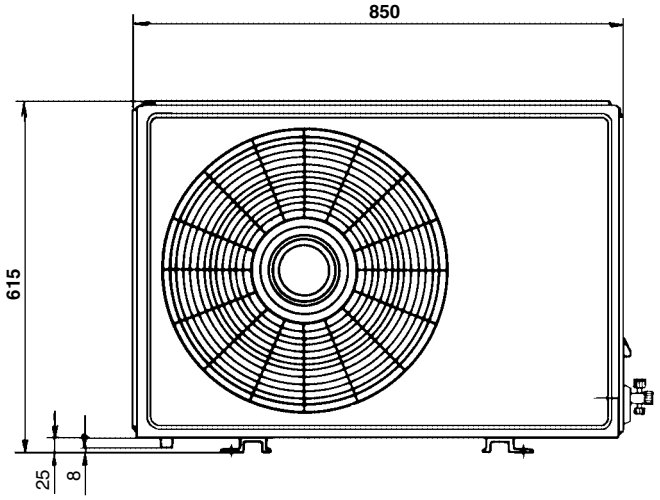
Mark \ Installation type	Ⅰ	Ⅱ	Ⅲ
L_1	Open	Open	500
L_2	300	5	Open
L_3	150	300	150
L_4	5	5	5

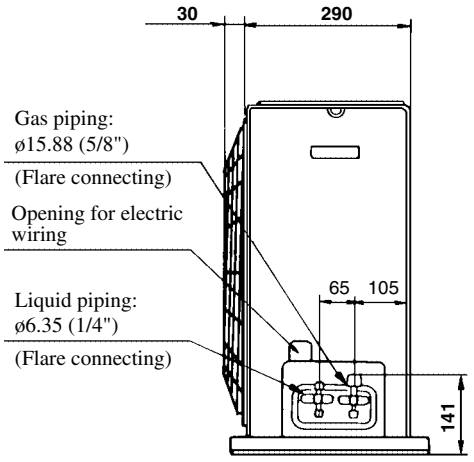
Notes
(1) Avoid the location where four sides are entirely surrounded by walls.
(2) Fix the unit by anchor bolts without fail. Restrict the protrusion length of anchor bolt to 15 mm and under.
(3) When strong wind blows against the unit, direct the discharge port at a right angle to the wind direction.
(4) Secure the space of 1 m and over at the top of unit.
(5) Make the height of obstruction wall in front of discharge port lower than the height of unit.

Models FDC256HEN3A, 256HEP3A

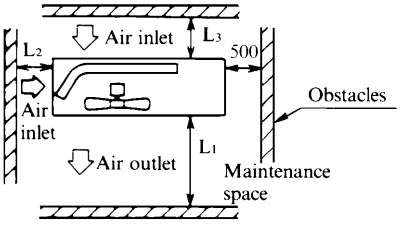
Unit: mm







Required space for maintenance and air flow



Minimum allowable space to the obstacles

Unit:mm

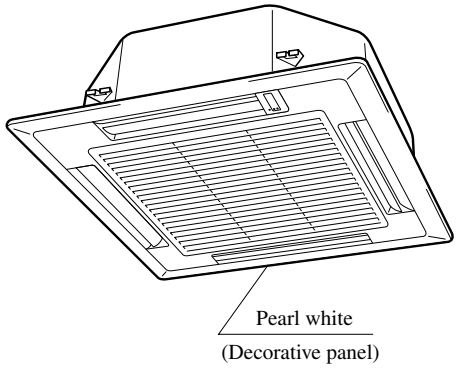
Mark \ Installation type	Ⅰ	Ⅱ
L_1	Open	100
L_2	100	Open
L_3	100	500

Notes
(1) Fix the unit with anchor bolts.
(2) Strong wind must not be directed to the air outlet.
(3) Free space over the unit must be larger than 1 m.
(4) The unit should not be surrounded by obstructions in all direction.
At least one direction around the unit must be free.

11.2.4 Exterior appearance

(1) Indoor unit

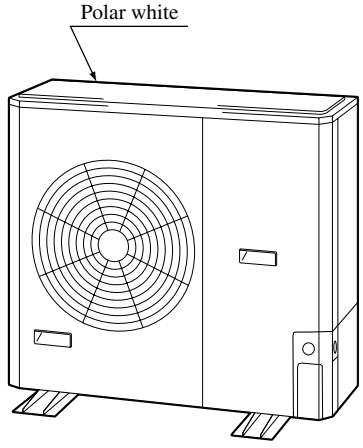
Models All models



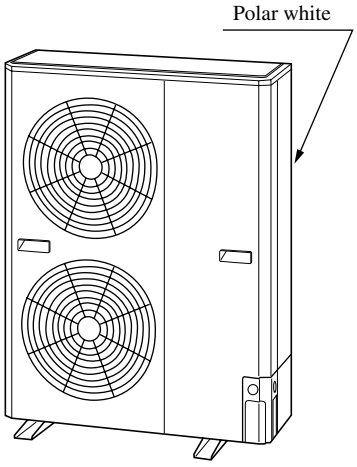
Type \ Item		Panel model	Remarks
For wireless remote controller	FDTN258H~508H FDTNP308H~508H	TN-PSC-32W-E	With Auto swing
For wired remote controller	FDT308-A~508-A	T-PSA-32W-E	

(2) Outdoor unit

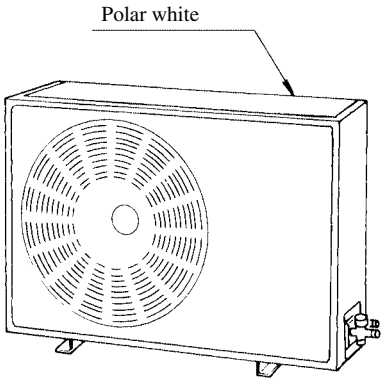
Models FDC308HEN3B,308HES3B
FDCP308HEN3B,308HES3B



