

# TECHNICAL DATA & SERVICE MANUAL

## PACKAGE Air Conditioner

### DC Inverter R410A

#### ■ R410A Models Indoor Units

	Indoor Unit Type	12	16	18	25	36	48
CAFP*	4-Way Air Discharge Semi-Concealed	CAFP 124 R	CAFP 164 R	CAFP 184 R	CAFP 254 R	CAFP 364 R	CAFP 484 R
MAFP	Wall-Mounted	MAFP 125 R	MAFP 165 R	MAFP 185 R	MAFP 255 R		
SPAFP	Ceiling-Mounted	SPAFP 124 R	SPAFP 164 R	SPAFP 184 R	SPAFP 255 R	SPAFP 365 R	SPAFP 485 R
DSAFP	Concealed-Duct	DSAFP 124 R	DSAFP 164 R	DSAFP 184 R	DSAFP 255 R	DSAFP 365 R	DSAFP 485 R

\* For this type of Indoor unit (CAFP), please see the Installation Instructions accompanying the unit



#### Outdoor Units

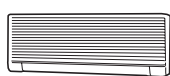
GRFP	Outdoor Units	GRFP 255 R, GRFP 365 R, GRFP 485 R
		GRFP 255 L, GRFP 365 L, GRFP 485 L

Refrigerant R410A is used in the outdoor units.

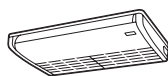
#### Indoor Unit



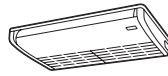
MAFP125R  
MAFP165R  
MAFP185R



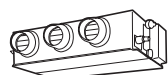
MAFP255R



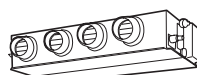
SPAFP255R



SPAFP365R  
SPAFP485R

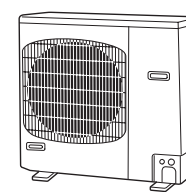


DSAFP255R

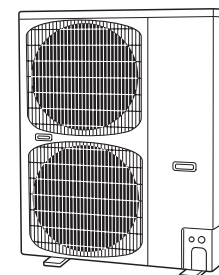


DSAFP365R  
DSAFP485R

#### Outdoor Unit



GRFP255L  
GRFP255R  
GRFP365L  
GRFP365R



GRFP485L  
GRFP485R

# CONTENTS

<b>Section 1:</b>	<b>SPECIFICATIONS</b>	<b>1 - 1</b>
	1-1. Unit Specifications	1 - 2
	1-2. Major Component Specifications	1 - 30
	1-3. Other Component Specifications	1 - 45
	1-4. Dimensional Data	1 - 54
	1-5. Refrigerant Flow Diagram	1 - 61
	1-6. Operating Range	1 - 62
	1-7. Capacity Correction Graph According to Temperature Condition	1 - 63
	1-8. Noise Criterion Curves	1 - 64
	1-9. Indoor Fan Performance	1 - 68
	1-10. Air Throw Distance Chart	1 - 69
	1-11. Installation Instructions	1 - 71
<b>Section 2:</b>	<b>PROCESS AND FUNCTIONS</b>	<b>2 - 1</b>
	2-1. Control Functions	2 - 2
	2-2. Outdoor Unit Control PCB	2 - 5
	2-3. Indoor Unit Control PCB Switches and Functions	2 - 9
<b>Section 3:</b>	<b>ELECTRICAL DATA</b>	<b>3 - 1</b>
	3-1. Indoor Units (Electric Wiring Diagram, Schematic Diagram)	3 - 2
	3-2. Outdoor Units (Electric Wiring Diagram, Schematic Diagram)	3 - 6
<b>Section 4:</b>	<b>SERVICE PROCEDURES</b>	<b>4 - 1</b>
	4-1. Meaning of Alarm Messages	4 - 2
	4-2. LED Indicator Messages on Outdoor Control PCB	4 - 4
	4-3. Symptoms and Parts to Inspect	4 - 5
	4-4. Details of Alarm Messages	4 - 8
	4-5. Table of Thermistor Characteristics	4 - 14
<b>Section 5:</b>	<b>OUTDOOR UNIT MAINTENANCE REMOTE CONTROL (ACC • CH80UI)</b>	<b>5 - 1</b>
	5-1. Overview	5 - 2
	5-2. Functions	5 - 2
	5-3. Normal Display Operations and Functions	5 - 3
	5-4. Monitoring Operations: Display of Indoor Unit and Outdoor Unit Sensor Temperatures	5 - 6
	5-5. Monitoring the Outdoor Unit Alarm History: Display of Outdoor Unit Alarm History	5 - 7
	5-6. Settings Modes: Setting of Outdoor Unit EEPROM	5 - 7

# 1. SPECIFICATIONS

<b>1-1. Unit Specifications</b> .....	1 - 2
Wall-Mounted Type .....	1 - 2
Ceiling-Mounted Type .....	1 - 14
Concealed-Duct Type .....	1 - 22
<b>1-2. Major Component Specifications</b> .....	1 - 30
(A) Indoor Units .....	1 - 30
(B) Outdoor Units .....	1 - 39
<b>1-3. Other Component Specifications</b> .....	1 - 45
Wall-Mounted Type .....	1 - 45
Ceiling-Mounted Type .....	1 - 46
Concealed-Duct Type .....	1 - 47
Outdoor Units .....	1 - 48
<b>1-4. Dimensional Data</b> .....	1 - 54
(A) Indoor Units .....	1 - 54
Wall-Mounted Type .....	1 - 54
Ceiling-Mounted Type .....	1 - 55
Concealed-Duct Type .....	1 - 56
Flange for Air Intake Duct .....	1 - 58
(B) Outdoor Units .....	1 - 59
<b>1-5. Refrigerant Flow Diagram</b> .....	1 - 61
<b>1-6. Operating Range</b> .....	1 - 62
<b>1-7. Capacity Correction Graph According to Temperature Condition</b> .....	1 - 63
<b>1-8. Noise Criterion Curves</b> .....	1 - 64
<b>1-9. Indoor Fan Performance</b> .....	1 - 68
<b>1-10. Air Throw Distance Chart</b> .....	1 - 69
<b>1-11. Installation instructions</b> .....	1 - 71
Tubing Size .....	1 - 71
Selecting the Installation Site .....	1 - 75
Electrical Wiring .....	1 - 77

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP125Rx 2 / GRFP255L

MODEL No.	Indoor Unit		MAFP125Rx 2		
	Outdoor Unit		GRFP255L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		7.1 [2.2~8.0]		
	BTU/h		24,000 [7,500~27,000]		
Air circulation (Hi/Me/Lo)	m3/h		1,440/1,200/840 (720/600/420x2)		
Moisture removal (High)	Liters/h		3.8 (1.9x2)		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		13.3	12.8	12.3
Max-Running amperes**	A				
Power input	kW		2.37	2.38	2.38
C.O.P	W/W		3.00	2.98	2.98
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			Automatic (Remote control)		
Air filter			Washable, easy access		
Remote controller (Option)			Wired : REM HW	Wireless : REM HLAWS	
Refrigerant control			-		
Drain pump (Drain connection)			(13A , OD18mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	35/31/27		
	Outdoor - Hi	dB - A	47		
Color (Approximate value)	Indoor		Munsell 3.0Y8.6/0.8		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length	m (ft.)		50 (164)		
Limit of tubing length at shipment	m (ft.)		3~30 (10~98)		
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	6.35 (1/4)		
	Wide tube	mm (in.)	12.7 (1/2)		
Refrigerant amount at shipment	kg		R410A - 1.9		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit	Outdoor unit	
Unit dimensions	Height	mm (in.)	285 (11-7/32)	780 (30-23/32)	
	Width	mm (in.)	995 (39-6/32)	940 (37)	
	Depth	mm (in.)	203 (8)	340 (13- 3 /8)	
Package dimensions	Height	mm (in.)	347 (13-21/32)	888 (34-31/32)	
	Width	mm (in.)	1,065 (41-30/32)	1015 (39-31/32)	
	Depth	mm (in.)	260 (10-8/32)	409 (16-3/ 32)	
Net weight	kg (lb.)		12 (27)	58 (128)	
Shipping weight	kg (lb.)		15 (33)	67 (148)	
Shipping volume	m <sup>3</sup> (cu. Ft)		0.096 (3.4)	0.369 (13.0)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP125Rx 2 / GRFP255R

MODEL No.	Indoor Unit		MAFP125Rx 2					
	Outdoor Unit		GRFP255R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]	kW		7.1 [2.2~8.0]			8.0 [2.2~9.0]		
	BTU/h		24,000 [7,500~27,000]			27,000 [7,500~30,000]		
Air circulation (Hi/Me/Lo)	m3/h		1,440/1,200/840 (720/600/420x2)					
Moisture removal (High)	Liters/h		3.8 (1.9x2)			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating	V		220	230	240	220	230	240
Available voltage range	V		198 - 264			198 - 264		
Running amperes*	A		13.3	12.8	12.3	12.8	12.3	11.8
Max-Running amperes**	A							
Power input	kW		2.37	2.38	2.38	2.27	2.28	2.28
C.O.P	W/W		3.00	2.98	2.98	3.52	3.51	3.51
Max. Starting amperes	A							
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			Automatic (Remote control)					
Air filter			Washable, easy access					
Remote controller (Option)			Wired : REM HW			Wireless : REM HLAWS		
Refrigerant control			-					
Drain pump (Drain connection)			(13A , OD18mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	35/31/27					
	Outdoor - Hi	dB - A	47/49					
Color (Approximate value)	Indoor		Munsell 3.0Y8.6/0.8					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length	m (ft.)		50 (164)					
Limit of tubing length at shipment	m (ft.)		3~30 (10~98)					
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	6.35 (1/4)					
	Wide tube	mm (in.)	12.7 (1/2)					
Refrigerant amount at shipment	kg		R410A - 1.9					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	285 (11-7/32)			780 (30-23/32)		
	Width	mm (in.)	995 (39-6/32)			940 (37)		
	Depth	mm (in.)	203 (8)			340 (13- 3 /8)		
Package dimensions	Height	mm (in.)	347 (13-21/32)			888 (34-31/32)		
	Width	mm (in.)	1,065 (41-30/32)			1015 (39-31/32)		
	Depth	mm (in.)	260 (10-8/32)			409 (16-3/ 32)		
Net weight	kg (lb.)		12 (27)			58 (128)		
Shipping weight	kg (lb.)		15 (33)			67 (148)		
Shipping volume	m <sup>3</sup> (cu. Ft)		0.096 (3.4)			0.369 (13.0)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP125Rx4/ GRFP485L

MODEL No.	Indoor Unit		MAFP125Rx4		
	Outdoor Unit		GRFP485L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]		
	BTU/h		42,500 [9,200~48,000]		
Air circulation (Hi/Me/Lo)	m3/h		2,880/2,400/1,680 (720/600/420x4)		
Moisture removal (High)	Liters/h		7.6 (1.9x4)		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		21.2	20.3	19.5
Max-Running amperes**	A				
Power input	kW		4.15	4.16	4.17
C.O.P	W/W		3.01	3.00	3.00
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			Automatic (Remote control)		
Air filter			Washable, easy access		
Remote controller (Option)			Wired : REM HW	Wireless : REM HLAWS	
Refrigerant control			-		
Drain pump (Drain connection)			(13A , OD18mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	35/31/27		
	Outdoor - Hi	dB - A	52		
Color (Approximate value)	Indoor		Munsell 3.0Y8.6/0.8		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length	m (ft.)		50 (164)		
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)		
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	6.35 (1/4)		
	Wide tube	mm (in.)	12.7 (1/2)		
Refrigerant amount at shipment	kg		R410A - 3.6		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit		Outdoor unit
Unit dimensions	Height	mm (in.)	285 (11-7/32)		1230 (48- 7/16)
	Width	mm (in.)	995 (39-6/32)		940 (37)
	Depth	mm (in.)	203 (8)		340 (13-3 /8)
Package dimensions	Height	mm (in.)	347 (13-21/32)		1330 (52-3 /8)
	Width	mm (in.)	1,065 (41-30/32)		1015 (39-31/32)
	Depth	mm (in.)	260 (10-8/32)		409 (16-3/32)
Net weight	kg (lb.)		12 (27)		100 (220)
Shipping weight	kg (lb.)		15 (33)		109 (240)
Shipping volume	m <sup>3</sup> (cu. Ft)		0.096 (3.4)		0.552 (19.5)

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP125Rx4 / GRFP485R

MODEL No.	Indoor Unit		MAFP125Rx4					
	Outdoor Unit		GRFP485R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]			14.0 [2.7~16.0]		
	BTU/h		42,500 [9,200~48,000]			48,000 [9,200~54,500]		
Air circulation (Hi/Me/Lo)		m <sup>3</sup> /h	2,880/2,400/1,680 (720/600/420x4)					
Moisture removal (High)		Liters/h	7.6 (1.9x4)			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating		V	220	230	240	220	230	240
Available voltage range		V	198 - 264			198 - 264		
Running amperes*		A	21.2	20.3	19.5	21.0	20.0	19.2
Max-Running amperes**		A						
Power input		kW	4.15	4.16	4.17	4.11	4.11	4.12
C.O.P		W/W	3.01	3.00	3.00	3.41	3.41	3.40
Max. Starting amperes		A						
<b>FEATURES</b>								
Controls/Thermostat control		Microprocessor/I.C.thermostat						
Timer		ON/OFF 72-hours						
Fan speeds Indoor/Outdoor		3 and Automatic control/Variable						
Airflow direction (Indoor)		Automatic (Remote control)						
Air filter		Washable, easy access						
Remote controller (Option)		Wired : REM HW			Wireless : REM HLAWS			
Refrigerant control		-						
Drain pump (Drain connection)		(13A , OD18mm)						
Compressor		Rotary(SANYO)						
Operation sound	Indoor - Hi/Me/Lo	dB - A	35/31/27					
	Outdoor - Hi	dB - A	52/53					
Color (Approximate value)	Indoor	Munsell 3.0Y8.6/0.8						
	Outdoor	Munsell 1Y 8.5/0.5						
<b>REFRIGERANT TUBING</b>								
Limit of tubing length		m (ft.)	50 (164)					
Limit of tubing length at shipment		m (ft.)	5~30 (16~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	6.35 (1/4)					
	Wide tube	mm (in.)	12.7 (1/2)					
Refrigerant amount at shipment		kg	R410A - 3.6					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	285 (11-7/32)			1230 (48- 7/16)		
	Width	mm (in.)	995 (39-6/32)			940 (37)		
	Depth	mm (in.)	203 (8)			340 (13-3 /8)		
Package dimensions	Height	mm (in.)	347 (13-21/32)			1330 (52-3 /8)		
	Width	mm (in.)	1,065 (41-30/32)			1015 (39-31/32)		
	Depth	mm (in.)	260 (10-8/32)			409 (16-3/32)		
Net weight		kg (lb.)	12 (27)			100 (220)		
Shipping weight		kg (lb.)	15 (33)			109 (240)		
Shipping volume		m <sup>3</sup> (cu. Ft)	0.096 (3.4)			0.552 (19.5)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP165Rx3/ GRFP485L