Models FDC408HES3B, 508HES3B
FDCP408HES3B, 508HES3B

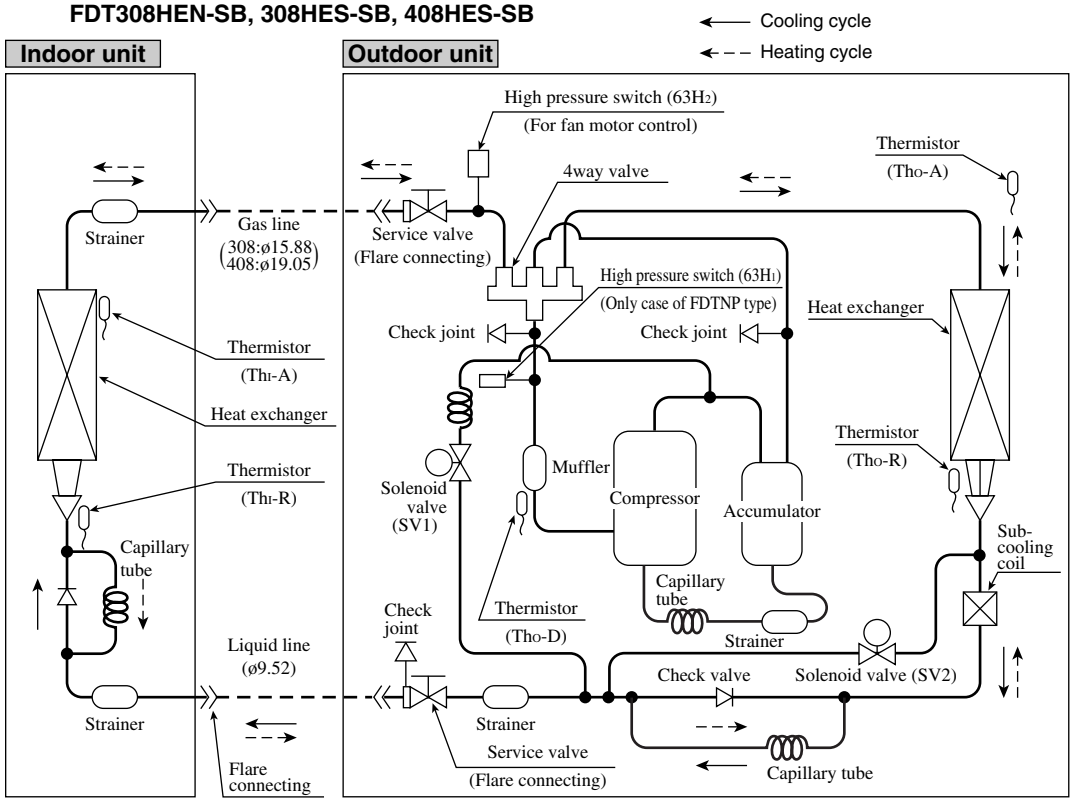


Models FDC256HEN3A,256HEP3A

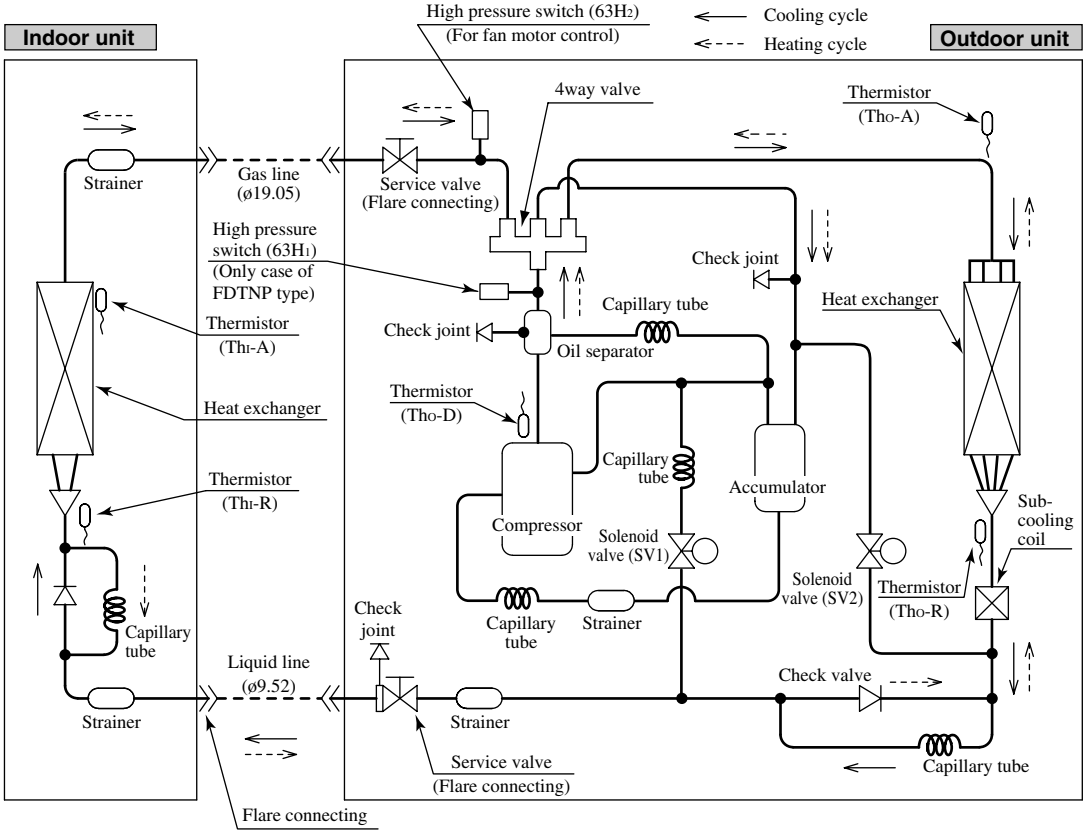


11.2.5 Piping system

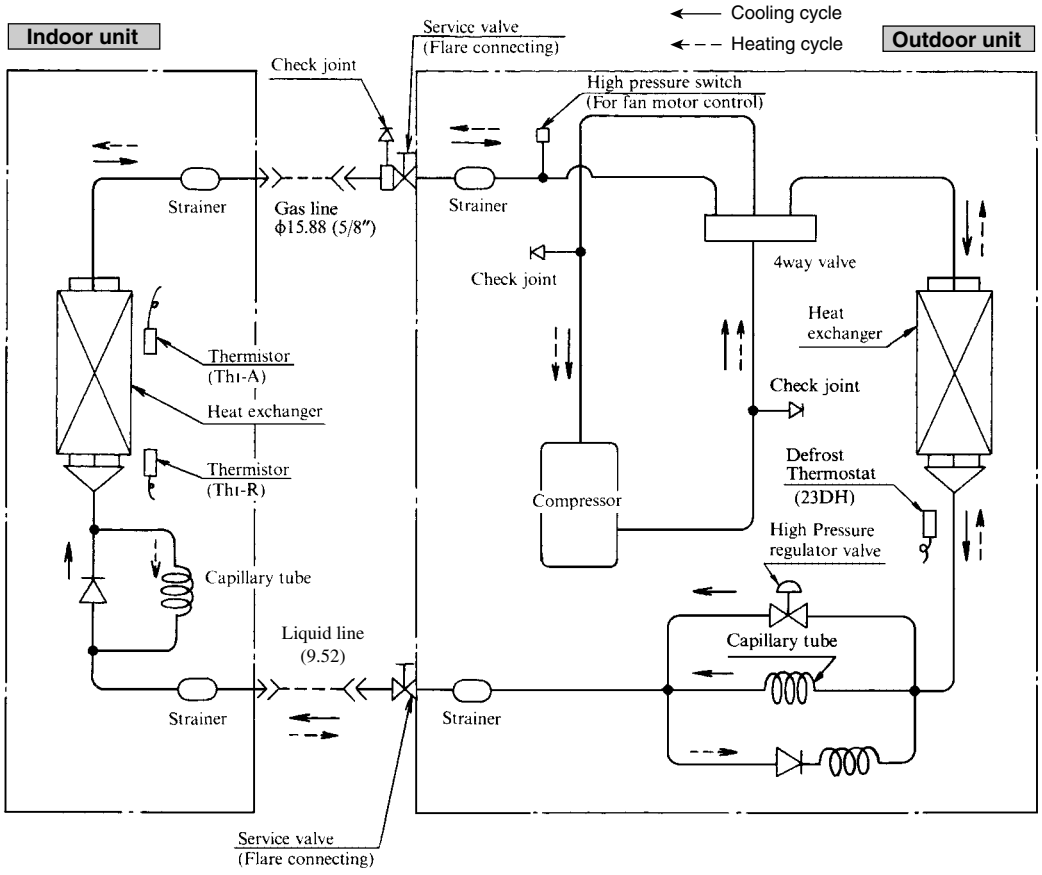
Models FDTNP308HEN-SB, 308HES-SB, 408HES-SB
FDTN308HEN-SB, 308HES-SB, 408HES-SB
FDT308HEN-SB, 308HES-SB, 408HES-SB



Models FDTNP508HES-SB, FDTN508HES-SB, FDT508HES-SB



Models FDTN258HEN-A, 258HEP-A



Preset point of the protective devices

Parts name	Mark	Equipped unit	FDTN308~508 FDT308~508	FDTNP308~508	FDTN258
Thermistor (for protection over-loading in heating)	Th_1-R	Indoor unit	OFF 68˚C ON 61˚C		
Thermistor (for frost prevention)			OFF 2.5˚C ON 10˚C		
Thermistor (for detecting dis-charge pipe temp.)	Tho-D	Outdoor unit	OFF 135˚C ON 90˚C		————
Thermistor (for detecting heat exchange temp.)	Tho-R	Outdoor unit	OFF 70˚C ON 60˚C		————
Dfrost thermostat	23DH2	Outdoor unit	————	————	OFF 12˚C
	23DH1				ON -6˚C
High pressure switch (for controlling FM_0)	$63H_2$	Outdoor unit	OFF 2.50MPa ON 2.06MPa	OFF 2.79MPa ON 2.26MPa	OFF 2.50MPa ON 1.86MPa
High pressure switch (for protection)	$63H_1$	Outdoor unit	————	OFF 3.24MPa ON 2.65MPa	————

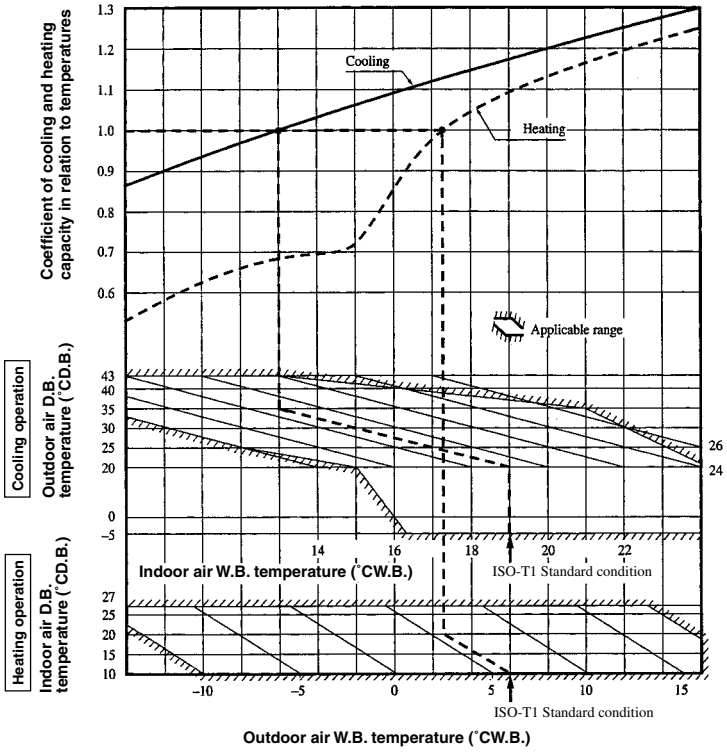
11.2.6 Selection chart

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

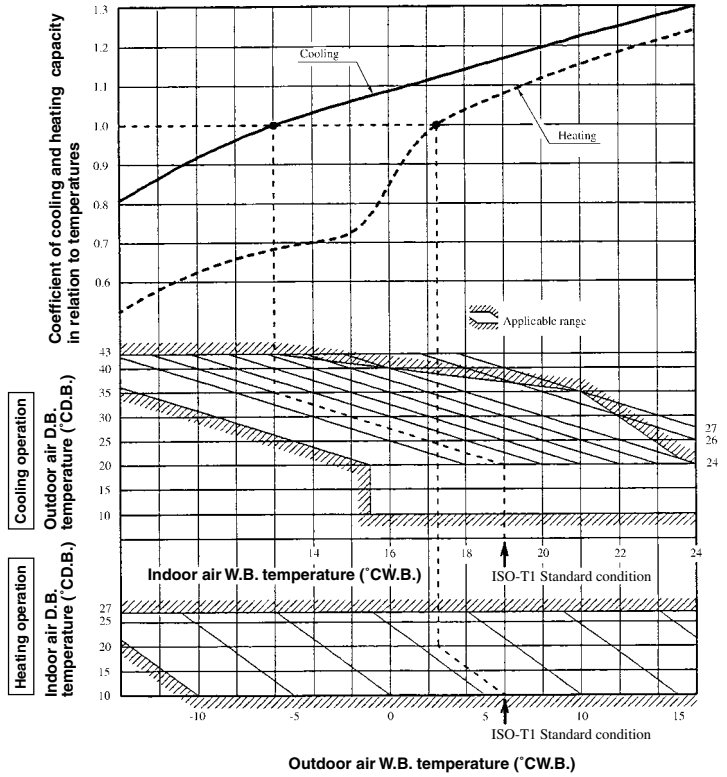
Net capacity = Capacity shown on specification × Correction factors as follows.