MODEL No.	Indoor Unit		MAFP165Rx3		
	Outdoor Unit		GRFP485L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]		
	BTU/h		42,500 [9,200~48,000]		
Air circulation (Hi/Me/Lo)	m3/h		2,160/1,800/1,260 (720/600/420x3)		
Moisture removal (High)	Liters/h		5.7 (1.9x3)		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		21.0	20.1	19.4
Max-Running amperes**	A				
Power input	kW		4.12	4.13	4.14
C.O.P	W/W		3.03	3.03	3.02
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			Automatic (Remote control)		
Air filter			Washable, easy access		
Remote controller (Option)			Wired : REM HW	Wireless : REM HLAWS	
Refrigerant control			-		
Drain pump (Drain connection)			(13A , OD18mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	35/31/27		
	Outdoor - Hi	dB - A	52		
Color (Approximate value)	Indoor		Munsell 3.0Y8.6/0.8		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length	m (ft.)		50 (164)		
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)		
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	6.35 (1/4)		
	Wide tube	mm (in.)	12.7 (1/2)		
Refrigerant amount at shipment	kg		R410A - 3.6		
<b>DIMENSIONS &amp; WEIGHT</b>					
Unit dimensions	Height	mm (in.)	285 (11-7/32)	1230 (48- 7/16)	
	Width	mm (in.)	995 (39-6/32)	940 (37)	
	Depth	mm (in.)	203 (8)	340 (13-3 /8)	
Package dimensions	Height	mm (in.)	347 (13-21/32)	1330 (52-3 /8)	
	Width	mm (in.)	1,065 (41-30/32)	1015 (39-31/32)	
	Depth	mm (in.)	260 (10-8/32)	409 (16-3/32)	
Net weight	kg (lb.)		12 (27)	100 (220)	
Shipping weight	kg (lb.)		15 (33)	109 (240)	
Shipping volume	m <sup>3</sup> (cu. Ft)		0.096 (3.4)	0.552 (19.5)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP165Rx3/ GRFP485R

MODEL No.	Indoor Unit		MAFP165Rx3					
	Outdoor Unit		GRFP485R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]			14.0 [2.7~16.0]		
	BTU/h		42,500 [9,200~48,000]			48,000 [9,200~54,500]		
Air circulation (Hi/Me/Lo)		m <sup>3</sup> /h	2,160/1,800/1,260 (720/600/420x3)					
Moisture removal (High)		Liters/h	5.7 (1.9x3)			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating		V	220	230	240	220	230	240
Available voltage range		V	198 - 264			198 - 264		
Running amperes*		A	21.0	20.1	19.4	20.8	19.8	19.1
Max-Running amperes**		A						
Power input		kW	4.12	4.13	4.14	4.08	4.08	4.09
C.O.P		W/W	3.03	3.03	3.02	3.43	3.43	3.42
Max. Starting amperes		A						
<b>FEATURES</b>								
Controls/Thermostat control		Microprocessor/I.C.thermostat						
Timer		ON/OFF 72-hours						
Fan speeds Indoor/Outdoor		3 and Automatic control/Variable						
Airflow direction (Indoor)		Automatic (Remote control)						
Air filter		Washable, easy access						
Remote controller (Option)		Wired : REM HW			Wireless : REM HLAWs			
Refrigerant control		-						
Drain pump (Drain connection)		(13A , OD18mm)						
Compressor		Rotary(SANYO)						
Operation sound	Indoor - Hi/Me/Lo	dB - A	35/31/27					
	Outdoor - Hi	dB - A	52/53					
Color (Approximate value)	Indoor		Munsell 3.0Y8.6/0.8					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length		m (ft.)	50 (164)					
Limit of tubing length at shipment		m (ft.)	5~30 (16~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	6.35 (1/4)					
	Wide tube	mm (in.)	12.7 (1/2)					
Refrigerant amount at shipment		kg	R410A - 3.6					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	285 (11-7/32)			1230 (48- 7/16)		
	Width	mm (in.)	995 (39-6/32)			940 (37)		
	Depth	mm (in.)	203 (8)			340 (13-3 /8)		
Package dimensions	Height	mm (in.)	347 (13-21/32)			1330 (52-3 /8)		
	Width	mm (in.)	1,065 (41-30/32)			1015 (39-31/32)		
	Depth	mm (in.)	260 (10-8/32)			409 (16-3/32)		
Net weight		kg (lb.)	12 (27)			100 (220)		
Shipping weight		kg (lb.)	15 (33)			109 (240)		
Shipping volume		m <sup>3</sup> (cu. Ft)	0.096 (3.4)			0.552 (19.5)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP185Rx2/ GRFP365L

MODEL No.	Indoor Unit		MAFP185Rx2		
	Outdoor Unit		GRFP365L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		10.0 [2.2~11.2]		
	BTU/h		34,000 [7,500~38,000]		
Air circulation (Hi/Me/Lo)	m3/h		1,560/1,320/960 (780/660/480x2)		
Moisture removal (High)	Liters/h		4.2 (2.1x2)		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		16.8	16.0	15.3
Max-Running amperes**	A				
Power input	kW		3.28	3.29	3.29
C.O.P	W/W		3.05	3.04	3.04
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control		Microprocessor/I.C.thermostat			
Timer		ON/OFF 72-hours			
Fan speeds Indoor/Outdoor		3 and Automatic control/Variable			
Airflow direction (Indoor)		Automatic (Remote control)			
Air filter		Washable, easy access			
Remote controller (Option)		Wired : REM HW		Wireless : REM HLAWS	
Refrigerant control		-			
Drain pump (Drain connection)		(13A , OD18mm)			
Compressor		Rotary(SANYO)			
Operation sound	Indoor - Hi/Me/Lo	dB - A	38/34/30		
	Outdoor - Hi	dB - A	51		
Color (Approximate value)	Indoor		Munsell 3.0Y8.6/0.8		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length		m (ft.)	50 (164)		
Limit of tubing length at shipment		m (ft.)	5~30 (16~98)		
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	6.35 (1/4)		
	Wide tube	mm (in.)	12.7 (1/2)		
Refrigerant amount at shipment		kg	R410A - 2.8		
<b>DIMENSIONS &amp; WEIGHT</b>					
Unit dimensions	Height	mm (in.)	285 (11-7/32)		780 (30-23/32)
	Width	mm (in.)	995 (39-6/32)		940 (37)
	Depth	mm (in.)	203 (8)		340 (13-3/8)
Package dimensions	Height	mm (in.)	347 (13-21/32)		888 (34-31/32)
	Width	mm (in.)	1,065 (41-30/32)		1015 (39-31/32)
	Depth	mm (in.)	260 (10-8/32)		409 (16-3/32)
Net weight		kg (lb.)	12 (27)		65 (143)
Shipping weight		kg (lb.)	15 (33)		73 (161)
Shipping volume		m <sup>3</sup> (cu. Ft)	0.096 (3.4)		0.369 (13.0)

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP185Rx2/ GRFP365R

MODEL No.	Indoor Unit		MAFP185Rx2					
	Outdoor Unit		GRFP365R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]		kW	10.0 [2.2~11.2]			11.2 [2.2~12.5]		
		BTU/h	34,000 [7,500~38,000]			38,000 [7,500~42,500]		
Air circulation (Hi/Me/Lo)		m3/h	1,560/1,320/960 (780/660/480x2)					
Moisture removal (High)		Liters/h	4.2 (2.1x2)			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating		V	220	230	240	220	230	240
Available voltage range		V	198 - 264			198 - 264		
Running amperes*		A	16.8	16.0	15.3	15.6	14.9	14.3
Max-Running amperes**		A						
Power input		kW	3.28	3.29	3.29	3.04	3.05	3.05
C.O.P		W/W	3.05	3.04	3.04	3.68	3.67	3.67
Max. Starting amperes		A						
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			Automatic (Remote control)					
Air filter			Washable, easy access					
Remote controller (Option)			Wired : REM HW		Wireless : REM HLAWS			
Refrigerant control			-					
Drain pump (Drain connection)			(13A , OD18mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	38/34/30					
	Outdoor - Hi	dB - A	51/52					
Color (Approximate value)	Indoor		Munsell 3.OY8.6/0.8					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length		m (ft.)	50 (164)					
Limit of tubing length at shipment		m (ft.)	5~30 (16~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	6.35 (1/4)					
	Wide tube	mm (in.)	12.7 (1/2)					
Refrigerant amount at shipment		kg	R410A - 2.8					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit		Outdoor unit			
Unit dimensions	Height	mm (in.)	285 (11-7/32)		780 (30-23/32)			
	Width	mm (in.)	995 (39-6/32)		940 (37)			
	Depth	mm (in.)	203 (8)		340 (13-3 /8)			
Package dimensions	Height	mm (in.)	347 (13-21/32)		888 (34-31/32)			
	Width	mm (in.)	1,065 (41-30/32)		1015 (39-31/32)			
	Depth	mm (in.)	260 (10-8/32)		409 (16-3/32)			
Net weight		kg (lb.)	12 (27)		65 (143)			
Shipping weight		kg (lb.)	15 (33)		73 (161)			
Shipping volume		m <sup>3</sup> (cu. Ft)	0.096 (3.4)		0.369 (13.0)			

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP255R / GRFP255L

MODEL No.	Indoor Unit		MAFP255R		
	Outdoor Unit		GRFP255L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]		kW	7.1 [2.2~8.0]		
		BTU/h	24,000 [7,500~27,000]		
Air circulation (Hi/Me/Lo)		m <sup>3</sup> /h	1,140/960/720		
Moisture removal (High)		Liters/h	4.0		
<b>ELECTRICAL RATINGS</b>					
Voltage rating		V	220	230	240
Available voltage range		V	198 - 264		
Running amperes*		A	13.2	12.7	12.2
Max-Running amperes**		A			
Power input		kW	2.36	2.36	2.37
C.O.P		W/W	3.01	3.01	3.00
Max. Starting amperes		A			
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			Automatic (Remote control)		
Air filter			Washable, easy access		
Remote controller (Option)			Wired : REM HW	Wireless : REM HLAWS	
Refrigerant control			-		
Drain pump (Drain connection)			(13A , OD18mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	41/37/34		
	Outdoor - Hi	dB - A	47		
Color (Approximate value)	Indoor		Munsell 3.0Y8.6/0.8		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length		m (ft.)	50 (164)		
Limit of tubing length at shipment		m (ft.)	3~30 (10~98)		
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment		kg	R410A - 1.9		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit	Outdoor unit	
Unit dimensions	Height	mm (in.)	330 (13)	780 (30-23/32)	
	Width	mm (in.)	1,140 (44-28/32)	940 (37)	
	Depth	mm (in.)	228 (8-31/32)	340 (13- 3 /8)	
Package dimensions	Height	mm (in.)	390 (15-11/32)	888 (34-31/32)	
	Width	mm (in.)	1,215 (47-27/32)	1015 (39-31/32)	
	Depth	mm (in.)	293 (11-17/32)	409 (16-3/ 32)	
Net weight		kg (lb.)	21 (46)	58 (128)	
Shipping weight		kg (lb.)	24 (53)	67 (148)	
Shipping volume		m <sup>3</sup> (cu. Ft)	0.139 (4.9)	0.369 (13.0)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP255R / GRFP255R

MODEL No.	Indoor Unit		MAFP255R					
	Outdoor Unit		GRFP255R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]	kW		7.1 [2.2~8.0]			8.0 [2.2~9.0]		
	BTU/h		24,000 [7,500~27,000]			27,000 [7,500~30,000]		
Air circulation (Hi/Me/Lo)		m <sup>3</sup> /h	1,140/960/720					
Moisture removal (High)		Liters/h	4.0			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating		V	220	230	240	220	230	240
Available voltage range		V	198 - 264			198 - 264		
Running amperes*		A	13.2	12.7	12.2	12.7	12.2	11.7
Max-Running amperes**		A						
Power input		kW	2.36	2.36	2.37	2.26	2.26	2.27
C.O.P		W/W	3.01	3.01	3.00	3.54	3.54	3.52
Max. Starting amperes		A						
<b>FEATURES</b>								
Controls/Thermostat control		Microprocessor/I.C.thermostat						
Timer		ON/OFF 72-hours						
Fan speeds Indoor/Outdoor		3 and Automatic control/Variable						
Airflow direction (Indoor)		Automatic (Remote control)						
Air filter		Washable, easy access						
Remote controller (Option)		Wired : REM HW			Wireless : REM HLAWS			
Refrigerant control		-						
Drain pump (Drain connection)		(13A , OD18mm)						
Compressor		Rotary(SANYO)						
Operation sound	Indoor - Hi/Me/Lo	dB - A	41/37/34					
	Outdoor - Hi	dB - A	47/49					
Color (Approximate value)	Indoor	Munsell 3.0Y8.6/0.8						
	Outdoor	Munsell 1Y 8.5/0.5						
<b>REFRIGERANT TUBING</b>								
Limit of tubing length		m (ft.)	50 (164)					
Limit of tubing length at shipment		m (ft.)	3~30 (10~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment		kg	R410A - 1.9					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	330 (13)			780 (30-23/32)		
	Width	mm (in.)	1,140 (44-28/32)			940 (37)		
	Depth	mm (in.)	228 (8-31/32)			340 (13- 3 /8)		
Package dimensions	Height	mm (in.)	390 (15-11/32)			888 (34-31/32)		
	Width	mm (in.)	1,215 (47-27/32)			1015 (39-31/32)		
	Depth	mm (in.)	293 (11-17/32)			409 (16-3/ 32)		
Net weight		kg (lb.)	21 (46)			58 (128)		
Shipping weight		kg (lb.)	24 (53)			67 (148)		
Shipping volume		m <sup>3</sup> (cu. Ft)	0.139 (4.9)			0.369 (13.0)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Wall-Mounted Type MAFP255R x 2/ GRFP485L

MODEL No.	Indoor Unit		MAFP255R x 2		
	Outdoor Unit		GRFP485L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]		
	BTU/h		42,500 [9,200~48,000]		
Air circulation (Hi/Me/Lo)	m3/h		2,280/1,920/1,440 (1,140/960/720x2)		
Moisture removal (High)	Liters/h		8.0 (4.0x2)		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		21.1	20.1	19.4
Max-Running amperes**	A				
Power input	kW		4.13	4.13	4.14
C.O.P	W/W		3.03	3.03	3.02
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			Automatic (Remote control)		
Air filter			Washable, easy access		
Remote controller (Option)			Wired : REM HW	Wireless : REM HLAWS	
Refrigerant control			-		
Drain pump (Drain connection)			(13A , OD18mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	41/37/34		
	Outdoor - Hi	dB - A	52		
Color (Approximate value)	Indoor		Munsell 3.0Y8.6/0.8		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length		m (ft.)	50 (164)		
Limit of tubing length at shipment		m (ft.)	5~30 (16~98)		
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment		kg	R410A - 3.6		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit		Outdoor unit
Unit dimensions	Height	mm (in.)	330 (13)		1230 (48- 7/16)
	Width	mm (in.)	1,140 (44-28/32)		940 (37)
	Depth	mm (in.)	228 (8-31/32)		340 (13-3 /8)
Package dimensions	Height	mm (in.)	390 (15-11/32)		1330 (52-3 /8)
	Width	mm (in.)	1,215 (47-27/32)		1015 (39-31/32)
	Depth	mm (in.)	293 (11-17/32)		409 (16-3/32)
Net weight		kg (lb.)	21 (46)		100 (220)
Shipping weight		kg (lb.)	24 (53)		109 (240)
Shipping volume		m <sup>3</sup> (cu. Ft)	0.139 (4.9)		0.552 (19.5)