(1) Coefficient of cooling and heating capacity in relation to temperatures

FDTN(P)308~508
FDT308~508



FDTN258HEN-A



FDTN258HEP-A

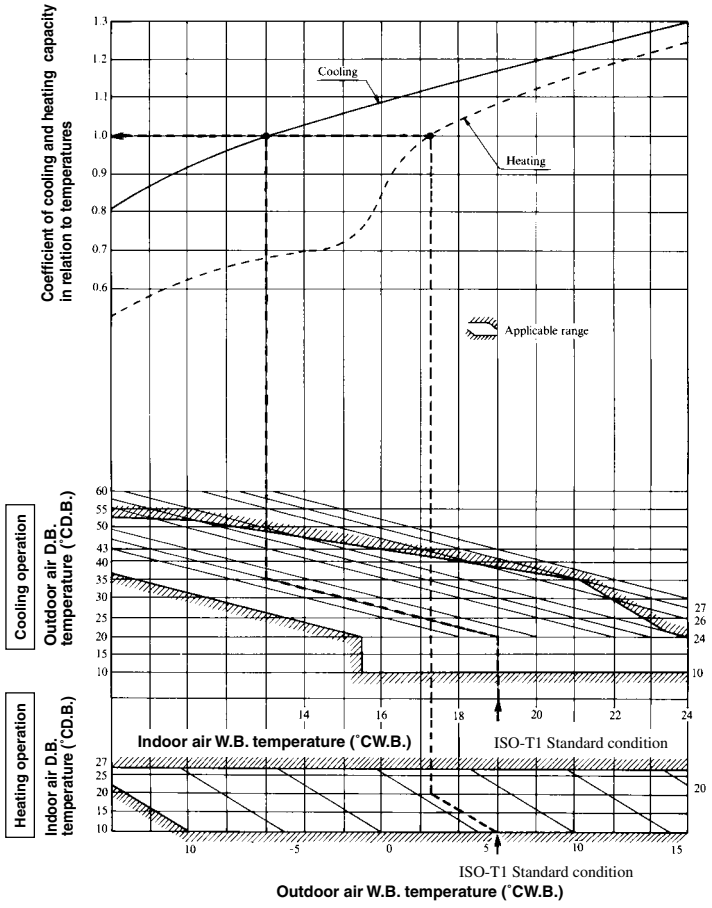


Table of bypass factor

Item \ Model		258 models	308 models	408 models	508 models
Air flow	Hi	0.050	0.065	0.076	0.025
	Lo	0.030	0.030	0.050	0.013

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

Coefficient: 1.00 at High, 0.95 at Low

(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.

Equivalent piping length(1) m		7.5	10	15	20	25	30	35	40	45	50	55
Heating		1.0	1.0	1.0	1.0	1.0	0.998	0.998	0.993	0.993	0.988	0.988
Cooling	FDTN258	1.0	0.998	0.993	0.988	0.983	0.978	0.973	–	–	–	–
	FDTNP, FDT(N)308	1.0	0.995	0.985	0.975	0.965	0.955	0.945	0.935	0.925	0.915	0.905
	FDTNP, FDT(N)408	1.0	0.998	0.990	0.985	0.975	0.970	0.960	0.955	0.945	0.940	0.930
	FDTNP, FDT(N)508	1.0	0.995	0.980	0.970	0.955	0.945	0.930	0.920	0.905	0.895	0.880

Note (1) Equivalent piping length can be obtained by calculating as follows.
258, 308 series [ϕ15.88(5/8″)]: Equivalent piping length = Real piping length + (0.10 × Number or bends in piping)
408, 508, series [ϕ19.05(3/4″)]: Equivalent piping length = Real piping length + (0.15 × Number of bends in piping)
[Equivalent piping length < Limitation length of piping + 5m]

(4) When the outdoor unit is located at a lower height than the indoor unit in cooling operation and when the outdoor unit is located at a higher height than the indoor unit in heating operation, the following values should be subtracted from the values in the above table.

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

Piping length limitations

Item \ Model	FDTN(P)308~508 FDT308~508	FDTN258
Max. one way piping length	50m	30m
Max. vertical height difference	Outdoor unit is higher 30m Outdoor unit is lower 15m	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 FDT308HEN-SB with the air flow "High", the piping length of 15m, the outdoor unit located 5m lower than the indoor unit, indoor wet-bulb temperature at 19.0 ˚C and outdoor dry-bulb temperature 35 ˚C is

Net cooling capacity = 7100 × 1.00 × (0.985 - 0.01) × 1.0 = 6923 w

- 7100 — FDT308HEN-SB
- 1.00 — Air flow "High"
- (0.985 - 0.01) — Length 15m. Height difference 5 m
- 1.0 — Factor by air temperatures

11.2.7 Noise level

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

Ambient air temperature:

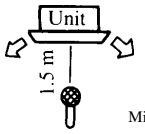
Indoor unit 27˚C DB, 19˚C WB.

Outdoor unit 35˚C DB.

Indoor unit

Measured based on JIS B 8616

Mike position as below



Mike (center & low points)

Outdoor unit

Measured based on JIS B 8616

Mike position: at highest noise level in position as below

Distance from front side 1 m

Height 1 m

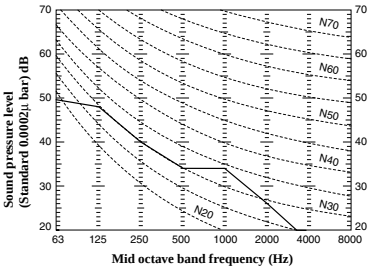
(2) The data in the chart are measured in an unechonic room.

(3) The noise levels measured in the field are usually higher than the data because of reflection.

(1) Indoor unit

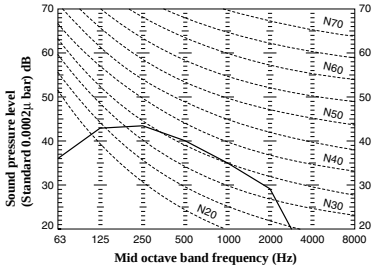
Model FDTN258H

Noise level 39 dB (A) at HIGH
35 dB (A) at LOW



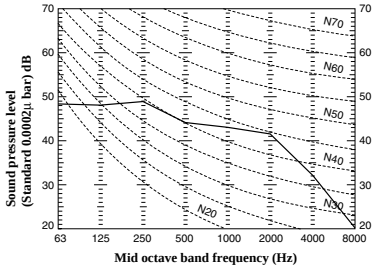
Models FDTN(P) 308H, FDT308-A

Noise level 41 dB (A) at HIGH
35 dB (A) at LOW



Models FDTN(P)408H, FDT408-A

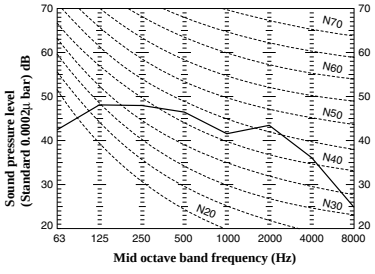
Noise level 48 dB (A) at HIGH
40 dB (A) at LOW



(2) Outdoor unit

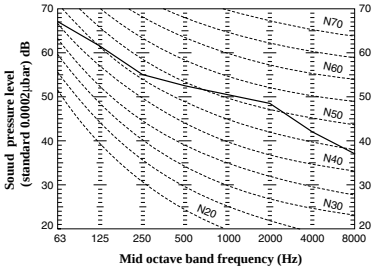
Models FDTN(P) 508H, FDT508-A

Noise level 49 dB (A) at HIGH
43 dB (A) at LOW



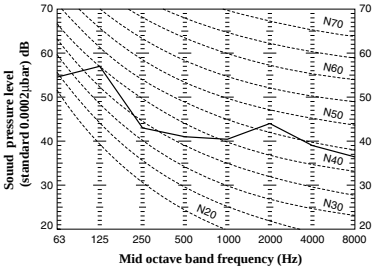
Models FDC308HEN3B, 308HES3B
FDCP308HEN3B, 308HES3B

Noise level 52 dB (A)



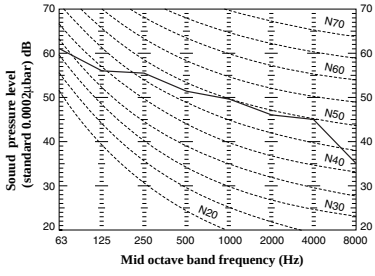
Models FDC408HES3B
FDCP408HES3B

Noise level 54 dB (A)



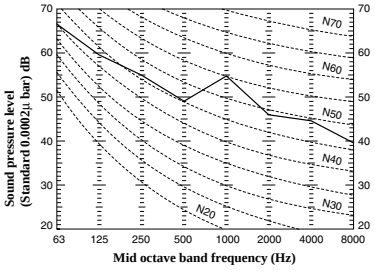
Models FDC508HES3B
FDCP508HES3B

Noise level 55 dB (A)



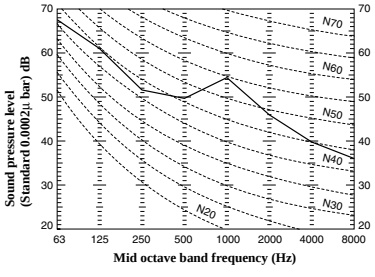
Model FDC256HEN3A

Noise level 57 dB (A)



Model FDC256HEP3A

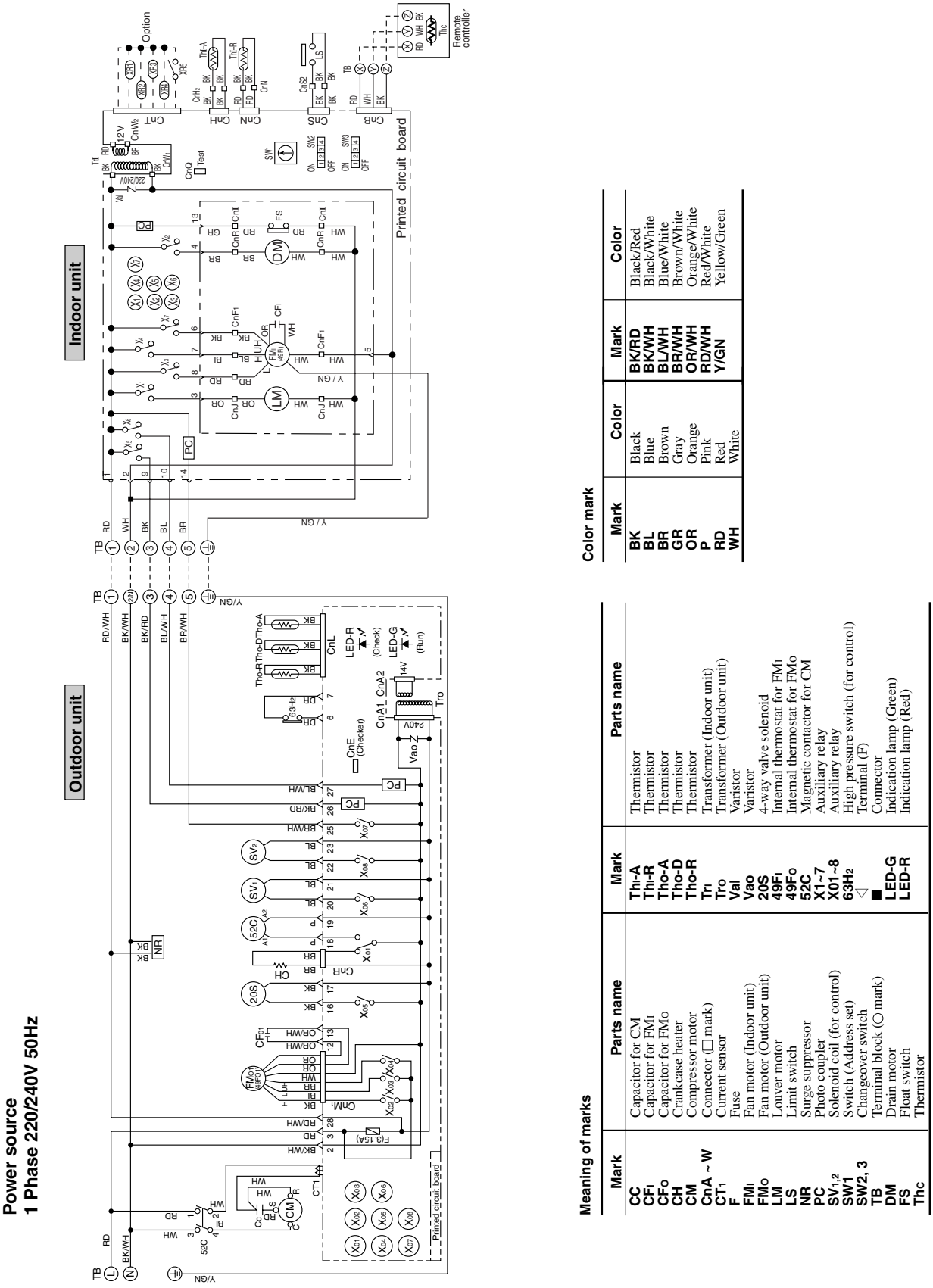
Noise level 57 dB (A)



11.3 ELECTRICAL DATA

11.3.1 Electrical wiring

Models FDT308HEN-SB

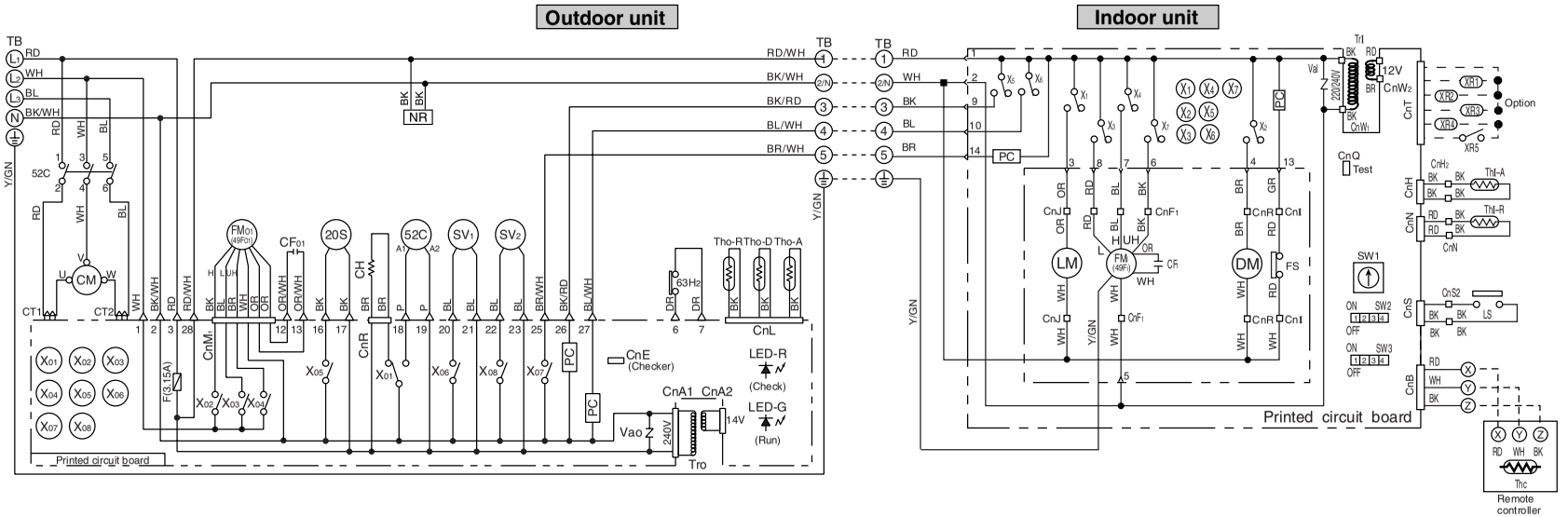


Mark	Color
BK	Black
BL	Blue
BR	Brown
GR	Gray
OR	Orange
P	Pink
RD	Red
WH	White

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

Mark	Parts name	Mark	Parts name
CC	Capacitor for CM	Thi-A	Thermistor
CFI	Capacitor for FMI	Thi-R	Thermistor
CFO	Capacitor for FMO	Tho-A	Thermistor
CH	Crankcase heater	Tho-D	Thermistor
CM	Compressor motor	Tho-R	Thermistor
CnA ~ W	Connector (□ mark)	TrI	Transformer (Indoor unit)
CT1	Current sensor	Tro	Transformer (Outdoor unit)
F	Fuse	Val	Varistor
FMI	Fan motor (Indoor unit)	Vao	Varistor
FMO	Fan motor (Outdoor unit)	20S	4-way valve solenoid
LM	Louver motor	49FI	Internal thermostat for FMI
LS	Limit switch	49FO	Internal thermostat for FMO
NR	Surge suppressor	52C	Magnetic contactor for CM
PC	Photo coupler	X1~7	Auxiliary relay
SV1,2	Solenoid coil (for control)	X01~8	Auxiliary relay
SW1	Switch (Address set)	63H2	High pressure switch (for control)
SW2, 3	Changeover switch	▽	Terminal (F)
TB	Terminal block (○ mark)	■	Connector
DM	Drain motor	LED-G	Indication lamp (Green)
FS	Float switch	LED-R	Indication lamp (Red)
Thc	Thermistor		