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

# 1-1. Unit Specifications

## Wall-Mounted Type MAFP255R x 2/ GRFP485R

MODEL No.		Indoor Unit		MAFP255Rx2				
		Outdoor Unit		GRFP485R				
<b>POWER SOURCE</b>				220 - 230 - 240 V/1 phase/50/60 Hz				
<b>PERFORMANCE</b>				Cooling			Heating	
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]			14.0 [2.7~16.0]		
	BTU/h		42,500 [9,200~48,000]			48,000 [9,200~54,500]		
Air circulation (Hi/Me/Lo)	m3/h		2,280/1,920/1,440 (1,140/960/720x2)					
Moisture removal (High)	Liters/h		8.0 (4.0x2)			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating	V		220	230	240	220	230	240
Available voltage range	V		198 - 264			198 - 264		
Running amperes*	A		21.1	20.1	19.4	20.9	19.8	19.1
Max-Running amperes**	A							
Power input	kW		4.13	4.13	4.14	4.09	4.08	4.09
C.O.P	W/W		3.03	3.03	3.02	3.42	3.43	3.42
Max. Starting amperes	A							
<b>FEATURES</b>								
Controls/Thermostat control		Microprocessor/I.C.thermostat						
Timer		ON/OFF 72-hours						
Fan speeds Indoor/Outdoor		3 and Automatic control/Variable						
Airflow direction (Indoor)		Automatic (Remote control)						
Air filter		Washable, easy access						
Remote controller (Option)		Wired : REM HW			Wireless : REM HLAWS			
Refrigerant control		-						
Drain pump (Drain connection)		(13A , OD18mm)						
Compressor		Rotary(SANYO)						
Operation sound	Indoor - Hi/Me/Lo	dB - A	41/37/34					
	Outdoor - Hi	dB - A	52/53					
Color (Approximate value)	Indoor		Munsell 3.0Y8.6/0.8					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length		m (ft.)	50 (164)					
Limit of tubing length at shipment		m (ft.)	3~30 (10~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment		kg	R410A - 1.9					
<b>DIMENSIONS &amp; WEIGHT</b>				Indoor unit		Outdoor unit		
Unit dimensions	Height	mm (in.)	330 (13)		780 (30-23/32)			
	Width	mm (in.)	1,140 (44-28/32)		940 (37)			
	Depth	mm (in.)	228 (8-31/32)		340 (13- 3 /8)			
Package dimensions	Height	mm (in.)	390 (15-11/32)		888 (34-31/32)			
	Width	mm (in.)	1,215 (47-27/32)		1015 (39-31/32)			
	Depth	mm (in.)	293 (11-17/32)		409 (16-3/ 32)			
Net weight		kg (lb.)	21 (46)		58 (128)			
Shipping weight		kg (lb.)	24 (53)		67 (148)			
Shipping volume		m <sup>3</sup> (cu. Ft)	0.139 (4.9)		0.369 (13.0)			

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

**Cooling:**

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
 Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

**Heating:**

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB  
 Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Ceiling-Mounted Type SPAFP255R / GRFP255L

MODEL No.	Indoor Unit		SPAFP255R		
	Outdoor Unit		GRFP255L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		7.1 [2.2~8.0]		
	BTU/h		24,000 [7,500~27,000]		
Air circulation (Hi/Me/Lo)	m3/h		1,100/900/840		
Moisture removal (High)	Liters/h		3.0		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		13.2	12.7	12.2
Max-Running amperes**	A				
Power input	kW		2.36	2.36	2.37
C.O.P	W/W		3.01	3.01	3.00
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			Automatic (Remote control)		
Air filter			Washable, easy access, long life (2,500 hr)		
Remote controller (Option)			Wired : REM HW	Wireless : REM HLACS	
Refrigerant control			-		
Drain pump (Drain connection)			(20A , OD26mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	38/36/33		
	Outdoor - Hi	dB - A	47		
Color (Approximate value)	Indoor		Munsell 10Y9.3/0.4		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length		m (ft.)	50 (164)		
Limit of tubing length at shipment		m (ft.)	3~30 (10~98)		
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment		kg	R410A - 1.9		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit	Outdoor unit	
Unit dimensions	Height	mm (in.)	210 (8-9/32)	780 (30-23/32)	
	Width	mm (in.)	1,180 (46-15/32)	940 (37)	
	Depth	mm (in.)	680 (26-25/32)	340 (13- 3 /8)	
Package dimensions	Height	mm (in.)	280 (11-1/32)	888 (34-31/32)	
	Width	mm (in.)	1,255 (49-13/32)	1015 (39-31/32)	
	Depth	mm (in.)	780 (30-23/32)	409 (16-3/ 32)	
Net weight		kg (lb.)	25 (55)	58 (128)	
Shipping weight		kg (lb.)	28 (62)	67 (148)	
Shipping volume		m <sup>3</sup> (cu. Ft)	0.274 (9.7)	0.369 (13.0)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Ceiling-Mounted Type SPAFP255R / GRFP255R

MODEL No.	Indoor Unit		SPAFP255R					
	Outdoor Unit		GRFP255R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]		kW	7.1 [2.2~8.0]			8.0 [2.2~9.0]		
		BTU/h	24,000 [7,500~27,000]			27,000 [7,500~30,000]		
Air circulation (Hi/Me/Lo)		m <sup>3</sup> /h	1,100/900/840					
Moisture removal (High)		Liters/h	3.0			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating		V	220	230	240	220	230	240
Available voltage range		V	198 - 264			198 - 264		
Running amperes*		A	13.3	12.8	12.3	12.8	12.3	11.8
Max-Running amperes**		A						
Power input		kW	2.35	2.35	2.35	2.25	2.25	2.25
C.O.P		W/W	3.02	3.02	3.02	3.56	3.56	3.56
Max. Starting amperes		A						
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			Automatic (Remote control)					
Air filter			Washable, easy access, long life (2,500 hr)					
Remote controller (Option)			Wired : REM HW			Wireless : REM HLACS		
Refrigerant control			-					
Drain pump (Drain connection)			(20A , OD26mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	38/36/33					
	Outdoor - Hi	dB - A	47/49					
Color (Approximate value)	Indoor		Munsell 10Y9.3/0.4					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length		m (ft.)	50 (164)					
Limit of tubing length at shipment		m (ft.)	3~30 (10~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment		kg	R410A - 1.9					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	210 (8-9/32)			780 (30-23/32)		
	Width	mm (in.)	1,180(46-15/32)			940 (37)		
	Depth	mm (in.)	680 (26-25/32)			340 (13- 3 /8)		
Package dimensions	Height	mm (in.)	280 (11-1/32)			888 (34-31/32)		
	Width	mm (in.)	1,255(49-13/32)			1015 (39-31/32)		
	Depth	mm (in.)	780 (30-23/32)			409 (16-3/ 32)		
Net weight		kg (lb.)	25 (55)			58 (128)		
Shipping weight		kg (lb.)	28 (62)			67 (148)		
Shipping volume		m <sup>3</sup> (cu. Ft)	0.274 (9.7)			0.369 (13.0)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Ceiling-Mounted Type SPAFP255Rx 2 / GRFP485L

MODEL No.	Indoor Unit		SPAFP255Rx 2		
	Outdoor Unit		GRFP485L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]		
	BTU/h		42,500 [9,200~48,000]		
Air circulation (Hi/Me/Lo)	m <sup>3</sup> /h		2,200/1,800/1,680 (1,100/900/840x2)		
Moisture removal (High)	Liters/h		6.0 (3.0x2)		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		21.3	20.3	19.5
Max-Running amperes**	A				
Power input	kW		4.12	4.12	4.12
C.O.P	W/W		3.03	3.03	3.03
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			Automatic (Remote control)		
Air filter			Washable, easy access, long life (2,500 hr)		
Remote controller (Option)			Wired : REM HW	Wireless : REM HLACS	
Refrigerant control			-		
Drain pump (Drain connection)			(20A , OD26mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	38/36/33		
	Outdoor - Hi	dB - A	52		
Color (Approximate value)	Indoor		Munsell 10Y9.3/0.4		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length	m (ft.)		50 (164)		
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)		
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment	kg		R410A - 3.6		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit		Outdoor unit
Unit dimensions	Height	mm (in.)	210 (8-9/32)		1230 (48- 7/16)
	Width	mm (in.)	1,180 (46-15/32)		940 (37)
	Depth	mm (in.)	680 (26-25/32)		340 (13-3 /8)
Package dimensions	Height	mm (in.)	280 (11-1/32)		1330 (52-3 /8)
	Width	mm (in.)	1,255 (49-13/32)		1015 (39-31/32)
	Depth	mm (in.)	780 (30-23/32)		409 (16-3/32)
Net weight	kg (lb.)		25 (55)		100 (220)
Shipping weight	kg (lb.)		28 (62)		109 (240)
Shipping volume	m <sup>3</sup> (cu. Ft)		0.274 (9.7)		0.552 (19.5)

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Ceiling-Mounted Type SPAFP255Rx 2 / GRFP485R

MODEL No.	Indoor Unit		SPAFP255Rx					
	Outdoor Unit		GRFP485R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]			14.0 [2.7~16.0]		
	BTU/h		42,500 [9,200~48,000]			48,000 [9,200~54,500]		
Air circulation (Hi/Me/Lo)	m <sup>3</sup> /h		2,200/1,800/1,680 (1,100/900/840x2)					
Moisture removal (High)	Liters/h		6.0 (3.0x2)			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating	V		220	230	240	220	230	240
Available voltage range	V		198 - 264			198 - 264		
Running amperes*	A		21.3	20.3	19.5	21.0	20.0	19.2
Max-Running amperes**	A							
Power input	kW		4.12	4.12	4.12	4.07	4.06	4.07
C.O.P	W/W		3.03	3.03	3.03	3.44	3.45	3.44
Max. Starting amperes	A							
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			Automatic (Remote control)					
Air filter			Washable, easy access, long life (2,500 hr)					
Remote controller (Option)			Wired : REM HW			Wireless : REM HLACS		
Refrigerant control			-					
Drain pump (Drain connection)			(20A , OD26mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	38/36/33					
	Outdoor - Hi	dB - A	52/53					
Color (Approximate value)	Indoor		Munsell 10Y9.3/0.4					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length			m (ft.)		50 (164)			
Limit of tubing length at shipment			m (ft.)		5~30 (16~98)			
Limit of elevation difference between the two units			m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)			
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment			kg		R410A - 3.6			
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	210 (8-9/32)			1230 (48- 7/16)		
	Width	mm (in.)	1,180(46-15/32)			940 (37)		
	Depth	mm (in.)	680 (26-25/32)			340 (13-3 /8)		
Package dimensions	Height	mm (in.)	280 (11-1/32)			1330 (52-3 /8)		
	Width	mm (in.)	1,255(49-13/32)			1015 (39-31/32)		
	Depth	mm (in.)	780 (30-23/32)			409 (16-3/32)		
Net weight			kg (lb.)		25 (55)      100 (220)			
Shipping weight			kg (lb.)		28 (62)      109 (240)			
Shipping volume			m <sup>3</sup> (cu. Ft)		0.274 (9.7)      0.552 (19.5)			

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Ceiling-Mounted Type SPAFP365R / GRFP365L

MODEL No.	Indoor Unit		SPAFP365R		
	Outdoor Unit		GRFP365L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]			10.0 [2.2~11.2]		
			34,000 [7,500~38,000]		
Air circulation (Hi/Me/Lo)	m3/h		1,650/1,380/1,200		
Moisture removal (High)	Liters/h		3.9		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		17.0	16.2	15.5
Max-Running amperes**	A				
Power input	kW		3.29	3.29	3.30
C.O.P	W/W		3.04	3.04	3.03
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			Automatic (Remote control)		
Air filter			Washable, easy access, long life (2,500 hr)		
Remote controller (Option)			Wired : REM HW	Wireless : REM HLACS	
Refrigerant control			-		
Drain pump (Drain connection)			(20A , OD26mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	41/38/35		
	Outdoor - Hi	dB - A	51		
Color (Approximate value)	Indoor		Munsell 10Y9.3/0.4		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length	m (ft.)		50 (164)		
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)		
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment	kg		R410A - 2.8		
<b>DIMENSIONS &amp; WEIGHT</b>					
Unit dimensions	Height	mm (in.)	Indoor unit		Outdoor unit
	Width	mm (in.)	210 (8-9/32)		780 (30-23/32)
	Depth	mm (in.)	1,595 (62-25/32)		940 (37)
Package dimensions	Height	mm (in.)	680 (26-25/32)		340 (13-3 /8)
	Width	mm (in.)	280 (11-1/32)		888 (34-31/32)
	Depth	mm (in.)	1,670 (65-24/32)		1015 (39-31/32)
Net weight	kg (lb.)		780 (30-23/32)		409 (16-3/32)
Shipping weight	kg (lb.)		33 (73)		65 (143)
Shipping volume	m <sup>3</sup> (cu. Ft)		37 (82)		73 (161)
			0.365 (12.9)		0.369 (13.0)

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Ceiling-Mounted Type SPAFP365R / GRFP365R

MODEL No.	Indoor Unit		SPAFP365R					
	Outdoor Unit		GRFP365R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]	kW		10.0 [2.2~11.2]			11.2 [2.2~12.5]		
	BTU/h		34,000 [7,500~38,000]			38,000 [7,500~42,500]		
Air circulation (Hi/Me/Lo)	m3/h		1,650/1,380/1,200					
Moisture removal (High)	Liters/h		3.9			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating	V		220	230	240	220	230	240
Available voltage range	V		198 - 264			198 - 264		
Running amperes*	A		17.0	16.2	15.5	15.8	15.1	14.5
Max-Running amperes**	A							
Power input	kW		3.29	3.29	3.30	3.05	3.05	3.05
C.O.P	W/W		3.04	3.04	3.03	3.67	3.67	3.67
Max. Starting amperes	A							
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			Automatic (Remote control)					
Air filter			Washable, easy access, long life (2,500 hr)					
Remote controller (Option)			Wired : REM HW			Wireless : REM HLACS		
Refrigerant control			-					
Drain pump (Drain connection)			(20A , OD26mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	41/38/35					
	Outdoor - Hi	dB - A	51/52					
Color (Approximate value)	Indoor		Munsell 10Y9.3/0.4					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length		m (ft.)	50 (164)					
Limit of tubing length at shipment		m (ft.)	5~30 (16~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment		kg	R410A - 2.8					
<b>DIMENSIONS &amp; WEIGHT</b>								
Unit dimensions	Height	mm (in.)	210 (8-9/32)			780 (30-23/32)		
	Width	mm (in.)	1,595(62-25/32)			940 (37)		
	Depth	mm (in.)	680 (26-25/32)			340 (13-3 /8)		
Package dimensions	Height	mm (in.)	280 (11-1/32)			888 (34-31/32)		
	Width	mm (in.)	1,670(65-24/32)			1015 (39-31/32)		
	Depth	mm (in.)	780 (30-23/32)			409 (16-3/32)		
Net weight		kg (lb.)	33 (73)			65 (143)		
Shipping weight		kg (lb.)	37 (82)			73 (161)		
Shipping volume		m <sup>3</sup> (cu. Ft)	0.365 (12.9)			0.369 (13.0)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Ceiling-Mounted Type SPAFP485R / GRFP485L

MODEL No.	Indoor Unit		SPAFP485R		
	Outdoor Unit		GRFP485L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]			12.5 [2.7~14.0]		
			42,500 [9,200~48,000]		
Air circulation (Hi/Me/Lo)			1,800/1,560/1,320		
Moisture removal (High)			5.6		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		21.2	20.3	19.5
Max-Running amperes**	A				
Power input	kW		4.12	4.12	4.12
C.O.P	W/W		3.03	3.03	3.03
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			Automatic (Remote control)		
Air filter			Washable, easy access, long life (2,500 hr)		
Remote controller (Option)			Wired : REM HW	Wireless : REM HLACS	
Refrigerant control			-		
Drain pump (Drain connection)			(20A , OD26mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	43/40/37		
	Outdoor - Hi	dB - A	52		
Color (Approximate value)	Indoor		Munsell 10Y9.3/0.4		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length	m (ft.)		50 (164)		
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)		
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment	kg		R410A - 3.6		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit	Outdoor unit	
Unit dimensions	Height	mm (in.)	210 (8-9/32)	1230 (48- 7/16)	
	Width	mm (in.)	1,595 (62-25/32)	940 (37)	
	Depth	mm (in.)	680 (26-25/32)	340 (13-3 /8)	
Package dimensions	Height	mm (in.)	280 (11-1/32)	1330 (52-3 /8)	
	Width	mm (in.)	1,670 (65-24/32)	1015 (39-31/32)	
	Depth	mm (in.)	780 (30-23/32)	409 (16-3/32)	
Net weight	kg (lb.)		33 (73)	100 (220)	
Shipping weight	kg (lb.)		37 (82)	109 (240)	
Shipping volume	m <sup>3</sup> (cu. Ft)		0.365 (12.9)	0.552 (19.5)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Ceiling-Mounted Type SPAFP485R / GRFP485R

MODEL No.	Indoor Unit		SPAFP485R					
	Outdoor Unit		GRFP485R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]			14.0 [2.7~16.0]		
	BTU/h		42,500 [9,200~48,000]			48,000 [9,200~54,500]		
Air circulation (Hi/Me/Lo)	m3/h		1,800/1,560/1,320					
Moisture removal (High)	Liters/h		5.6			-		
<b>ELECTRICAL RATINGS</b>								
Voltage rating	V		220	230	240	220	230	240
Available voltage range	V		198 - 264			198 - 264		
Running amperes*	A		21.2	20.3	19.5	21.0	20.0	19.2
Max-Running amperes**	A							
Power input	kW		4.12	4.12	4.12	4.07	4.07	4.07
C.O.P	W/W		3.03	3.03	3.03	3.44	3.44	3.44
Max. Starting amperes	A							
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			Automatic (Remote control)					
Air filter			Washable, easy access, long life (2,500 hr)					
Remote controller (Option)			Wired : REM HW			Wireless : REM HLACS		
Refrigerant control			-					
Drain pump (Drain connection)			(20A , OD26mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	43/40/37					
	Outdoor - Hi	dB - A	52/53					
Color (Approximate value)	Indoor		Munsell 10Y9.3/0.4					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length	m (ft.)		50 (164)					
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)					
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment	kg		R410A - 3.6					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	210 (8-9/32)			1230 (48- 7/16)		
	Width	mm (in.)	1,595(62-25/32)			940 (37)		
	Depth	mm (in.)	680 (26-25/32)			340 (13-3 /8)		
Package dimensions	Height	mm (in.)	280 (11-1/32)			1330 (52-3 /8)		
	Width	mm (in.)	1,670(65-24/32)			1015 (39-31/32)		
	Depth	mm (in.)	780 (30-23/32)			409 (16-3/32)		
Net weight	kg (lb.)		33 (73)			100 (220)		
Shipping weight	kg (lb.)		37 (82)			109 (240)		
Shipping volume	m <sup>3</sup> (cu. Ft)		0.365 (12.9)			0.552 (19.5)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Concealed-Duct Type DSAFP255R / GRFP255L

MODEL No.	Indoor Unit		DSAFP255R		
	Outdoor Unit		GRFP255L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		7.1 [2.2~8.0]		
	BTU/h		24,000 [7,500~27,000]		
Air circulation (Hi/Me/Lo)	m <sup>3</sup> /h		1,080/900/780		
Moisture removal (High)	Liters/h		3.5		
External static pressure (High)	Pa(mmAq)		50 (5.1) : at shipment, 92 (9.4) : using the booster cable		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		13.7	13.3	12.8
Max-Running amperes**	A				
Power input	kW		2.49	2.51	2.52
C.O.P	W/W		2.85	2.83	2.82
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			-		
Air filter			Field supply		
Remote controller (Option)			Wired : REM HW	Wireless : REM HL	
Refrigerant control			-		
Drain pump (Drain connection)			Max.head 50 cm above drain connection (25A , OD32mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	34/30/27, (38/34/30 : using the booster cable)		
	Outdoor - Hi	dB - A	47		
Color (Approximate value)	Indoor		-		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length	m (ft.)		50 (164)		
Limit of tubing length at shipment	m (ft.)		3~30 (10~98)		
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment	kg		R410A - 1.9		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit		Outdoor unit
Unit dimensions	Height	mm (in.)	310 (12-7/32)		780 (30-23/32)
	Width	mm (in.)	1,000 (39-12/32)		940 (37)
	Depth	mm (in.)	630 (24-26/32)		340 (13- 3 /8)
Package dimensions	Height	mm (in.)	358 (14-3/32)		888 (34-31/32)
	Width	mm (in.)	1,191 (46-28/32)		1015 (39-31/32)
	Depth	mm (in.)	783 (30-26/32)		409 (16-3/ 32)
Net weight	kg (lb.)		32 (71)		58 (128)
Shipping weight	kg (lb.)		37 (82)		67 (148)
Shipping volume	m <sup>3</sup> (cu. Ft)		0.334 (11.8)		0.369 (13.0)

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Concealed-Duct Type DSAFP255R / GRFP255R

MODEL No.	Indoor Unit		DSAFP255R					
	Outdoor Unit		GRFP255R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]	kW		7.1 [2.2~8.0]			8.0 [2.2~9.0]		
	BTU/h		24,000 [7,500~27,000]			27,000 [7,500~30,000]		
Air circulation (Hi/Me/Lo)	m <sup>3</sup> /h		1,080/900/780					
Moisture removal (High)	Liters/h		3.5			-		
External static pressure (High)	Pa(mmAq)		50 (5.1) : at shipment,92 (9.4) : using the booster cable					
<b>ELECTRICAL RATINGS</b>								
Voltage rating	V		220	230	240	220	230	240
Available voltage range	V		198 - 264			198 - 264		
Running amperes*	A		13.7	13.3	12.8	13.2	12.7	12.3
Max-Running amperes**	A							
Power input	kW		2.49	2.51	2.52	2.38	2.39	2.41
C.O.P	W/W		2.85	2.83	2.82	3.36	3.35	3.32
Max. Starting amperes	A							
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			-					
Air filter			Field supply					
Remote controller (Option)			Wired : REM HW			Wireless : REM HL		
Refrigerant control			-					
Drain pump (Drain connection)			Max.head 50 cm above drain connection (25A , OD32mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	34/30/27, (38/34/30 : using the booster cable)					
	Outdoor - Hi	dB - A	47/49					
Color (Approximate value)	Indoor		-					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length	m (ft.)		50 (164)					
Limit of tubing length at shipment	m (ft.)		3~30 (10~98)					
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment	kg		R410A - 1.9					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	310 (12-7/32)			780 (30-23/32)		
	Width	mm (in.)	1,000 (39-12/32)			940 (37)		
	Depth	mm (in.)	630 (24-26/32)			340 (13- 3 /8)		
Package dimensions	Height	mm (in.)	358 (14-3/32)			888 (34-31/32)		
	Width	mm (in.)	1,191 (46-28/32)			1015 (39-31/32)		
	Depth	mm (in.)	783 (30-26/32)			409 (16-3/ 32)		
Net weight	kg (lb.)		32 (71)			58 (128)		
Shipping weight	kg (lb.)		37 (82)			67 (148)		
Shipping volume	m <sup>3</sup> (cu. Ft)		0.334 (11.8)			0.369 (13.0)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Concealed-Duct Type DSAFP255R x 2 / GRFP255L

MODEL No.	Indoor Unit		DSAFP255R x 2		
	Outdoor Unit		GRFP255L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]		
	BTU/h		42,500 [9,200~48,000]		
Air circulation (Hi/Me/Lo)	m3/h		2,160/1,800/1,560 (1,080/900/780x2)		
Moisture removal (High)	Liters/h		7.0 (3.5x2)		
External static pressure (High)	Pa(mmAq)		50 (5.1) : at shipment,92 (9.4) : using the booster cable		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		22.2	21.3	20.6
Max-Running amperes**	A				
Power input	kW		4.39	4.42	4.45
C.O.P	W/W		2.85	2.83	2.81
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			-		
Air filter			Field supply		
Remote controller (Option)			Wired : REM HW	Wireless : REM HL	
Refrigerant control			-		
Drain pump (Drain connection)			Max.head 50 cm above drain connection (25A , OD32mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	34/30/27, (38/34/30 : using the booster cable)		
	Outdoor - Hi	dB - A	52		
Color (Approximate value)	Indoor		-		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length		m (ft.)	50 (164)		
Limit of tubing length at shipment		m (ft.)	5~30 (16~98)		
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment		kg	R410A - 3.6		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit		Outdoor unit
Unit dimensions	Height	mm (in.)	310 (12-7/32)		1230 (48- 7/16)
	Width	mm (in.)	1,000 (39-12/32)		940 (37)
	Depth	mm (in.)	630 (24-26/32)		340 (13-3 /8)
Package dimensions	Height	mm (in.)	358 (14-3/32)		1330 (52-3 /8)
	Width	mm (in.)	1,191 (46-28/32)		1015 (39-31/32)
	Depth	mm (in.)	783 (30-26/32)		409 (16-3/32)
Net weight		kg (lb.)	32 (71)		100 (220)
Shipping weight		kg (lb.)	37 (82)		109 (240)
Shipping volume		m <sup>3</sup> (cu. Ft)	0.334 (11.8)		0.552 (19.5)

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Concealed-Duct Type DSAFP255R x 2 / GRFP255R

MODEL No.	Indoor Unit		DSAFP255R x 2					
	Outdoor Unit		GRFP255R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]		kW	12.5 [2.7~14.0]			14.0 [2.7~16.0]		
		BTU/h	42,500 [9,200~48,000]			48,000 [9,200~54,500]		
Air circulation (Hi/Me/Lo)		m3/h	2,160/1,800/1,560 (1,080/900/780x2)					
Moisture removal (High)		Liters/h	7.0 (3.5x2)			-		
External static pressure (High)		Pa(mmAq)	50 (5.1) : at shipment, 92 (9.4) : using the booster cable					
<b>ELECTRICAL RATINGS</b>								
Voltage rating		V	220	230	240	220	230	240
Available voltage range		V	198 - 264			198 - 264		
Running amperes*		A	22.2	21.3	20.6	21.9	21.0	20.2
Max-Running amperes**		A						
Power input		kW	4.39	4.42	4.45	4.33	4.35	4.38
C.O.P		W/W	2.85	2.83	2.81	3.23	3.22	3.20
Max. Starting amperes		A						
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			-					
Air filter			Field supply					
Remote controller (Option)			Wired : REM HW			Wireless : REM HL		
Refrigerant control			-					
Drain pump (Drain connection)			Max.head 50 cm above drain connection (25A , OD32mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	34/30/27, (38/34/30 : using the booster cable)					
	Outdoor - Hi	dB - A	52/53					
Color (Approximate value)	Indoor		-					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length		m (ft.)	50 (164)					
Limit of tubing length at shipment		m (ft.)	5~30 (16~98)					
Limit of elevation difference between the two units		m (ft.)	Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment		kg	R410A - 3.6					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	310 (12-7/32)			1230 (48- 7/16)		
	Width	mm (in.)	1,000 (39-12/32)			940 (37)		
	Depth	mm (in.)	630 (24-26/32)			340 (13-3 /8)		
Package dimensions	Height	mm (in.)	358 (14-3/32)			1330 (52-3 /8)		
	Width	mm (in.)	1,191 (46-28/32)			1015 (39-31/32)		
	Depth	mm (in.)	783 (30-26/32)			409 (16-3/32)		
Net weight		kg (lb.)	32 (71)			100 (220)		
Shipping weight		kg (lb.)	37 (82)			109 (240)		
Shipping volume		m <sup>3</sup> (cu. Ft)	0.334 (11.8)			0.552 (19.5)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Concealed-Duct Type DSAFP365R / GRFP365L

MODEL No.	Indoor Unit		DSAFP365R		
	Outdoor Unit		GRFP365L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]			10.0 [2.2~11.2]		
			34,000 [7,500~38,000]		
Air circulation (Hi/Me/Lo)	m3/h		1,800/1,560/1,260		
Moisture removal (High)	Liters/h		4.2		
External static pressure (High)	Pa(mmAq)		79 (8.1) : at shipment, 122 (12.4) : using the booster cable		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		17.9	17.1	16.4
Max-Running amperes**	A				
Power input	kW		3.53	3.55	3.56
C.O.P	W/W		2.83	2.82	2.81
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			-		
Air filter			Field supply		
Remote controller (Option)			Wired : REM HW	Wireless : REM HL	
Refrigerant control			-		
Drain pump (Drain connection)			Max.head 50 cm above drain connection (25A , OD32mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	38/33/31, (42/38/33 : using the booster cable)		
	Outdoor - Hi	dB - A	51		
Color (Approximate value)	Indoor		-		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length	m (ft.)		50 (164)		
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)		
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment	kg		R410A - 2.8		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit	Outdoor unit	
Unit dimensions	Height	mm (in.)	310 (12-7/32)	780 (30-23/32)	
	Width	mm (in.)	1,480 (58-9/32)	940 (37)	
	Depth	mm (in.)	630 (24-26/32)	340 (13-3 /8)	
Package dimensions	Height	mm (in.)	358 (14-3/32)	888 (34-31/32)	
	Width	mm (in.)	1,671 (65-25/32)	1015 (39-31/32)	
	Depth	mm (in.)	783 (30-26/32)	409 (16-3/32)	
Net weight	kg (lb.)		47 (104)	65 (143)	
Shipping weight	kg (lb.)		52 (115)	73 (161)	
Shipping volume	m <sup>3</sup> (cu. Ft)		0.468 (16.5)	0.369 (13.0)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

# 1-1. Unit Specifications

## Concealed-Duct Type DSAFP365R / GRFP365R

MODEL No.	Indoor Unit		DSAFP365R					
	Outdoor Unit		GRFP365R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum-maximum]	kW		10.0 [2.2~11.2]			11.2 [2.2~12.5]		
	BTU/h		34,000 [7,500~38,000]			38,000 [7,500~42,500]		
Air circulation (Hi/Me/Lo)	m <sup>3</sup> /h		1,800/1,560/1,260					
Moisture removal (High)	Liters/h		4.2			-		
External static pressure (High)	Pa(mmAq)		79 (8.1) : at shipment, 122 (12.4) : using the booster cable					
<b>ELECTRICAL RATINGS</b>								
Voltage rating	V		220	230	240	220	230	240
Available voltage range	V		198 - 264			198 - 264		
Running amperes*	A		17.9	17.1	16.4	16.6	16.0	15.4
Max-Running amperes**	A							
Power input	kW		3.53	3.55	3.56	3.28	3.30	3.31
C.O.P	W/W		2.83	2.82	2.81	3.41	3.39	3.38
Max. Starting amperes	A							
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			-					
Air filter			Field supply					
Remote controller (Option)			Wired : REM HW			Wireless : REM HL		
Refrigerant control			-					
Drain pump (Drain connection)			Max.head 50 cm above drain connection (25A , OD32mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	38/33/31, (42/38/33 : using the booster cable)					
	Outdoor - Hi	dB - A	51/52					
Color (Approximate value)	Indoor		-					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length	m (ft.)		50 (164)					
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)					
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment	kg		R410A - 2.8					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	310 (12-7/32)			780 (30-23/32)		
	Width	mm (in.)	1,480 (58-9/32)			940 (37)		
	Depth	mm (in.)	630 (24-26/32)			340 (13-3 / 8)		
Package dimensions	Height	mm (in.)	358 (14-3/32)			888 (34-31/32)		
	Width	mm (in.)	1,671 (65-25/32)			1015 (39-31/32)		
	Depth	mm (in.)	783 (30-26/32)			409 (16-3/32)		
Net weight	kg (lb.)	47 (104)			65 (143)			
Shipping weight	kg (lb.)	52 (115)			73 (161)			
Shipping volume	m <sup>3</sup> (cu. Ft)	0.468 (16.5)			0.369 (13.0)			

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

**Cooling:**

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB  
 Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

**Heating:**

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB  
 Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-1. Unit Specifications