Power source
3 Phase 380/415V 50Hz



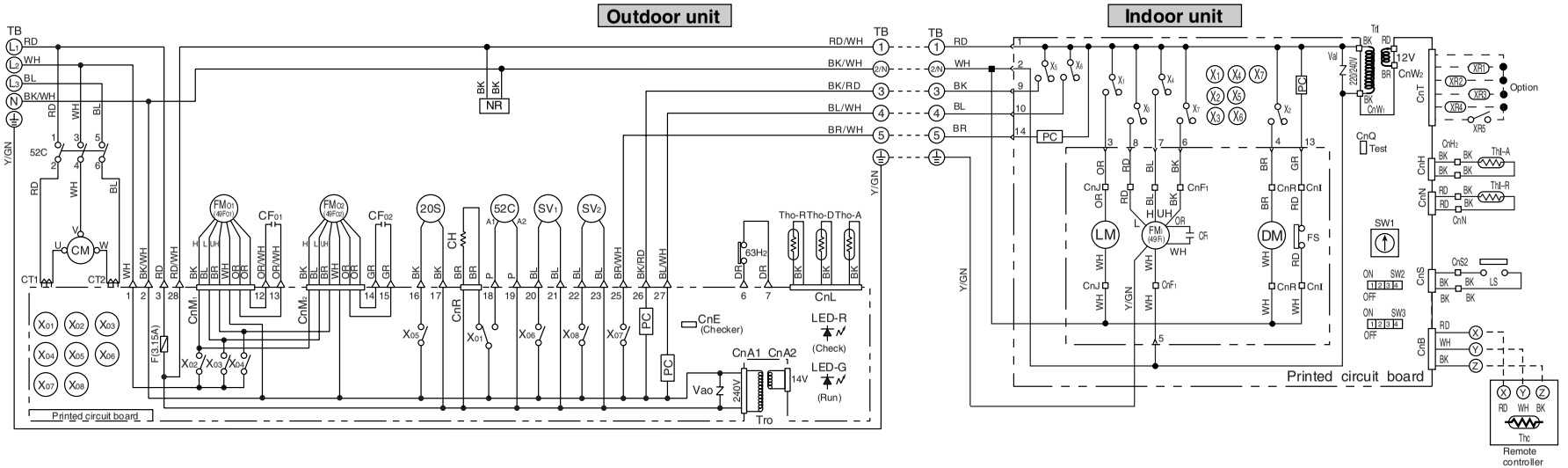
Meaning of marks

Mark	Parts name	Mark	Parts name
CFI	Capacitor for FMI	**Thl-A**	Thermistor
CFO1	Capacitor for FMO	**Thl-R**	Thermistor
CH	Crankcase heater	**Tho-A**	Thermistor
CM	Compressor motor	**Tho-D**	Thermistor
CnA ~ Z	Connector (□ mark)	**Tho-R**	Thermistor
CT1,2	Current sensor	**TrI**	Transformer (Indoor unit)
F	Fuse	**TrO**	Transformer (Outdoor unit)
FMI	Fan motor (Indoor unit)	**Val**	Varistor
FMO1	Fan motor (Outdoor unit)	**Vao**	Varistor
LM	Louver motor	**20S**	4-way valve solenoid
LS	Limit switch	**49FI**	Internal thermostat for FMI
NR	Surge suppressor	**49FO1**	Internal thermostat for FMO
DM	Drain motor	**52C**	Magnetic contactor for CM
FS	Float switch	**X1~7**	Auxiliary relay
PC	Photo coupler	**X01~08**	Auxiliary relay
SV1,2	Solenoid coil (for control)	**63H2**	High pressure switch (for control)
SW1	Switch (Address set)	◁	Terminal (F)
SW2, 3	Changeover switch	■	Connector
TB	Terminal block (○ mark)	**LED-G**	Indication lamp (Green)
Thc	Thermistor	**LED-R**	Indication lamp (Red)

Color mark

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

Power source
3 Phase 380/415V 50Hz



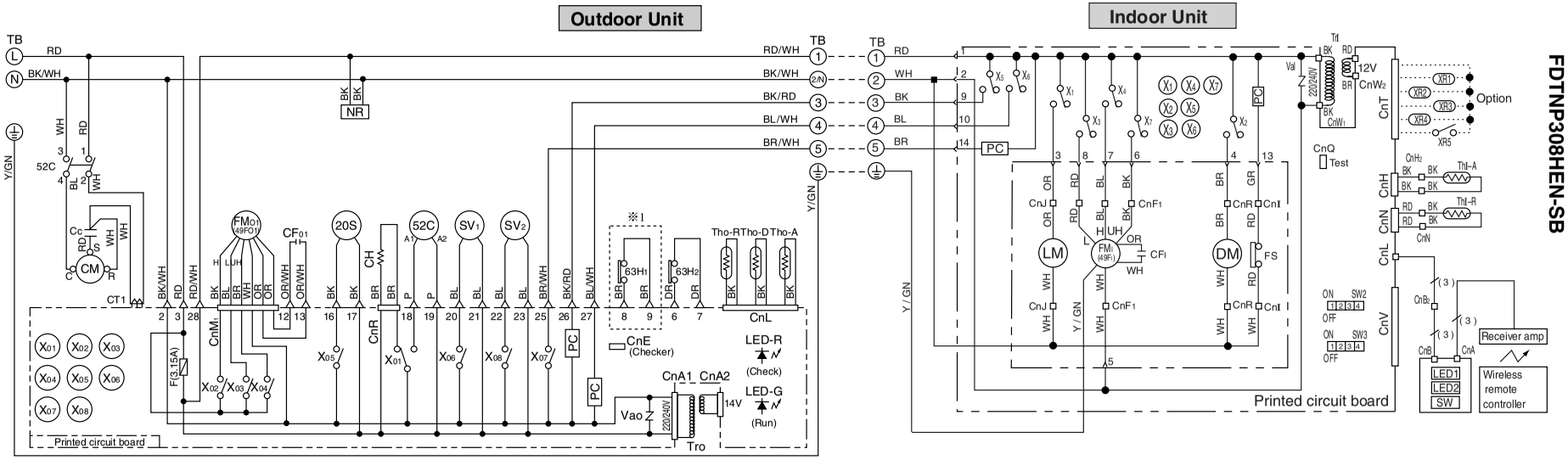
Meaning of marks

Mark	Parts name	Mark	Parts name
CFI	Capacitor for FMI	**Thl-A**	Thermistor
CFo1,2	Capacitor for FMo	**Thl-R**	Thermistor
CH	Crankcase heater	**Tho-A**	Thermistor
CM	Compressor motor	**Tho-D**	Thermistor
CnA ~ Z	Connector (□ mark)	**Tho-R**	Thermistor
CT1,2	Current sensor	**TrI**	Transformer (Indoor unit)
F	Fuse	**Tro**	Transformer (Outdoor unit)
FMI	Fan motor (Indoor unit)	**Val**	Varistor
FMo1,2	Fan motor (Outdoor unit)	**Vao**	Varistor
LM	Louver motor	**20S**	4-way valve solenoid
LS	Limit switch	**49FI**	Internal thermostat for FMI
NR	Surge suppressor	**49Fo1,2**	Internal thermostat for FMo
DM	Drain motor	**52C**	Magnetic contactor for CM
FS	Float switch	**X1~7**	Auxiliary relay
PC	Photo coupler	**X01~08**	Auxiliary relay
SV1,2	Solenoid coil (for control)	**63H2**	High pressure switch (for control)
SW1	Switch (Address set)	◁	Terminal (F)
SW2,3	Changeover switch	■	Connector
TB	Terminal block (○ mark)	**LED-G**	Indication lamp (Green)
Thc	Thermistor	**LED-R**	Indication lamp (Red)

Color mark

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

Power source
1 Phase 220/240V 50Hz



Note (1) ※1 63H1 is equipped with only for FDTNP type.

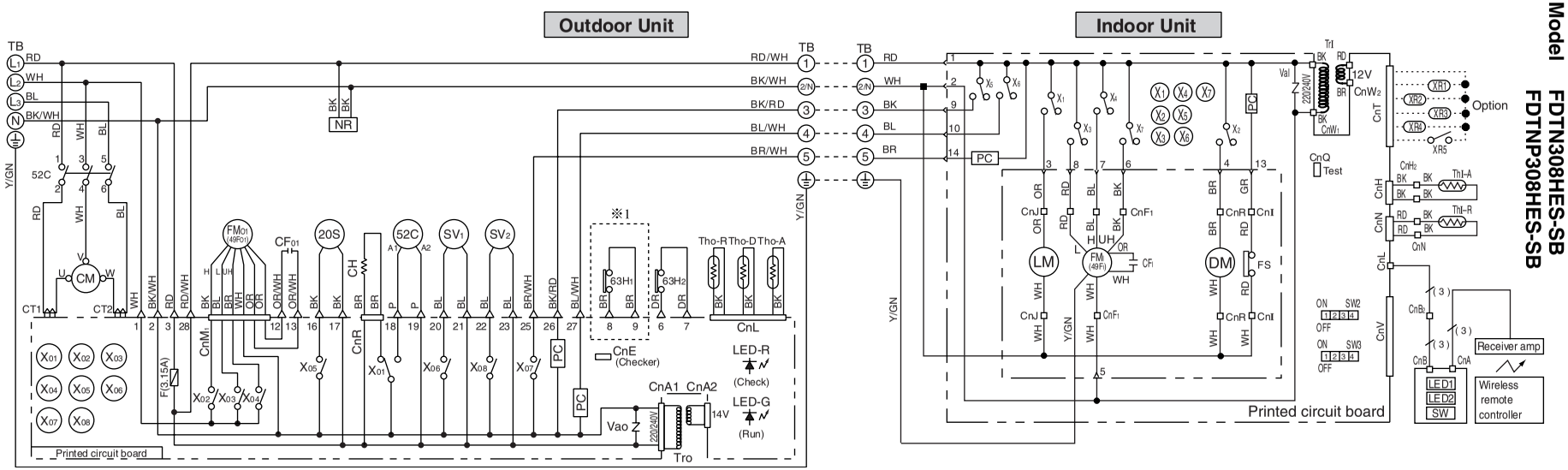
Meaning of marks

Mark	Parts name	Mark	Parts name
CC	Capacitor for CM	**Thi-A**	Thermistor
CFi	Capacitor for FMi	**Thi-R**	Thermistor
CFo	Capacitor for FMo	**Tho-A**	Thermistor
CH	Crankcase heater	**Tho-D**	Thermistor
CM	Compressor motor	**Tho-R**	Thermistor
CnA ~ W	Connector (□ mark)	**Tri**	Transformer (Indoor unit)
CT1	Current sensor	**Tro**	Transformer (Outdoor unit)
F	Fuse	**Val**	Varistor
FMi	Fan motor (Indoor unit)	**Vao**	Varistor
FMo	Fan motor (Outdoor unit)	**20S**	4-way valve solenoid
LED1	Indication lamp (Green - Run)	**49Fi**	Internal thermostat for FMi
LED2	Indication lamp (Yellow - Timer/Check)	**49Fo**	Internal thermostat for FMo
LM	Louver motor	**52C**	Magnetic contactor for CM
NR	Surge suppressor	**X1~7**	Auxiliary relay
PC	Photo coupler	**X01~8**	Auxiliary relay
SV1,2	Solenoid coil (for control)	**63H1**	High pressure switch (for protection)
SW	Switch (ON/OFF)	**63H2**	High pressure switch (for control)
SW2, 3	Changeover switch	◁	Terminal (F)
TB	Terminal block (○ mark)	■	Connector
DM	Drain motor	**LED-G**	Indication lamp (Green)
FS	Float switch	**LED-R**	Indication lamp (Red)

Color mark

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

Power source
3 Phase 380/415V 50Hz



Note (1) ※1 63H$_1$ is equipped with only for FDTNP type.