### Concealed-Duct Type DSAFP485R / GRFP485L

MODEL No.	Indoor Unit		DSAFP485R		
	Outdoor Unit		GRFP485L		
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz		
<b>PERFORMANCE</b>			Cooling		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]		
	BTU/h		42,500 [9,200~48,000]		
Air circulation (Hi/Me/Lo)	m3/h		1,980/1,560/1,320		
Moisture removal (High)	Liters/h		6.6		
External static pressure (High)	Pa(mmAq)		78 (8.0) : at shipment, 113 (11.5) : using the booster cable		
<b>ELECTRICAL RATINGS</b>					
Voltage rating	V		220	230	240
Available voltage range	V		198 - 264		
Running amperes*	A		22.0	21.1	20.3
Max-Running amperes**	A				
Power input	kW		4.34	4.36	4.37
C.O.P	W/W		2.88	2.87	2.86
Max. Starting amperes	A				
<b>FEATURES</b>					
Controls/Thermostat control			Microprocessor/I.C.thermostat		
Timer			ON/OFF 72-hours		
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable		
Airflow direction (Indoor)			-		
Air filter			Field supply		
Remote controller (Option)			Wired : REM HW	Wireless : REM HL	
Refrigerant control			-		
Drain pump (Drain connection)			Max.head 50 cm above drain connection (25A , OD32mm)		
Compressor			Rotary(SANYO)		
Operation sound	Indoor - Hi/Me/Lo	dB - A	40/37/33, (44/40/37 : using the booster cable)		
	Outdoor - Hi	dB - A	52		
Color (Approximate value)	Indoor		-		
	Outdoor		Munsell 1Y 8.5/0.5		
<b>REFRIGERANT TUBING</b>					
Limit of tubing length	m (ft.)		50 (164)		
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)		
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)		
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)		
	Wide tube	mm (in.)	15.88 (5/8)		
Refrigerant amount at shipment	kg		R410A - 3.6		
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit		Outdoor unit
Unit dimensions	Height	mm (in.)	310 (12-7/32)		1230 (48- 7/16)
	Width	mm (in.)	1,480 (58-9/32)		940 (37)
	Depth	mm (in.)	630 (24-26/32)		340 (13-3 /8)
Package dimensions	Height	mm (in.)	358 (14-3/32)		1330 (52-3 /8)
	Width	mm (in.)	1,671 (65-25/32)		1015 (39-31/32)
	Depth	mm (in.)	783 (30-26/32)		409 (16-3/32)
Net weight	kg (lb.)		47 (104)		100 (220)
Shipping weight	kg (lb.)		52 (115)		109 (240)
Shipping volume	m <sup>3</sup> (cu. Ft)		0.468 (16.5)		0.552 (19.5)

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

## 1-1. Unit Specifications

### Concealed-Duct Type DSAFP485R / GRFP485R

MODEL No.	Indoor Unit		DSAFP485R					
	Outdoor Unit		GRFP485R					
<b>POWER SOURCE</b>			220 - 230 - 240 V/1 phase/50/60 Hz					
<b>PERFORMANCE</b>			Cooling			Heating		
Capacity [minimum~maximum]	kW		12.5 [2.7~14.0]			14.0 [2.7~16.0]		
	BTU/h		42,500 [9,200~48,000]			48,000 [9,200~54,500]		
Air circulation (Hi/Me/Lo)	m3/h		1,980/1,560/1,320					
Moisture removal (High)	Liters/h		6.6			-		
External static pressure (High)	Pa(mmAq)		78 (8.0) : at shipment, 113 (11.5) : using the booster cable					
<b>ELECTRICAL RATINGS</b>								
Voltage rating	V		220	230	240	220	230	240
Available voltage range	V		198 - 264			198 - 264		
Running amperes*	A		22.0	21.1	20.3	21.7	20.7	19.9
Max-Running amperes**	A							
Power input	kW		4.34	4.36	4.37	4.29	4.29	4.31
C.O.P	W/W		2.88	2.87	2.86	3.26	3.26	3.25
Max. Starting amperes	A							
<b>FEATURES</b>								
Controls/Thermostat control			Microprocessor/I.C.thermostat					
Timer			ON/OFF 72-hours					
Fan speeds Indoor/Outdoor			3 and Automatic control/Variable					
Airflow direction (Indoor)			-					
Air filter			Field supply					
Remote controller (Option)			Wired : REM HW			Wireless : REM HL		
Refrigerant control			-					
Drain pump (Drain connection)			Max.head 50 cm above drain connection (25A , OD32mm)					
Compressor			Rotary(SANYO)					
Operation sound	Indoor - Hi/Me/Lo	dB - A	40/37/33, (44/40/37 : using the booster cable)					
	Outdoor - Hi	dB - A	52/53					
Color (Approximate value)	Indoor		-					
	Outdoor		Munsell 1Y 8.5/0.5					
<b>REFRIGERANT TUBING</b>								
Limit of tubing length	m (ft.)		50 (164)					
Limit of tubing length at shipment	m (ft.)		5~30 (16~98)					
Limit of elevation difference between the two units	m (ft.)		Outdoor unit is higher than indoor unit : 30 (98) Outdoor unit is lower than indoor unit : 15 (49)					
Refrigerant tube outer diameter	Narrow tube	mm (in.)	9.52 (3/8)					
	Wide tube	mm (in.)	15.88 (5/8)					
Refrigerant amount at shipment	kg		R410A - 3.6					
<b>DIMENSIONS &amp; WEIGHT</b>			Indoor unit			Outdoor unit		
Unit dimensions	Height	mm (in.)	310 (12-7/32)			1230 (48- 7/16)		
	Width	mm (in.)	1,480 (58-9/32)			940 (37)		
	Depth	mm (in.)	630 (24-26/32)			340 (13-3 /8)		
Package dimensions	Height	mm (in.)	358 (14-3/32)			1330 (52-3 /8)		
	Width	mm (in.)	1,671 (65-25/32)			1015 (39-31/32)		
	Depth	mm (in.)	783 (30-26/32)			409 (16-3/32)		
Net weight	kg (lb.)		47 (104)			100 (220)		
Shipping weight	kg (lb.)		52 (115)			109 (240)		
Shipping volume	m <sup>3</sup> (cu. Ft)		0.468 (16.5)			0.552 (19.5)		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

#### Cooling:

Rating conditions (\*): Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB

Full load conditions (\*\*): Indoor air temperature 32°C DB/23°C WB, Outdoor air temperature 43°C DB

#### Heating:

Rating conditions (\*): Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

Full load conditions (\*\*): Indoor air temperature 24°C DB, Outdoor air temperature 24°C DB/15.5°C WB

## 1-2. Major Component Specifications

### (A) Indoor Units

#### Wall-Mounted Type MAFP125-165R

<b>MODEL No.</b>		MAFP125-165R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-KR74GXH56 (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Cross-flow ( 1...ø88 / L740 )	
<b>Fan motor</b>			
Model...Nominal output	W	UF4Q-31G5P-S...12W	
Source		220 - 230 - 240 V / 1 phase / 50/60 Hz	
No.of pole...rpm (230 V, High)	rpm	4P...1,164	
Coil resistance (Ambient temperature 20°C)		BRN – WHT : 490.5	ORG – YEL : 39.18
		WHT – VLT : 78.43	YEL – PNK : 213.5
		VLT – ORG : 62.63	
<b>Safety device</b>			
Operating temperature ( 17AM033E5-4 )	Open °C	130 ± 5	
	Close °C	83 ± 15	
Operating temperature ( 9700k211-215 )	Open °C	130 ± 8	
	Close °C	79 ± 15	
Run capacitor	VAC, µF	440 VAC, 1.0µF	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)		ORG – GRY : -	YEL – GRY : -
		RED – GRY : -	BLK – GRY : -
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	2...1.3	
Face area	m <sup>2</sup>	0.231	
<b>Panel</b>			
Model No.		-	
Dew proof heater		-	
Auto louver motor		-	
Coil resistance (at 25°C)		-	
<b>Drain Pump</b>			
Rated	VAC, W	-	
Total head & capacity		-	

## 1-2. Major Component Specifications

### (A) Indoor Units

#### Wall-Mounted Type MAFP185R

<b>MODEL No.</b>		MAFP185R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-KR74GXH56 (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Cross-flow ( 1...ø88 / L740 )	
<b>Fan motor</b>			
Model...Nominal output	W	UF4Q-31G5P-S...12W	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
No.of pole...rpm (230 V, High)	rpm	4P...1,205	
Coil resistance (Ambient temperature 20°C)		BRN - WHT : 490.5	ORG - YEL : 39.18
		WHT - VLT : 78.43	YEL - PNK : 213.5
		VLT - ORG : 62.63	
<b>Safety device</b>			
Operating temperature ( 17AM033E5-4 )	Open °C	130 ± 5	
	Close °C	83 ± 15	
Operating temperature ( 9700k211-215 )	Open °C	130 ± 8	
	Close °C	79 ± 15	
Run capacitor	VAC, µF	440 VAC, 1.2µF	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)		ORG - GRY : -	YEL - GRY : -
		RED - GRY : -	BLK - GRY : -
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	2...1.3	
Face area	m <sup>2</sup>	0.231	
<b>Panel</b>			
Model No.		-	
Dew proof heater		-	
Auto louver motor		-	
Coil resistance (at 25°C)		-	
<b>Drain Pump</b>			
Rated	VAC, W	-	
Total head & capacity		-	

## 1-2. Major Component Specifications

### (A) Indoor Units

#### Wall-Mounted Type MAFP255R

<b>MODEL No.</b>		MAFP255R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-KR254GXH56 (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Cross-flow ( 1...ø100 / L848 )	
<b>Fan motor</b>			
Model...Nominal output	W	KFT4Q-31A5P-S...27W	
Source		220 - 230 - 240 V / 1 phase / 50/60 Hz	
No.of pole...rpm (230 V, High)	rpm	4P...1,147	
Coil resistance (Ambient temperature 20°C)		BRN – WHT : 306.9	ORG – YEL : 23.12
		WHT – VLT : 54.58	YEL – PNK : 96.62
		VLT – ORG : 33.91	
<b>Safety device</b>			
Operating temperature ( 17AM033E5-4 )	Open °C	130 ± 5	
	Close °C	83 ± 15	
Operating temperature ( 9700k211-215 )	Open °C	130 ± 5	
	Close °C	79 ± 15	
Run capacitor	VAC, µF	440 VAC, 1.8µF	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)		ORG – GRY : -	YEL – GRY : -
		RED – GRY : -	BLK – GRY : -
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	2...1.3	
Face area	m <sup>2</sup>	0.329	
<b>Panel</b>			
Model No.		-	
Dew proof heater		-	
Auto louver motor		-	
Coil resistance (at 25°C)		-	
<b>Drain Pump</b>			
Rated	VAC, W	-	
Total head & capacit		-	

## 1-2. Major Component Specifications

### (A) Indoor Units

#### Ceiling-Mounted Type SPAFP255R

<b>MODEL No.</b>		SPAFP255R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-SRP50A-B (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Centrifugal ( 3...ø140 )	
<b>Fan motor</b>			
Model...Nominal output	W	DK8-63B280H...40W	
Source			
No.of pole...rpm (230 V, High)	rpm	8P...980	
Coil resistance (Ambient temperature 20°C)		RED – WHT : 53.0 WHT – BLK : 53.0 BLK – RED : 53.0	
Run capacitor	VAC, µF	-	
<b>Safety device</b>		Thermal protector, fuse	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)		ORG – GRY : -                      YEL – GRY : - RED – GRY : -                      BLK – GRY : -	
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	3...1.4	
Face area	m <sup>2</sup>	0.222	
<b>Panel</b>			
Model No.		-	
Dew proof heater		-	
Auto louver motor		-	
Coil resistance (at 25°C)		-	
<b>Drain Pump</b>			
Rated	VAC, W	-	
Total head & capacity		-	

## 1-2. Major Component Specifications

### (A) Indoor Units

#### Ceiling-Mounted Type SPAFP365R

<b>MODEL No.</b>		SPAFP365R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-SRP50A-B (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Centrifugal ( 4...ø140 )	
<b>Fan motor</b>			
Model...Nominal output	W	DK8-123B280H...80W	
Source			
No.of pole...rpm (230 V, High)	rpm	8P...1040	
Coil resistance (Ambient temperature 20°C)		RED – WHT : 37.0 WHT – BLK : 37.0 BLK – RED : 37.0	
Run capacitor	VAC, µF	-	
<b>Safety device</b>		Thermal protector, fuse	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)		ORG – GRY : -      YEL – GRY : - RED – GRY : -      BLK – GRY : -	
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	3...1.4	
Face area	m <sup>2</sup>	0.326	
<b>Panel</b>			
Model No.		-	
Dew proof heater		-	
Auto louver motor		-	
Coil resistance (at 25°C)		-	
<b>Drain Pump</b>			
Rated	VAC, W	-	
Total head & capacity		-	

## 1-2. Major Component Specifications

### (A) Indoor Units

#### Ceiling-Mounted Type SPAFP485R

<b>MODEL No.</b>		SPAFP485R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-SRP50A-B (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Centrifugal ( 4...ø140 )	
<b>Fan motor</b>			
Model...Nominal output	W	DK8-123B280H...80W	
Source			
No.of pole...rpm (230 V, High)	rpm	8P...1100	
Coil resistance (Ambient temperature 20°C)		RED – WHT : 37.0 WHT – BLK : 37.0 BLK – RED : 37.0	
Run capacitor	VAC, μF	-	
<b>Safety device</b>		Thermal protector, fuse	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)		ORG – GRY : -                      YEL – GRY : - RED – GRY : -                      BLK – GRY : -	
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	3...1.4	
Face area	m <sup>2</sup>	0.326	
<b>Panel</b>			
Model No.		-	
Dew proof heater		-	
Auto louver motor		-	
Coil resistance (at 25°C)		-	
<b>Drain Pump</b>			
Rated	VAC, W	-	
Total head & capacity		-	

## 1-2. Major Component Specifications

### (A) Indoor Units

#### Concealed-Duct DSAFP255R

<b>MODEL No.</b>		DSAFP255R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-TRP50A-B (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Centrifugal ( 2...ø190 )	
<b>Fan motor</b>			
Model...Nominal output	W	KFG4X-71B5P...70W	
Source		220 - 230 - 240 V / 1 phase / 50/60 Hz	
No.of pole...rpm (230 V, High)	rpm	4P...1,063	
Coil resistance (Ambient temperature 20°C)	Ω	BRN - WHT : 74.72	ORG – YEL : 9.588
		WHT – VLT : 19.14	YEL – BLK : 10.52
		VLT – ORG : 10.52	BLK – PNK : 21.72
<b>Safety device</b>			
Operating temperature	Open °C	130 ± 5	
	Close °C	( 115 ± 5 )	
Run capacitor	VAC, μF	450 VAC, 5.0μF	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)	Ω	ORG – GRY : -	YEL – GRY : -
		RED – GRY : -	BLK – GRY : -
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	3...1.5	
Face area	m <sup>2</sup>	0.189	
<b>Panel</b>			
Model No.		-	
Dew proof heater		-	
Auto louver motor		-	
Coil resistance (at 25°C)	Ω	-	
<b>Drain Pump</b>			
Rated	VAC, W	AC230 V, 50 Hz, 12 W	
Total head & capacity		500 mm, 400 cc/min	

## 1-2. Major Component Specifications

### (A) Indoor Units

#### Concealed-Duct DSAFP365R

<b>MODEL No.</b>		DSAFP365R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-TRP50A-B (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Centrifugal ( 3...ø190 )	
<b>Fan motor</b>			
Model...Nominal output	W	KFC4X-141A5P...160W	
Source		220 - 230 - 240 V / 1 phase / 50/60 Hz	
No.of pole...rpm (230 V, High)	rpm	4P...1,207	
Coil resistance (Ambient temperature 20°C)	Ω	BRN – WHT : 25.79	ORG – YEL : 5.792
		WHT – VLT : 5.086	YEL – BLK : 6.746
		VLT – ORG : 8.626	BLK – PNK : 6.361
<b>Safety device</b>			
Operating temperature	Open °C	130 ± 5	
	Close °C	( 115 ± 5 )	
Run capacitor	VAC, μF	450 VAC, 6.0μF	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)	Ω	ORG – GRY : -	YEL – GRY : -
		RED – GRY : -	BLK – GRY : -
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	3...2.0	
Face area	m <sup>2</sup>	0.308	
<b>Panel</b>			
Model No.		-	
Dew proof heater		-	
Auto louver motor		-	
Coil resistance (at 25°C)	Ω	-	
<b>Drain Pump</b>			
Rated	VAC, W	ADP-1413	
Total head & capacity		AC230 V, 50 Hz, 12 W	
		500 mm, 400 cc/min	

## 1-2. Major Component Specifications

### (A) Indoor Units

#### Concealed-Duct DSAFP485R

<b>MODEL No.</b>		DSAFP485R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-TRP50A-B (Microprocessor)	
<b>Fan (Number...diameter)</b>	mm	Centrifugal ( 3...ø190 )	
<b>Fan motor</b>			
Model...Nominal output	W	KFC4X-141A5P...160W	
Source		220 - 230 - 240 V / 1 phase / 50/60 Hz	
No.of pole...rpm (230 V, High)	rpm	4P...1,207	
Coil resistance (Ambient temperature 20°C)	Ω	BRN - WHT : 25.79	ORG – YEL : 5.792
		WHT – VLT : 5.086	YEL – BLK : 6.746
		VLT – ORG : 8.626	BLK – PNK : 6.361
<b>Safety device</b>			
Operating temperature	Open °C	130 ± 5	
	Close °C	( 115 ± 5 )	
Run capacitor	VAC, μF	450 VAC, 8.0μF	
<b>Electronic expansion valve</b>			
Coil		-	
Coil resistance (at 20°C)	Ω	ORG – GRY : -	YEL – GRY : -
		RED – GRY : -	BLK – GRY : -
Valve body		-	
<b>Heat exchanger</b>			
Coil		Aluminum plate fin / Copper tube	
Rows...fin pitch	mm	3...2.0	
Face area	m <sup>2</sup>	0.308	
<b>Panel</b>			
Model No.		-	
Dew proof heater		-	
Auto louver motor		-	
Coil resistance (at 25°C)	Ω	-	
<b>Drain Pump</b>			
Rated	VAC, W	ADP-1413	
Total head & capacity		AC230 V, 50 Hz, 12 W	
		500 mm, 400 cc/min	

## 1-2. Major Component Specifications

### (B) Outdoor Units

#### AES71PIH

<b>MODEL No.</b>		GRFP255R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-CR254GVH56 (Microprocessor)	
Control circuit fuse		250 V, 25 A	
<b>Compressor</b>			
Model.....number		C-7RVN153H0V	
Source		126 V (DC) / 3 phase / 60 Hz (Inverter drive)	
Nominal output	W	1,500	
Compressor oil	cc	650	
Coil resistance (Ambient temperature 25°C)	Ω	C – R : 0.665 C – S : 0.665	R – S : 0.665
Safety control		Discharge temperature control	
Overload relay models			
Operating temperature	Open °C	-	
	Close °C	-	
Crank case heater		-	
<b>Refrigerant amount at shipment</b>		kg	R410A - 1.9
<b>High pressure switch</b>			
Set pressure	OFF	kg/cm <sup>2</sup>	
	ON	kg/cm <sup>2</sup>	
<b>Fan</b>			
Number...diameter		mm	1.....ø460
Air circulation (Hi)		m <sup>3</sup> /h	3,000
<b>Fan speeds (Max.)</b>		~800 rpm (Inverter drive control)	
<b>Fan motor</b>			
Model No.		DAJ12-95A61A	
Source		~280 V / 3 phase	
No. of pole		8	
Nominal output	W	90	
Coil resistance (Ambient temperature 20°C)	Ω	RED – WHT : 30.5 BLU – RED : 30.5	WHT – BLU : 30.5
Safety device		-	
Operating temperature	Open °C	-	
	Close °C	-	
Run capacitor	VAC, μF	-	
<b>Heat exchange</b>			
Coil		Aluminium plate fin / Copper tube	
Rows.....fin pitch	mm	1.....1.6	
Face area	m <sup>2</sup>	0.675	

## 1-2. Major Component Specifications

### (B) Outdoor Units

#### GRFP365R

<b>MODEL No.</b>		GRFP365R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-CR254GVH56 (Microprocessor)	
Control circuit fuse		250 V, 25 A	
<b>Compressor</b>			
Model.....number		C-7RVN153H0V	
Source		126 V (DC) / 3 phase / 60 Hz (Inverter drive)	
Nominal output	W	1,500	
Compressor oil	cc	650	
Coil resistance (Ambient temperature 25°C)	Ω	C – R : 0.665 C – S : 0.665	R – S : 0.665
Safety control			
Overload relay models		Discharge temperature control	
Operating temperature	Open	°C	–
	Close	°C	–
Crank case heater		–	
<b>Refrigerant amount at shipment</b>		kg	R410A - 2.8
<b>High pressure switch</b>			
Set pressure	OFF	kg/cm <sup>2</sup>	
	ON	kg/cm <sup>2</sup>	
<b>Fan</b>			
Number...diameter		mm	1.....ø460
Air circulation (Hi)		m <sup>3</sup> /h	3,300
<b>Fan speeds (Max.)</b>		~830 rpm (Inverter drive control)	
<b>Fan motor</b>			
Model No.		DAJ12-95A61A	
Source		~280 V / 3 phase	
No. of pole		8	
Nominal output	W	90	
Coil resistance (Ambient temperature 20°C)	Ω	RED – WHT : 30.5 BLU – RED : 30.5	WHT – BLU : 30.5
Safety device		–	
Operating temperature	Open	°C	–
	Close	°C	–
Run capacitor	VAC,	μF	–
<b>Heat exchange</b>			
Coil		Aluminium plate fin / Copper tube	
Rows.....fin pitch	mm	2.....1.8	
Face area	m <sup>2</sup>	0.675	

## 1-2. Major Component Specifications

### (B) Outdoor Units

#### GRFP485R

<b>MODEL No.</b>		GRFP485R	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-CR254GVH56 (Microprocessor)	
Control circuit fuse		250 V, 25 A	
<b>Compressor</b>			
Model.....number		C-9RVN273H0W	
Source		126 V (DC) / 3 phase / 60 Hz (Inverter drive)	
Nominal output	W	2,700	
Compressor oil	cc	1,900	
Coil resistance (Ambient temperature 25°C)		C – R : 0.169 C – S : 0.169	R – S : 0.169
<b>Safety control</b>			
Overload relay models		Discharge temperature control	
Operating temperature	Open	°C	–
	Close	°C	–
Crank case heater		–	
<b>Refrigerant amount at shipment</b>		kg	R410A - 3.6
<b>High pressure switch</b>			
Set pressure	OFF	kg/cm <sup>2</sup>	
	ON	kg/cm <sup>2</sup>	
<b>Fan</b>			
Number...diameter		mm	2.....ø460
Air circulation (Hi)		m <sup>3</sup> /h	6,000
<b>Fan speeds (Max.)</b>		~800 rpm (Inverter drive control)	
<b>Fan motor</b>			
Model No.		DAJ12-95A61A,B	
Source		~280 V / 3 phase	
No. of pole		8	
Nominal output	W	90	
Coil resistance (Ambient temperature 20°C)		RED – WHT : 30.5 BLU – RED : 30.5	WHT – BLU : 30.5
<b>Safety device</b>			
Operating temperature	Open	°C	–
	Close	°C	–
Run capacitor	VAC,	μF	–
<b>Heat exchange</b>			
Coil		Aluminium plate fin / Copper tube	
Rows.....fin pitch	mm	2.....2.0	
Face area	m <sup>2</sup>	1.080	

## 1-2. Major Component Specifications

### (B) Outdoor Units

#### GRFP255L

<b>MODEL No.</b>		GRFP255L	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-CR254GVH56 (Microprocessor)	
Control circuit fuse		250 V, 25 A	
<b>Compressor</b>			
Model.....number		C-7RVN153H0V	
Source		126 V (DC) / 3 phase / 60 Hz (Inverter drive)	
Nominal output	W	1,500	
Compressor oil	cc	650	
Coil resistance (Ambient temperature 25°C)	Ω	C – R : 0.665	R – S : 0.665
		C – S : 0.665	
Safety control			
Overload relay models		Discharge temperature control	
Operating temperature	Open °C	-	
	Close °C	-	
Crank case heater		-	
<b>Refrigerant amount at shipment</b>		kg	R410A - 1.9
<b>High pressure switch</b>			
Set pressure	OFF	kg/cm <sup>2</sup>	
	ON	kg/cm <sup>2</sup>	
<b>Fan</b>			
Propeller			
Number...diameter	mm	1.....ø460	
Air circulation (Hi)	m <sup>3</sup> /h	3,000	
<b>Fan speeds (Max.)</b>		~800 rpm (Inverter drive control)	
<b>Fan motor</b>			
Model No.		DAJ12-95A61A	
Source		~280 V / 3 phase	
No. of pole		8	
Nominal output	W	90	
Coil resistance (Ambient temperature 20°C)	Ω	RED – WHT : 30.5	WHT – BLU : 30.5
		BLU – RED : 30.5	
Safety device		-	
Operating temperature	Open °C	-	
	Close °C	-	
Run capacitor	VAC, μF	-	
<b>Heat exchange</b>			
Aluminium plate fin / Copper tube			
Coil			
Rows.....fin pitch	mm	1.....1.6	
Face area	m <sup>2</sup>	0.675	

## 1-2. Major Component Specifications

### (B) Outdoor Units

#### GRFP365L

<b>MODEL No.</b>		GRFP365L	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-CR254GVH56 (Microprocessor)	
Control circuit fuse		250 V, 25 A	
<b>Compressor</b>			
Model.....number		C-7RVN153H0V	
Source		126 V (DC) / 3 phase / 60 Hz (Inverter drive)	
Nominal output	W	1,500	
Compressor oil	cc	650	
Coil resistance (Ambient temperature 25°C)	Ω	C – R : 0.665 C – S : 0.665	R – S : 0.665
<b>Safety control</b>			
Overload relay models		Discharge temperature control	
Operating temperature	Open	°C	
	Close	°C	
Crank case heater		-	
<b>Refrigerant amount at shipment</b>		kg	R410A - 2.8
<b>High pressure switch</b>			
Set pressure	OFF	kg/cm <sup>2</sup>	
	ON	kg/cm <sup>2</sup>	
<b>Fan</b>			
Number...diameter		mm	Propeller 1.....ø460
Air circulation (Hi)		m <sup>3</sup> /h	3,300
<b>Fan speeds (Max.)</b>		~830 rpm (Inverter drive control)	
<b>Fan motor</b>			
Model No.		DAJ12-95A61A	
Source		~280 V / 3 phase	
No. of pole		8	
Nominal output	W	90	
Coil resistance (Ambient temperature 20°C)	Ω	RED – WHT : 30.5 BLU – RED : 30.5	WHT – BLU : 30.5
<b>Safety device</b>			
Operating temperature	Open	°C	
	Close	°C	
Run capacitor	VAC,	μF	
<b>Heat exchange</b>			
Coil		Aluminium plate fin / Copper tube	
Rows.....fin pitch	mm	2.....1.8	
Face area	m <sup>2</sup>	0.675	

## 1-2. Major Component Specifications

### (B) Outdoor Units

#### GRFP485L

<b>MODEL No.</b>		GRFP485L	
<b>Source</b>		220 - 230 - 240 V / 1 phase / 50/60 Hz	
<b>Controller P.C.B. Ass'y</b>		CR-CR254GVH56 (Microprocessor)	
Control circuit fuse		250 V, 25 A	
<b>Compressor</b>			
Model.....number		C-9RVN273H0W	
Source		126 V (DC) / 3 phase / 60 Hz (Inverter drive)	
Nominal output	W	2,700	
Compressor oil	cc	1,900	
Coil resistance (Ambient temperature 25°C)	Ω	C – R : 0.169 C – S : 0.169	R – S : 0.169
Safety control		Discharge temperature control	
Overload relay models			
Operating temperature	Open	°C	–
	Close	°C	–
Crank case heater		–	
<b>Refrigerant amount at shipment</b>		kg	R410A - 3.6
<b>High pressure switch</b>			
Set pressure	OFF	kg/cm <sup>2</sup>	
	ON	kg/cm <sup>2</sup>	
<b>Fan</b>			
Number...diameter		mm	2.....ø460
Air circulation (Hi)		m <sup>3</sup> /h	6,000
<b>Fan speeds (Max.)</b>		~800 rpm (Inverter drive control)	
<b>Fan motor</b>			
Model No.		DAJ12-95A61A,B	
Source		~280 V / 3 phase	
No. of pole		8	
Nominal output	W	90	
Coil resistance (Ambient temperature 20°C)	Ω	RED – WHT : 30.5 BLU – RED : 30.5	WHT – BLU : 30.5
Safety device		–	
Operating temperature	Open	°C	–
	Close	°C	–
Run capacitor	VAC,	μF	–
<b>Heat exchange</b>			
Coil		Aluminium plate fin / Copper tube	
Rows.....fin pitch	mm	2.....2.0	
Face area	m <sup>2</sup>	1.080	

### 1-3. Other Component Specifications

#### Wall-Mounted Type MAFP

MODEL No.	Indoor Unit	MAFP125-165-185-255	
<b>Power Transformer</b>		-	
Rated	Primary	VAC, Hz	
	Secondary		
	Coil resistance	$\Omega$	
	Thermal cut off temperature	$^{\circ}\text{C}$	
	<b>Thermistor (Coil sensor) : TH</b>		
Resistance	$\text{K}\Omega$	-10 $^{\circ}\text{C}$ : 23.7 $\pm$ 5 %	20 $^{\circ}\text{C}$ : 6.5 $\pm$ 5 %
		-5 $^{\circ}\text{C}$ : 18.8 $\pm$ 5 %	30 $^{\circ}\text{C}$ : 4.4 $\pm$ 5 %
		0 $^{\circ}\text{C}$ : 15.0 $\pm$ 5 %	40 $^{\circ}\text{C}$ : 3.1 $\pm$ 5 %
		5 $^{\circ}\text{C}$ : 12.1 $\pm$ 5 %	45 $^{\circ}\text{C}$ : 2.6 $\pm$ 5 %
		10 $^{\circ}\text{C}$ : 9.7 $\pm$ 5 %	50 $^{\circ}\text{C}$ : 2.1 $\pm$ 5 %
		<b>Thermistor (Room sensor) :</b>	
Resistance	$\text{K}\Omega$	0 $^{\circ}\text{C}$ : 16.5 $\pm$ 5 %	40 $^{\circ}\text{C}$ : 2.7 $\pm$ 5 %
		5 $^{\circ}\text{C}$ : 12.8 $\pm$ 5 %	45 $^{\circ}\text{C}$ : 2.2 $\pm$ 5 %
		10 $^{\circ}\text{C}$ : 10.0 $\pm$ 5 %	50 $^{\circ}\text{C}$ : 1.8 $\pm$ 5 %
		20 $^{\circ}\text{C}$ : 6.3 $\pm$ 5 %	55 $^{\circ}\text{C}$ : 1.5 $\pm$ 5 %
		30 $^{\circ}\text{C}$ : 4.0 $\pm$ 5 %	
		<b>Electronic expansion valve</b>	
Valve body			-
Coil			-
<b>Drain Pump</b>			
Rated			-
<b>Float switch</b>			
Rated (Contact rated)			-

### 1-3. Other Component Specifications

#### Ceiling-Mounted Type SPAFP

MODEL No.	Indoor Unit	SPAFP255-365-485R	
<b>Power Transformer</b>		-	
Rated		-	
Primary	VAC, Hz	-	
Secondary		-	
Coil resistance		$\Omega$	
Thermal cut off temperature		$^{\circ}\text{C}$	
<b>Thermistor (Coil sensor) : TH</b>			
Resistance	K $\Omega$	-10 $^{\circ}\text{C}$ : 23.7 $\pm$ 5 % , 20 $^{\circ}\text{C}$ : 6.5 $\pm$ 5 % - 5 $^{\circ}\text{C}$ : 18.8 $\pm$ 5 % , 30 $^{\circ}\text{C}$ : 4.4 $\pm$ 5 % 0 $^{\circ}\text{C}$ : 15.0 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 3.1 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.1 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.6 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 9.7 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 2.1 $\pm$ 5 %	
<b>Thermistor (Room sensor) :</b>			
Resistance	K $\Omega$	0 $^{\circ}\text{C}$ : 16.5 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 2.7 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.8 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.2 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 10.0 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 1.8 $\pm$ 5 % 20 $^{\circ}\text{C}$ : 6.3 $\pm$ 5 % , 55 $^{\circ}\text{C}$ : 1.5 $\pm$ 5 % 30 $^{\circ}\text{C}$ : 4.0 $\pm$ 5 % ,	
<b>Electronic expansion valve</b>			
Valve body		-	
Coil		-	
<b>Drain Pump</b>		-	
Rated		-	
<b>Float switch</b>		FS-0218-102	
Rated (Contact rated)			