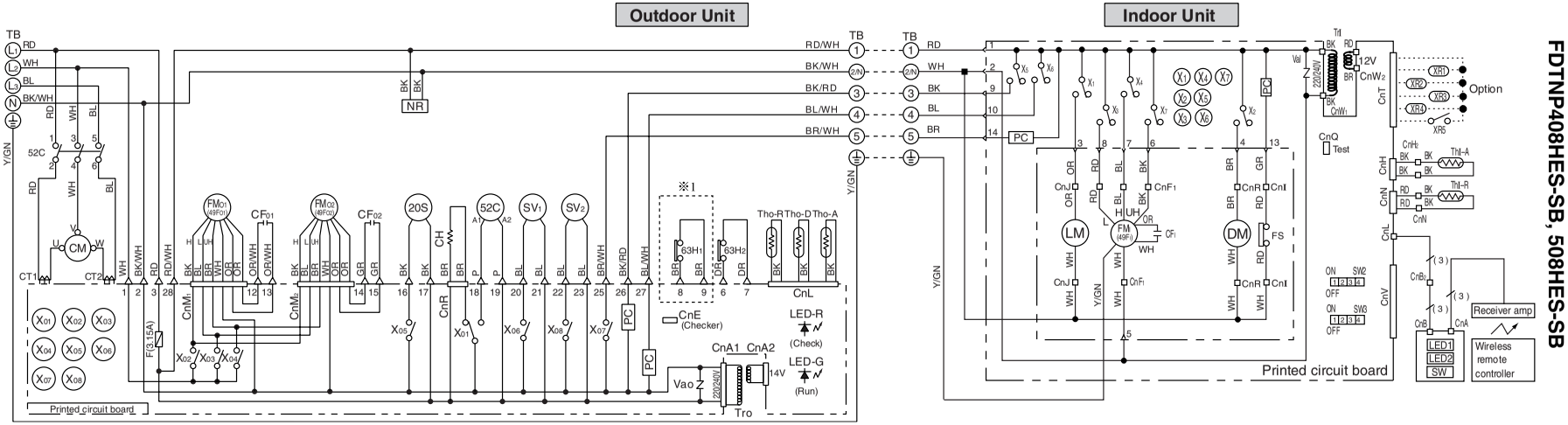
Meaning of marks

Mark	Parts name	Mark	Parts name
CF$_I$	Capacitor for FM$_I$	**Tho-A**	Thermistor
CF$_{O1}$	Capacitor for FM$_O$	**Tho-D**	Thermistor
CH	Crankcase heater	**Tho-R**	Thermistor
CM	Compressor motor	**Tr$_I$**	Transformer (Indoor unit)
CnA ~ Z	Connector (□ mark)	**Tr$_O$**	Transformer (Outdoor unit)
CT$_{1,2}$	Current sensor	**Val**	Varistor
F	Fuse	**Vao**	Varistor
FM$_I$	Fan motor (Indoor unit)	**20S**	4-way valve solenoid
FM$_{O1}$	Fan motor (Outdoor unit)	**49F$_I$**	Internal thermostat for FM$_I$
LM	Louver motor	**49F$_{O1}$**	Internal thermostat for FM$_O$
NR	Surge suppressor	**52C**	Magnetic contactor for CM
DM	Drain motor	**X1~7**	Auxiliary relay
FS	Float switch	**X$_{01\sim08}$**	Auxiliary relay
PC	Photo coupler	**63H$_1$**	High pressure switch (for protection)
SV$_{1,2}$	Solenoid coil (for control)	**63H$_2$**	High pressure switch (for control)
SW	Switch (ON/OFF)	◁	Terminal (F)
SW2, 3	Changeover switch	■	Connector
TB	Terminal block (○ mark)	**LED-G**	Indication lamp (Green)
Th$_I$-A	Thermistor	**LED-R**	Indication lamp (Red)
Th$_I$-R	Thermistor		

Color mark

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

Power source
3 Phase 380/415V 50Hz



Note (1) ※1 **63H1 is equipped with only for FDTNP type.**

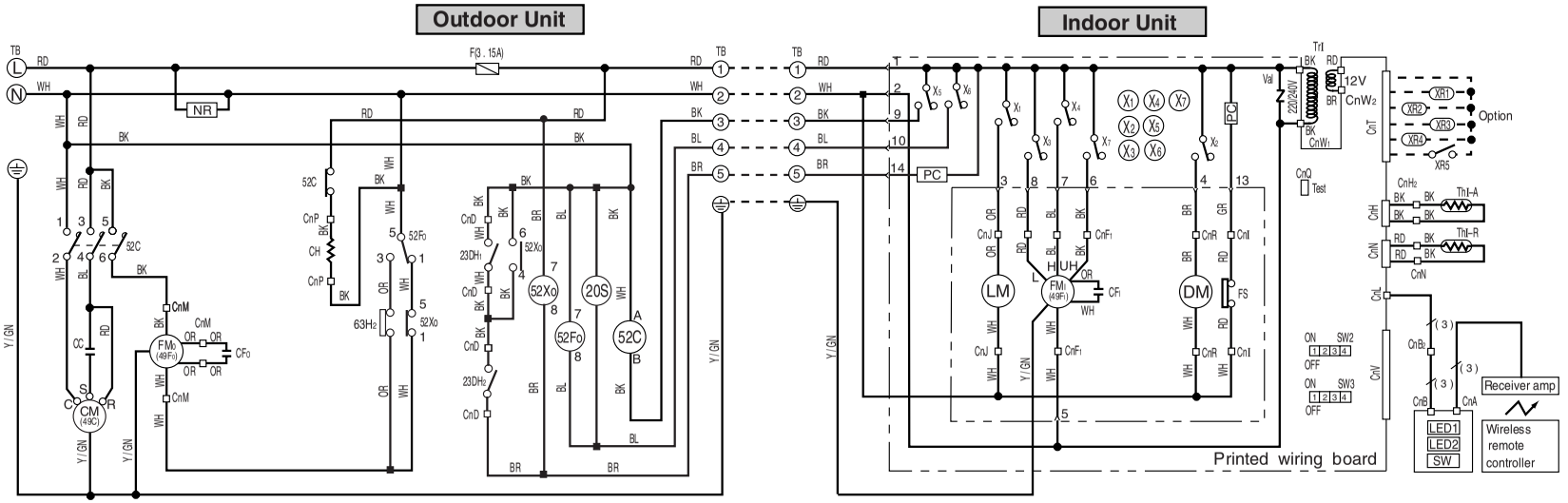
Meaning o sf marks

Mark	Parts name	Mark	Parts name
CFI	Capacitor for FMI	**Tho-A**	Thermistor
CFO1,2	Capacitor for FMO	**Tho-D**	Thermistor
CH	Crankcase heater	**Tho-R**	Thermistor
CM	Compressor motor	**TrI**	Transformer (Indoor unit)
CnA ~ Z	Connector (□ mark)	**Tro**	Transformer (Outdoor unit)
CT1,2	Current sensor	**Val**	Varistor
F	Fuse	**Vao**	Varistor
FMI	Fan motor (Indoor unit)	**20S**	4-way valve solenoid
FMO1,2	Fan motor (Outdoor unit)	**49FI**	Internal thermostat for FMI
LM	Louver motor	**49FO1,2**	Internal thermostat for FMo
NR	Surge suppressor	**52C**	Magnetic contactor for CM
DM	Drain motor	**X1~7**	Auxiliary relay
FS	Float switch	**X01~08**	Auxiliary relay
PC	Photo coupler	**63H1**	High pressure switch (for protection)
SV1,2	Solenoid coil (for control)	**63H2**	High pressure switch (for control)
SW	Switch (ON/OFF)	◁	Terminal (F)
SW2,3	Changeover switch	■	Connector
TB	Terminal block (○ mark)	**LED-G**	Indication lamp (Green)
ThI-A	Thermistor	**LED-R**	Indication lamp (Red)
ThI-R	Thermistor		

Color mark

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

Power source
FDTN258HEN-A
1 Phase 220/240V 50Hz
FDTN258HEP-A
1 Phase 220V 60Hz



Meaning of marks

Mark	Parts name	Mark	Parts name
CC	Capacitor for CM	**Thl-A**	Thermistor
CFI	Capacitor for FMI	**Thl-R**	Thermistor
CFo	Capacitor for FMo	**Trl**	Transformer
CH	Crankcase heater	**Val**	Varistor
CM	Compressor motor	**20S**	4-way valve solenoid
CnA ~ W	Connector (□ mark)	**23DH**	Thermostat (deicer)
DM	Drain motor	**49C**	Internal thermostat for CM
F	Fuse	**49FI**	Internal thermostat for FMI
FMI	Fan motor (Indoor unit)	**49Fo**	Internal thermostat for FMo
FMo	Fan motor (Outdoor unit)	**52C**	Magnetic contactor for CM
FS	Float switch	**52Fo**	Relay for FMo
LED1	Indication lamp (Green - Run)	**52Xo**	Relay for fan control
LED2	Indication lamp (Yellow - Timer/Check)	**X1~7**	Auxiliary relay
LM	Louver motor	**63H2**	High pressure switch (for control)
LS	Limit switch	◁	Terminal (F)
NR	Surge suppressor	■	Connector
PC	Photo coupler		
SW	Switch (ON/OFF)		
SW2, 3	Changeover switch		
TB	Terminal block (◯ mark)		

Color mark

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

11.4 OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

This is same as FDUR heat pump series. Refer to page 306.

11.5 APPLICATION DATA

SAFETY PRECAUTIONS

- Please read these "Safety Precautions" first then accurately execute the installation work.
- Though the precautionary points indicated herein are divided under two headings. ⚠WARNING and ⚠CAUTION, those points which are related to the strong possibility of an installation done in error resulting in death or serious injury are listed in the ⚠WARNING section. However, there is also a possibility of serious consequences in relationship to the points listed in the ⚠CAUTION section as well.
  In either case, important safety related information is indicated, so by all means, properly observe all that is mentioned.
- After completing the installation, along with confirming that no abnormalities were seen from the operation tests, please explain operating methods as well as maintenance methods to the user (customer) of this equipment, based on the owner's manual.
  Moreover, ask the customer to keep this sheet together with the owner's manual.

⚠WARNING

- This system should be applied to places of office, restaurant, residence and the like. Application to inferior environment such as engineering shop could cause equipment malfunction.
- Please entrust installation to either the company which sold you the equipment or to a professional contractor. Defects from improper installations can be the cause of water leakage, electric shocks and fires.
- Execute the installation accurately, based on following the installation manual. Again, improper installations can result in water leakage, electric shocks and fires.
- When a large air-conditioning system is installed to a small room, it is necessary to have a prior planned countermeasure for the rare case of a refrigerant leakage, to prevent the exceeding of threshold concentration. In regards to preparing this countermeasure, consult with the company from which you perchased the equipment, and make the installation accordingly. In the rare event that a refrigerant leakage and exceeding of threshold concentration does occur, there is the danger of a resultant oxygen deficiency accident.
- For installation, confirm that the installation site can sufficiently support heavy weight. When strength is insufficient, injury can result from a falling of the unit.
- Execute the prescribed installation construction to prepare for earthquakes and the strong winds of typhoons and hurricanes, etc. Improper installations can result in accidents due to a violent falling over of the unit.
- For electrical work, please see that a licensed electrician executes the work while following the safety standards related to electrical equipment, and local regulations as well as the installation instructions, and that only exclusive use circuits are used.
  Insufficient power source circuit capacity and defective installment execution can be the cause of electric shocks and fires.
- Accurately connect wiring using the proper cable, and insure that the external force of the cable is not conducted to the terminal connection part, through properly securing it. Improper connection or securing can result in heat generation or fire.
- Take care that wiring does not rise upward, and accurately install the lid/service panel. Its improper installation can also result in heat generation or fire.
- When setting up or moving the location of the air-conditioner, do not mix air etc. or anything other than the designated refrigerant within the refrigeration cycle.
  Rupture and injury caused by abnormal high pressure can result from such mixing.
- Always use accessory parts and authorized parts for installation construction. Using parts not authorized by this company can result in water leakage, electric shock, fire and refrigerant leakage.

⚠CAUTION

- Execute proper grounding. Do not connect the ground wire to a gas pipe, water pipe, lightning rod or a telephone ground wire. Improper placement of ground wires can result in electric shock.
- The installation of an earth leakage breaker is necessary depending on the established location of the unit. Not installing an earth leakage breaker may result in electric shock.
- Do not install the unit where there is a concern about leakage of combustible gas.
  The rare event of leaked gas collecting around the unit could result in an outbreak of fire.
- For the drain pipe, follow the installation manual to insure that it allows proper drainage and thermally insulate it to prevent condensation. Inadequate plumbing can result in water leakage and water damage to interior items.

11.5.1 Installation of indoor unit

⚠NOTICE

All Wiring of this installation must comply with NATIONAL, STATE AND LOCAL REGULATIONS. These instructions do not cover all variations for every kind of installation circumstance. Should further information be desired or should particular problems occur, the matter should be referred to Mitsubishi Heavy Industries, Ltd. through your local distributor.

⚠WARNING

BE SURE TO READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH, EQUIPMENT MALFUNCTION AND/OR PROPERTY DAMAGE.

(1) Selection of installation location

(a) Select location where the space above ceiling is larger than those mentioned below and perfect draining can be assured.

(b) Places where perfect drainage can be prepared and sufficient drainage gradient is available.

(c) Places free from air distrubances to the air inlet and outlet of the indoor unit.

(d) laces with the environmental dew-point temperature is lower than 28°C and the relative humidity is less than 80%.(When installing at a place under a high humidity environment, pay sufficient attention to prevention of dewing such as thermally insulating the unit properly.)

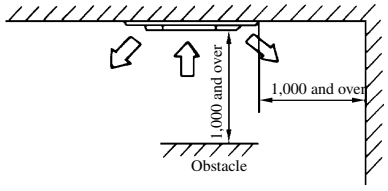
(e) Do not place where the unit is exposed to oil splashes or steam (e.g. kitchens and machine plants). (Installation and use at such places will causes the performance drop, corrosion in the heat exchanger and damage in molded synthetic resin parts.)

(f) Do not place where corrosive gas (such as sulfurous acid gas) or inflammable gas (thinner, gasoline, etc.) is generated or remains. Installation and use at such places will cause corrosion in the heat exchanger and damage in molded synthetic resin parts.

(g) Do not place adjacent to equipment generating electromagnetic waves or high-frequency waves such as in hospitals,
Generated noise may cause malfunctioning of the controller.

Model	Space above ceiling
258, 308	Over 270 mm
408, 508	Over 330 mm

● **Installation space** (mm)



(2) Preparation for installation

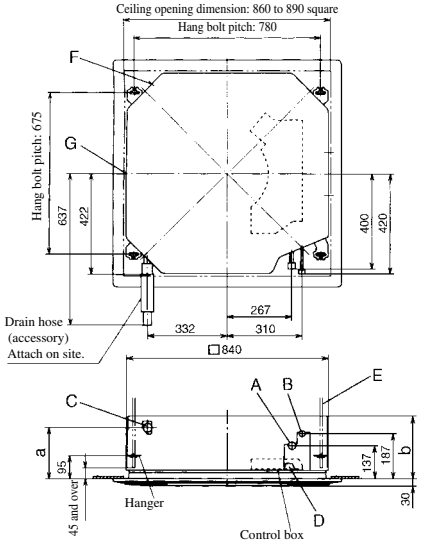
(a) Ceiling hole size and Position of suspension bolts.

1) The pattern sheet may shrink or expand as humidity changes, so check the actual size before use.

2) The size of ceiling opening can be adjusted within the range shown below. Bring the unit body to the ceiling opening right in the center so as not to be set aside and so that space between a ceiling opening end and the outside of the unit body becomes equal to that on the opposite side.

3) The size of the pattern sheet equals to the maximum size of the square ceiling opening.

(b) Location of Pipes
For the location of pipe, see the exterior dimension.



FDT(N) 258~508

A	Gas refrigerant piping
B	Liquid refrigerant piping
C	Drain piping connecting hole
D	Power intake hole
E	Hang bolt
F	Outside air intake hole
G	Supply air branch duct connecting hole

Unit: mm

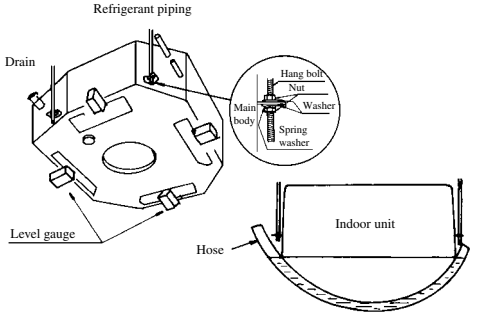
Model	a	b
258, 308	210	260
408, 508	270	320

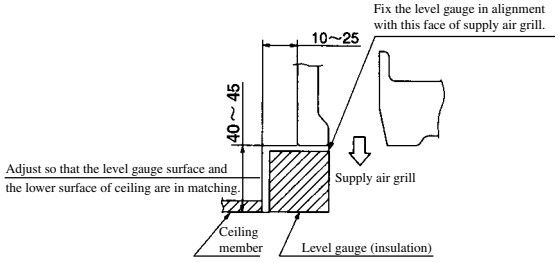
(3) Hanging

- Arrange four sets of a hang bolt (M10 or M8) , a nut for it, a plain washer and a spring washer on site.