### 1-3. Other Component Specifications

#### Concealed-Duct Type DSAFP

MODEL No.	Indoor Unit	DSAFP255-365-485R	
<b>Power Transformer</b>		-	
Rated			
Primary	VAC, Hz		
Secondary			
Coil resistance		$\Omega$	
Thermal cut off temperature		$^{\circ}\text{C}$	
<b>Thermistor (Coil sensor) : TH</b>			
Resistance	K $\Omega$	-10 $^{\circ}\text{C}$ : 23.7 $\pm$ 5 % , 20 $^{\circ}\text{C}$ : 6.5 $\pm$ 5 % -5 $^{\circ}\text{C}$ : 18.8 $\pm$ 5 % , 30 $^{\circ}\text{C}$ : 4.4 $\pm$ 5 % 0 $^{\circ}\text{C}$ : 15.0 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 3.1 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.1 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.6 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 9.7 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 2.1 $\pm$ 5 %	
<b>Thermistor (Room sensor) :</b>			
Resistance	K $\Omega$	0 $^{\circ}\text{C}$ : 16.5 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 2.7 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.8 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.2 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 10.0 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 1.8 $\pm$ 5 % 20 $^{\circ}\text{C}$ : 6.3 $\pm$ 5 % , 55 $^{\circ}\text{C}$ : 1.5 $\pm$ 5 % 30 $^{\circ}\text{C}$ : 4.0 $\pm$ 5 % ,	
<b>Electronic expansion valve</b>			
Valve body		-	
Coil		-	
<b>Drain Pump</b>		ADP-1413	
Rated		AC230 V $^{\circ}\text{C}$ 12 W	
<b>Float switch</b>		FS-0218-102	
Rated (Contact rated)			

### 1-3. Other Component Specifications

#### Outdoor Units GRFP255R

MODEL No.	Outdoor Unit	GRFP255R
<b>Power Transformer</b>		–
Rated		–
Primary	VAC, Hz	230 V, 50 Hz
Secondary		14 V, 0.4A
Coil resistance	$\Omega$	WHT – WHT : 300 BRN – BRN : 2.2
Thermal cut off temperature		$^{\circ}\text{C}$
<b>Thermistor (Coil sensor) : TH7</b>		PBC - 41E - S4
Resistance	$\text{K}\Omega$	–10 $^{\circ}\text{C}$ : 23.7 $\pm$ 5 % , 20 $^{\circ}\text{C}$ : 6.5 $\pm$ 5 % –5 $^{\circ}\text{C}$ : 18.8 $\pm$ 5 % , 30 $^{\circ}\text{C}$ : 4.4 $\pm$ 5 % 0 $^{\circ}\text{C}$ : 15.0 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 3.1 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.1 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.6 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 9.7 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 2.1 $\pm$ 5 %
<b>Thermistor (Discharge gas sensor) : TH8</b>		PTC - 51H - S1
Resistance	$\text{K}\Omega$	60 $^{\circ}\text{C}$ : 13.8 , 90 $^{\circ}\text{C}$ : 5.1 70 $^{\circ}\text{C}$ : 9.7 , 100 $^{\circ}\text{C}$ : 3.8 75 $^{\circ}\text{C}$ : 8.2 , 110 $^{\circ}\text{C}$ : 2.8 80 $^{\circ}\text{C}$ : 7.0 , 120 $^{\circ}\text{C}$ : 2.2 85 $^{\circ}\text{C}$ : 5.9 , 130 $^{\circ}\text{C}$ : 1.7
<b>Relay (Comp. Magnetic Contactor)</b>		–
Coil rated	VAC	–
Contact rating	VAC, A	–
Coil resistance (at 25 $^{\circ}\text{C}$ )	$\Omega$	–
<b>Solenoid coil or 4 way valve</b>		
4 way valve		STF-01AJ512D1
Solenoid coil		–

### 1-3. Other Component Specifications

#### Outdoor Units GRFP365R

MODEL No.	Outdoor Unit	GRFP365R
<b>Power Transformer</b>		–
Rated		–
Primary	VAC, Hz	230 V, 50 Hz
Secondary		14 V, 0.4A
Coil resistance	$\Omega$	WHT – WHT : 300 BRN – BRN : 2.2
Thermal cut off temperature	$^{\circ}\text{C}$	–
<b>Thermistor (Coil sensor) : TH7</b>		PBC - 41E - S4
Resistance	$\text{K}\Omega$	–10 $^{\circ}\text{C}$ : 23.7 $\pm$ 5 % , 20 $^{\circ}\text{C}$ : 6.5 $\pm$ 5 % – 5 $^{\circ}\text{C}$ : 18.8 $\pm$ 5 % , 30 $^{\circ}\text{C}$ : 4.4 $\pm$ 5 % 0 $^{\circ}\text{C}$ : 15.0 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 3.1 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.1 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.6 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 9.7 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 2.1 $\pm$ 5 %
<b>Thermistor (Discharge gas sensor) : TH8</b>		PTC - 51H - S1
Resistance	$\text{K}\Omega$	60 $^{\circ}\text{C}$ : 13.8 , 90 $^{\circ}\text{C}$ : 5.1 70 $^{\circ}\text{C}$ : 9.7 , 100 $^{\circ}\text{C}$ : 3.8 75 $^{\circ}\text{C}$ : 8.2 , 110 $^{\circ}\text{C}$ : 2.8 80 $^{\circ}\text{C}$ : 7.0 , 120 $^{\circ}\text{C}$ : 2.2 85 $^{\circ}\text{C}$ : 5.9 , 130 $^{\circ}\text{C}$ : 1.7
<b>Relay (Comp. Magnetic Contactor)</b>		–
Coil rated	VAC	–
Contact rating	VAC, A	–
Coil resistance (at 25 $^{\circ}\text{C}$ )	$\Omega$	–
<b>Solenoid coil or 4 way valve</b>		
4 way valve		STF-01AJ512D1
Solenoid coil		–

### 1-3. Other Component Specifications

#### Outdoor Units GRFP485R

MODEL No.	Outdoor Unit	GRFP485R
<b>Power Transformer</b>		–
Rated		–
Primary	VAC, Hz	230 V, 50 Hz
Secondary		14 V, 0.4A
Coil resistance	$\Omega$	WHT – WHT : 300 BRN – BRN : 2.2
Thermal cut off temperature	$^{\circ}\text{C}$	–
<b>Thermistor (Coil sensor) : TH7</b>		PBC - 41E - S4
Resistance	K $\Omega$	–10 $^{\circ}\text{C}$ : 23.7 $\pm$ 5 % , 20 $^{\circ}\text{C}$ : 6.5 $\pm$ 5 % – 5 $^{\circ}\text{C}$ : 18.8 $\pm$ 5 % , 30 $^{\circ}\text{C}$ : 4.4 $\pm$ 5 % 0 $^{\circ}\text{C}$ : 15.0 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 3.1 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.1 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.6 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 9.7 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 2.1 $\pm$ 5 %
<b>Thermistor (Discharge gas sensor) : TH8</b>		PTC - 51H - S1
Resistance	K $\Omega$	60 $^{\circ}\text{C}$ : 13.8 , 90 $^{\circ}\text{C}$ : 5.1 70 $^{\circ}\text{C}$ : 9.7 , 100 $^{\circ}\text{C}$ : 3.8 75 $^{\circ}\text{C}$ : 8.2 , 110 $^{\circ}\text{C}$ : 2.8 80 $^{\circ}\text{C}$ : 7.0 , 120 $^{\circ}\text{C}$ : 2.2 85 $^{\circ}\text{C}$ : 5.9 , 130 $^{\circ}\text{C}$ : 1.7
<b>Relay (Comp. Magnetic Contactor)</b>		–
Coil rated	VAC	–
Contact rating	VAC, A	–
Coil resistance (at 25 $^{\circ}\text{C}$ )	$\Omega$	–
<b>Solenoid coil or 4 way valve</b>		
4 way valve		STF-01AJ512D1
Solenoid coil		–

### 1-3. Other Component Specifications

#### Outdoor Units GRFP255L

MODEL No.	Outdoor Unit	GRFP255L
<b>Power Transformer</b>		–
Rated		–
Primary	VAC, Hz	230 V, 50 Hz
Secondary		14 V, 0.4A
Coil resistance	$\Omega$	WHT – WHT : 300 BRN – BRN : 2.2
Thermal cut off temperature	$^{\circ}\text{C}$	–
<b>Thermistor (Coil sensor) : TH7</b>		PBC - 41E - S4
Resistance	K $\Omega$	–10 $^{\circ}\text{C}$ : 23.7 $\pm$ 5 % , 20 $^{\circ}\text{C}$ : 6.5 $\pm$ 5 % – 5 $^{\circ}\text{C}$ : 18.8 $\pm$ 5 % , 30 $^{\circ}\text{C}$ : 4.4 $\pm$ 5 % 0 $^{\circ}\text{C}$ : 15.0 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 3.1 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.1 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.6 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 9.7 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 2.1 $\pm$ 5 %
<b>Thermistor (Discharge gas sensor) : TH8</b>		PTC - 51H - S1
Resistance	K $\Omega$	60 $^{\circ}\text{C}$ : 13.8 , 90 $^{\circ}\text{C}$ : 5.1 70 $^{\circ}\text{C}$ : 9.7 , 100 $^{\circ}\text{C}$ : 3.8 75 $^{\circ}\text{C}$ : 8.2 , 110 $^{\circ}\text{C}$ : 2.8 80 $^{\circ}\text{C}$ : 7.0 , 120 $^{\circ}\text{C}$ : 2.2 85 $^{\circ}\text{C}$ : 5.9 , 130 $^{\circ}\text{C}$ : 1.7
<b>Relay (Comp. Magnetic Contactor)</b>		–
Coil rated	VAC	–
Contact rating	VAC, A	–
Coil resistance (at 25 $^{\circ}\text{C}$ )	$\Omega$	–
<b>Solenoid coil or 4 way valve</b>		
4 way valve		–
Solenoid coil		–

### 1-3. Other Component Specifications

#### Outdoor Units GRFP365L

MODEL No.	Outdoor Unit	GRFP365L
<b>Power Transformer</b>		–
Rated		–
Primary	VAC, Hz	230 V, 50 Hz
Secondary		14 V, 0.4A
Coil resistance	$\Omega$	WHT – WHT : 300 BRN – BRN : 2.2
Thermal cut off temperature	$^{\circ}\text{C}$	–
<b>Thermistor (Coil sensor) : TH7</b>		PBC - 41E - S4
Resistance	K $\Omega$	–10 $^{\circ}\text{C}$ : 23.7 $\pm$ 5 % , 20 $^{\circ}\text{C}$ : 6.5 $\pm$ 5 % – 5 $^{\circ}\text{C}$ : 18.8 $\pm$ 5 % , 30 $^{\circ}\text{C}$ : 4.4 $\pm$ 5 % 0 $^{\circ}\text{C}$ : 15.0 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 3.1 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.1 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.6 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 9.7 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 2.1 $\pm$ 5 %
<b>Thermistor (Discharge gas sensor) : TH8</b>		PTC - 51H - S1
Resistance	K $\Omega$	60 $^{\circ}\text{C}$ : 13.8 , 90 $^{\circ}\text{C}$ : 5.1 70 $^{\circ}\text{C}$ : 9.7 , 100 $^{\circ}\text{C}$ : 3.8 75 $^{\circ}\text{C}$ : 8.2 , 110 $^{\circ}\text{C}$ : 2.8 80 $^{\circ}\text{C}$ : 7.0 , 120 $^{\circ}\text{C}$ : 2.2 85 $^{\circ}\text{C}$ : 5.9 , 130 $^{\circ}\text{C}$ : 1.7
<b>Relay (Comp. Magnetic Contactor)</b>		–
Coil rated	VAC	–
Contact rating	VAC, A	–
Coil resistance (at 25 $^{\circ}\text{C}$ )	$\Omega$	–
<b>Solenoid coil or 4 way valve</b>		
4 way valve		–
Solenoid coil		–

### 1-3. Other Component Specifications

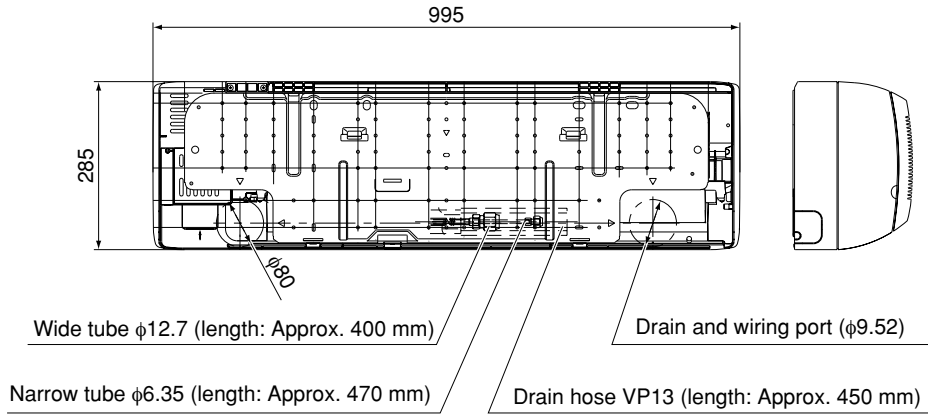
#### Outdoor Units GRFP485L

MODEL No.	Outdoor Unit	GRFP485L
<b>Power Transformer</b>		–
Rated		–
Primary	VAC, Hz	230 V, 50 Hz
Secondary		14 V, 0.4A
Coil resistance	$\Omega$	WHT – WHT : 300 BRN – BRN : 2.2
Thermal cut off temperature	$^{\circ}\text{C}$	–
<b>Thermistor (Coil sensor) : TH7</b>		PBC - 41E - S4
Resistance	$\text{K}\Omega$	–10 $^{\circ}\text{C}$ : 23.7 $\pm$ 5 % , 20 $^{\circ}\text{C}$ : 6.5 $\pm$ 5 % – 5 $^{\circ}\text{C}$ : 18.8 $\pm$ 5 % , 30 $^{\circ}\text{C}$ : 4.4 $\pm$ 5 % 0 $^{\circ}\text{C}$ : 15.0 $\pm$ 5 % , 40 $^{\circ}\text{C}$ : 3.1 $\pm$ 5 % 5 $^{\circ}\text{C}$ : 12.1 $\pm$ 5 % , 45 $^{\circ}\text{C}$ : 2.6 $\pm$ 5 % 10 $^{\circ}\text{C}$ : 9.7 $\pm$ 5 % , 50 $^{\circ}\text{C}$ : 2.1 $\pm$ 5 %
<b>Thermistor (Discharge gas sensor) : TH8</b>		PTC - 51H - S1
Resistance	$\text{K}\Omega$	60 $^{\circ}\text{C}$ : 13.8 , 90 $^{\circ}\text{C}$ : 5.1 70 $^{\circ}\text{C}$ : 9.7 , 100 $^{\circ}\text{C}$ : 3.8 75 $^{\circ}\text{C}$ : 8.2 , 110 $^{\circ}\text{C}$ : 2.8 80 $^{\circ}\text{C}$ : 7.0 , 120 $^{\circ}\text{C}$ : 2.2 85 $^{\circ}\text{C}$ : 5.9 , 130 $^{\circ}\text{C}$ : 1.7
<b>Relay (Comp. Magnetic Contactor)</b>		–
Coil rated	VAC	–
Contact rating	VAC, A	–
Coil resistance (at 25 $^{\circ}\text{C}$ )	–	–
<b>Solenoid coil or 4 way valve</b>		
4 way valve		–
Solenoid coil		–