When there is the ceiling

1. Make an 860 to 890 mm-square cutout on the ceiling.
   Refer to the outside dimensions of packing cardboard container.
   ▶ Align the center of ceiling cutout and the center of unit.
2. Decide the hang bolt position 675×780 in the case of FDT(N) 258 ~ 508.
3. Use four hang bolts and fix them so that each bolt can resist the pull out load of 50kgf.
4. Decide the length of hang bolt to approx. 70mm above the ceiling surface.
5. After hanging in the unit, fix the attached level gauge and secure the height of unit.
6. Use a transparent hose filled with water to check the levelness of unit. (The maximum allowable height difference between both ends of unit is 3mm.)

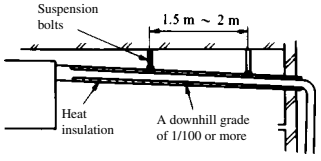




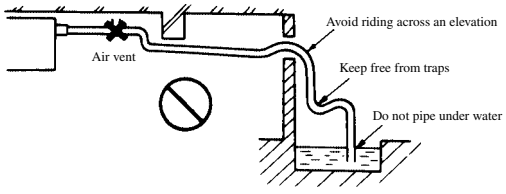
(4) Drain Piping

(a) Drain piping should always be in a downhili grade (1/50~1/100) and avoid riding across and elevation or making traps.

● Good piping



● Improper piping



(b) When connecting the drain pipe to unit, pay sufficient attention not to apply excess force to the piping on the unit side. Also, fix the piping at a point as close as possible to the unit.

(c) For drain pipe, use hard PVC general purpose pipe VP-25 (I.D.1") which can be purchased locally. When connecting, insert a PVC pipe end securely into the drain socket before tightening securely using the attached drain hose and clamp. Adhesive must not be used connection of the drain socket and drain hose (accessory).

(d) When consturcting drain piping for several units, position the common pipe about 100 mm below the drain outlet of each unit as shown in the sketch. Use VP-30 (11/4") or thicker pipe for this purpose.

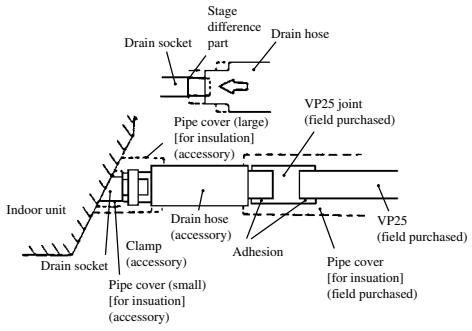
(e) Be sure to provide heat insulation to hard PVC pipes of indoor placement.

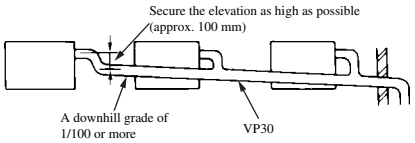
(f) Do not ever provide an air vent.

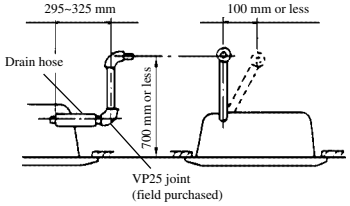
(g) The height of the drain head can be elevated up to a point 700 mm ablve the ceiling and, when an obstacle exists in the ceiling space, elevate the piping to avoid the obstacle using an elbow or corresponding gadget. When doing this, if the stretch for the needed height is too high, the back-flow quantity of drain at the event of interruption of the operation gets too much and it may cause overflow at the drain pan. Therefore, make the height of the drain pipe within the distance given in the sketeh below.

(h) Avoid positioning the drain piping outlet at a place where generation of odor may be stimulated. Do not lead the drain piping direct into a sewer from where sulfur gas may generate.

(i) The purpose of drain hose is to absorb minute discrepancy of the unit or the drain piping occurred when they are installed. Therefore, when it is bent intentionally or used under expanded condition, it may be damaged and result in water leakage.







Drainage Test

① Conduct a drainage test after completion of the electrical work.

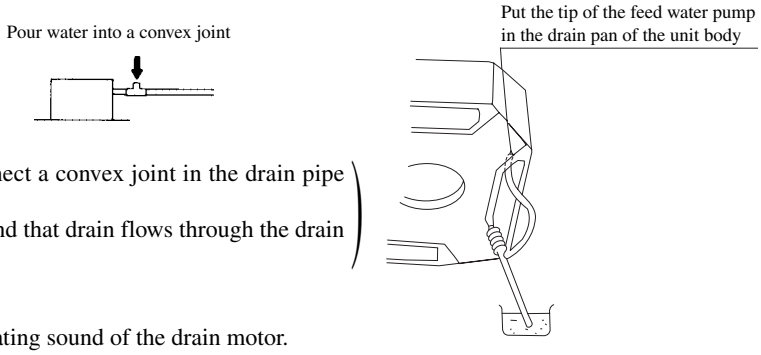
② During the trial, make sure that drain flows properly through the piping and that no water leaks from connections.

③ In case of a new building, conduct the test before it is furnished with the ceiling.

④ Be sure to conduct this test even when the unit is installed in the heating season.

Procedures

① Supply about 1000 cc of water to the unit through the air outlet by using a feed water pump.



If the electrical work has not been completed, connect a convex joint in the drain pipe connection to provide a water inlet.
Then, check if water leaks from the piping system and that drain flows through the drain pipe normally.

② Check at the exhaust port if drain is flowing.

(Note) Conduct this test paying attention to rotating sound of the drain motor.

③ Remove the drain plug located on the bottom of the drain pan when the water has to be evacuated from the unit.

④ After the test, fit the drain plug to the original place and turn off the power source.

(5) Fixing of Decorative Panel (The panel fixing bolts are attached on the panel.)

(a) Check with the accessory level gauges that the indoor unit height and the size of ceiling hole are correct.

- Remove the level gauges from the indoor unit before fixing the decorative panel.

(b) Screw two bolts out of four accessory bolts less than 5 mm in the indoor unit diagonally.

(c) Hang the panel on the two bolts and fix them temporarily.

(d) Tighten the bolts fixed temporarily and the ramaining two bolts.

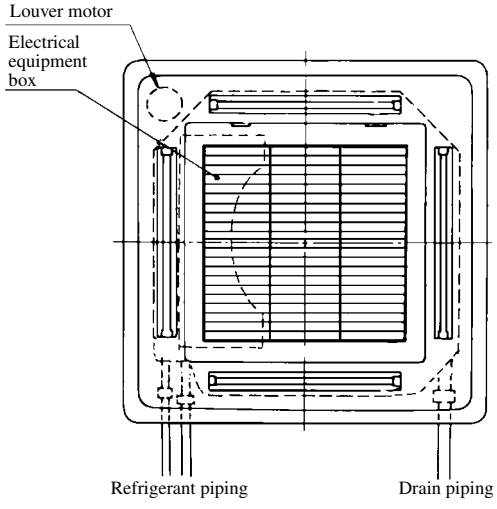
Screw the remaining two bolts, and tighten all (four) bolts.

(e) Connect the louver motor connector (red) to the panel respectively.

(f) If the louver motor is not operated by remote control, check if the connector is connected correctly, and turn off the power for more then 10 seconds, then reset it.

Panel Joint Setting

- The panel can turn 30 mm to the left and to the right in all, and the indoor unit turns 30 mm to the left and to the right in all in the case of FDT(N)258~508.



Limit Fixing Panel

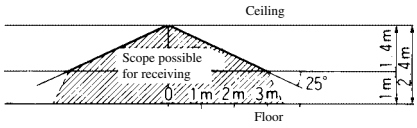
① Fix the panel only in the direction shown in the figure.

② If it is fixed in other way, air will leak. Also, wires cannot be connected for auto swing and receiver amp.

(6) Cautions for wireless remote conntroller operation

As wireless remote controller is operated by infrared rays as a signal, make sure to explain to customers the following matters regarding the operating distance and protection from jamming.

- Operate it by directing the remote controller switch correctly to the receiver amp section.
- Operating distance is shown below, but it may become shorter or longer depending on circumstances.
- When its receiving section is directly under the sun or strong illumination, or covered by dust or behind an obstacle, the operating distance may become shorter or it may not work.
- A hook for fixing the remote controller is provided for to keep the controller from missing.



(a) Operating distance of wireless remote controller

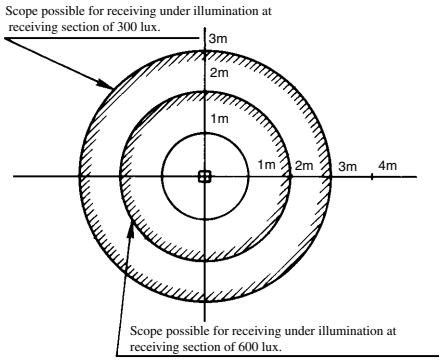
Operate it within the distance and angle shown in the sketch.

1) Standard receiving distance

CONDITION: 300 luxes at the receiving section (at an ordinary office where there is no ceiling light within one meter around the unit.

2) The receiving distance as viewd from the plane, and the relation between the illumination at the receiving section and receiving distance.

CONDITION: The relation between illumination and receiving distance when the remote controller is operated at the place one meter above the floor with the ceiling 2.4 m high. When the illumination is doubled, the receiving distance become 2.3.



By switching the dip switch (SW3-3) on the indoor unit printed circuit board ("Specify the following switch number."), the operation mode can be changed to the quiet mode (mild mode). Confirm at installation and change if necessary.

11.5.2 Installation of remote controller

This is same as FDUR heat pump series. Refer to page 329.

11.5.3 Installation of outdoor unit

This is same as FDUR heat pump series. Refer to page 330.

11.6 MAINTENANCE DATA

This is same as FDUR heat pump series. Refer to page 340.

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