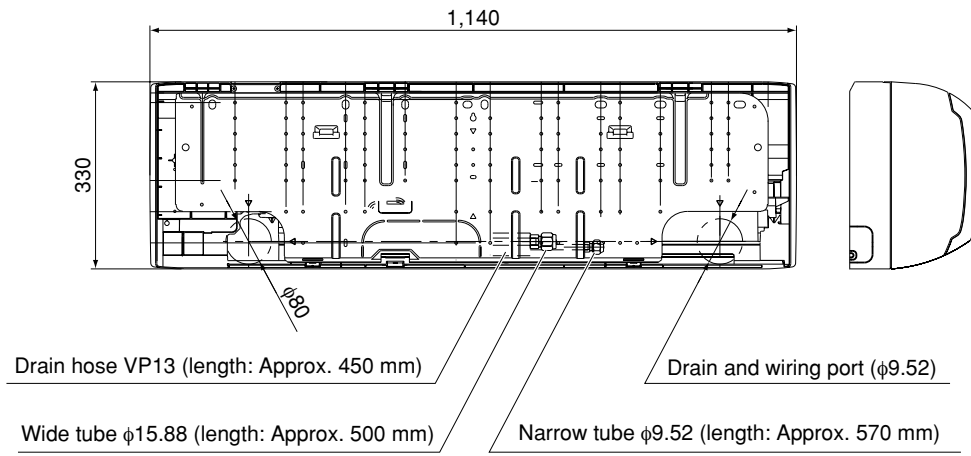
1-4. Dimensional Data

(A) Indoor Units: Wall-Mounted Type

12, 16, 18 Type



25 Type

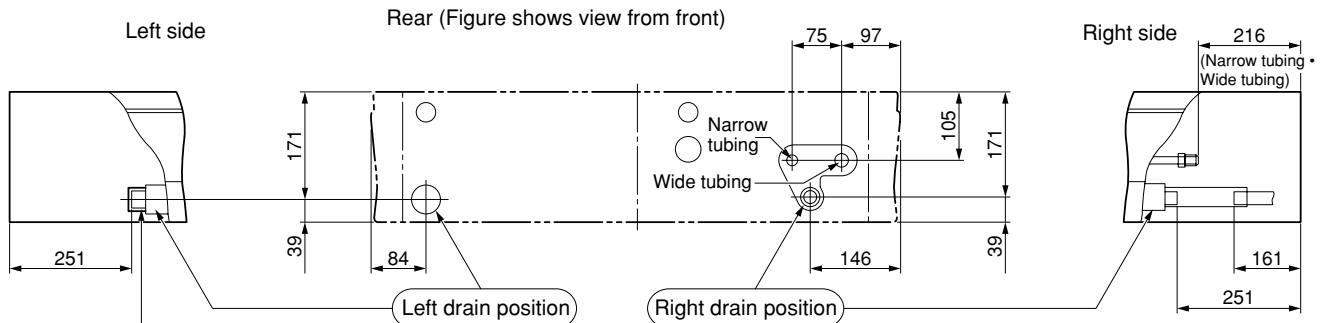
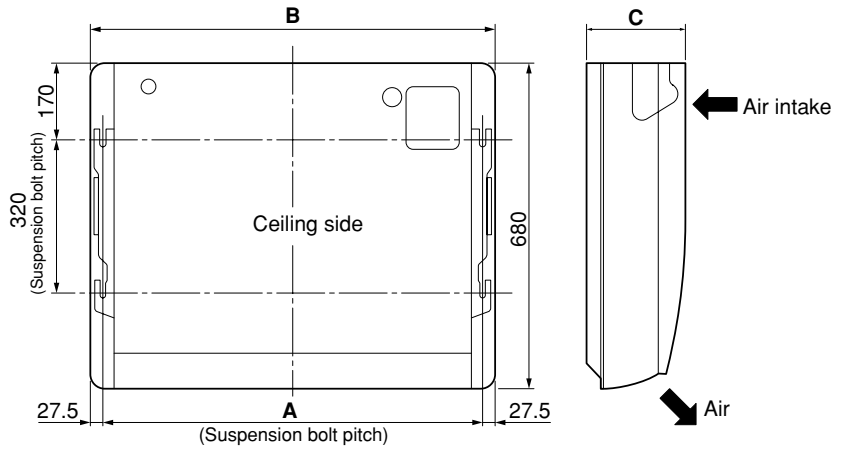


# 1-4. Dimensional Data

## (A) Indoor Units: Ceiling-Mounted Type

Length Type	A	B	C
25	1125	1180	210
36, 48	1540	1595	210

Unit: mm

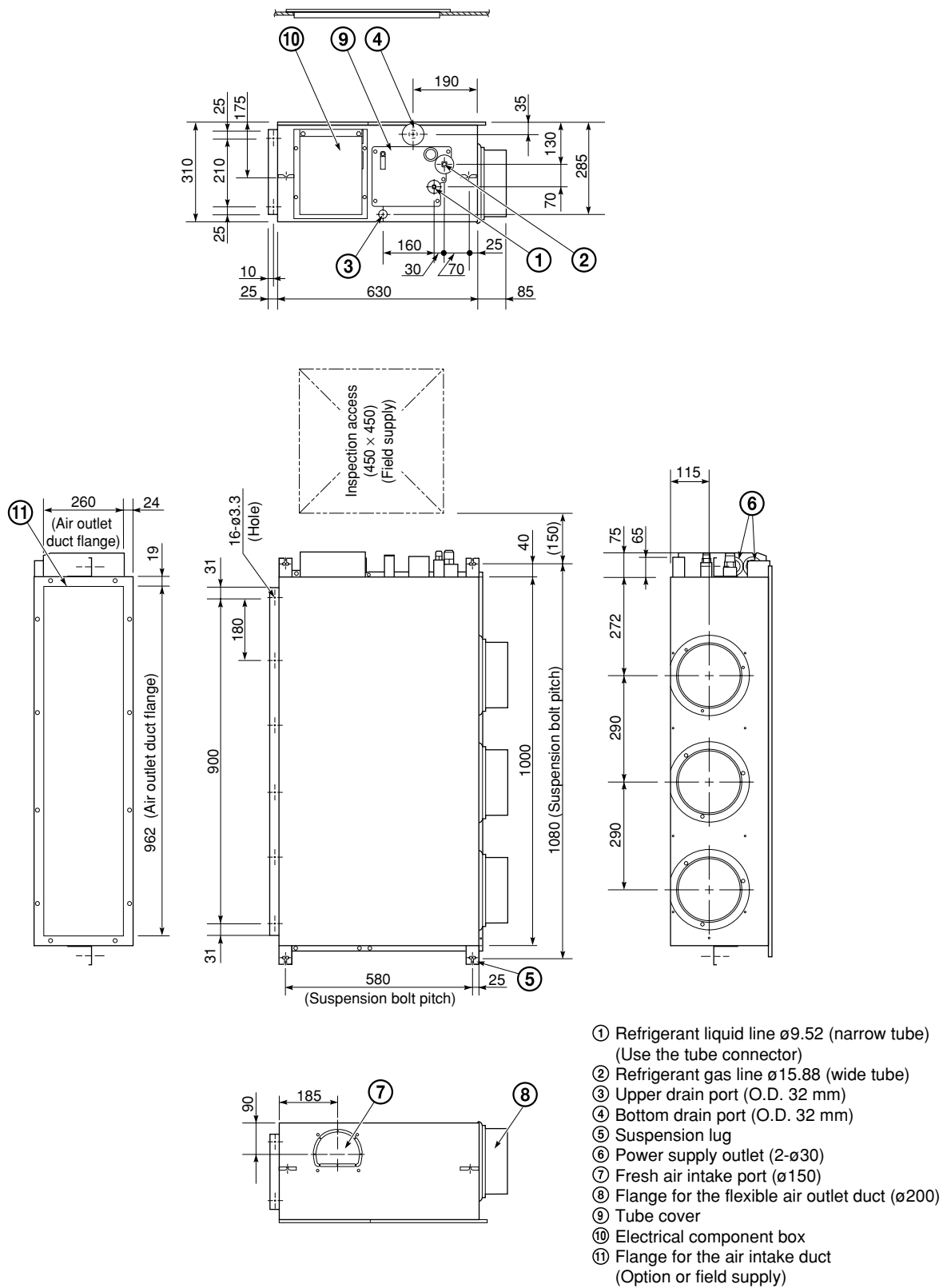


Closed with rubber stopper at time of shipment.

# 1-4. Dimensional Data

## (A) Indoor Unit: Concealed-Duct Type

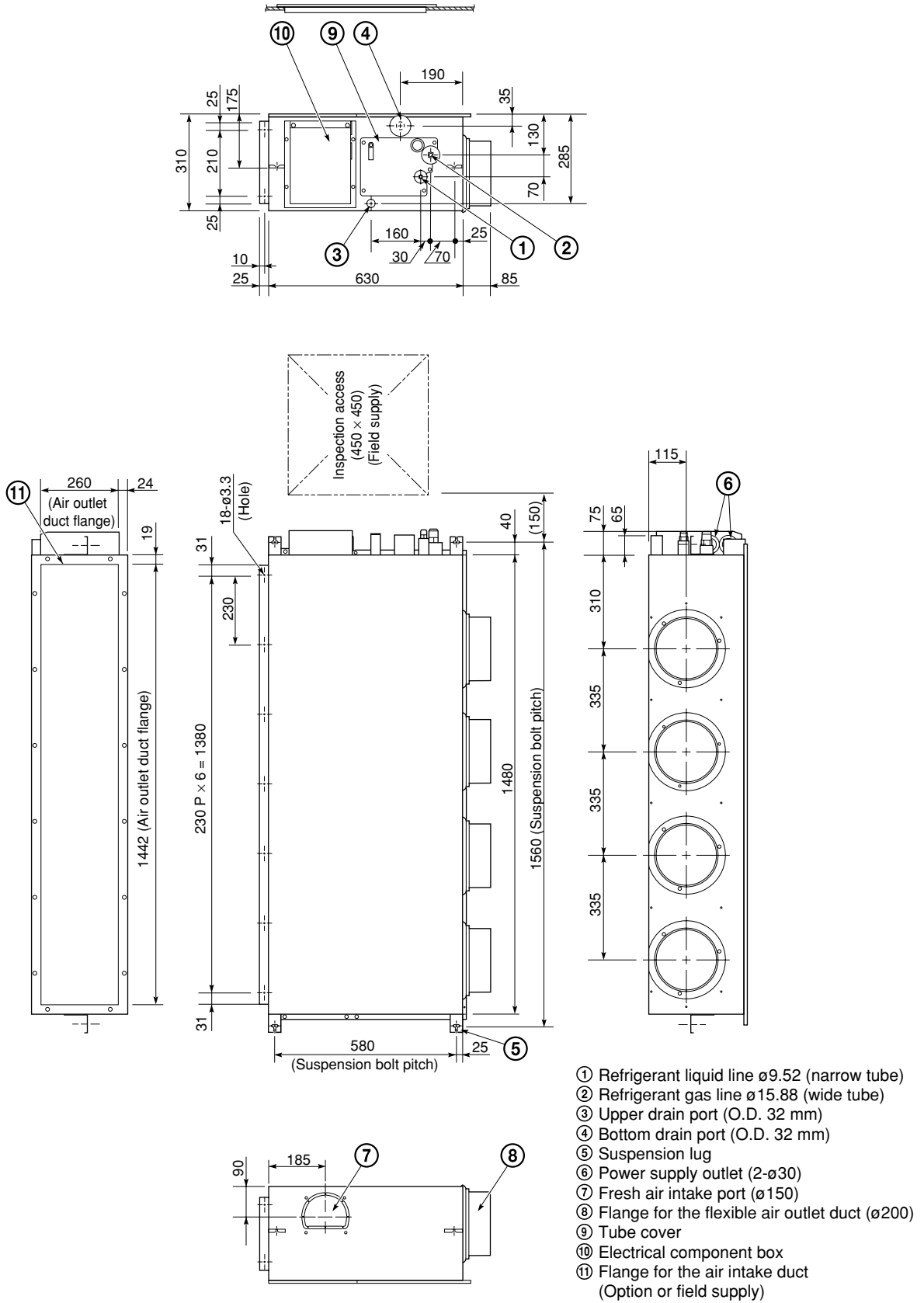
### 25 Type



# 1-4. Dimensional Data

## (A) Indoor Unit: Concealed-Duct Type

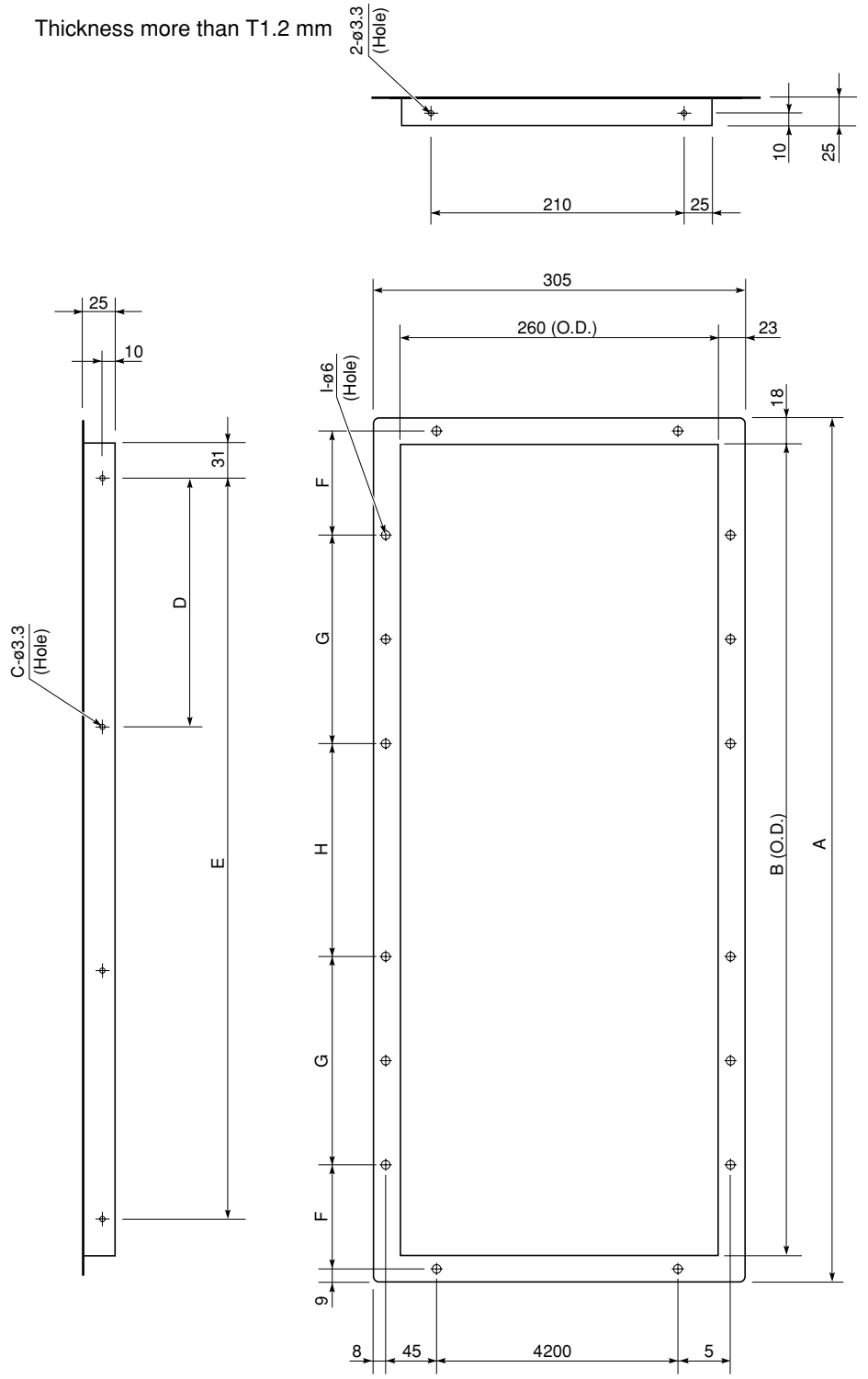
36, 48 Type



- ① Refrigerant liquid line ø9.52 (narrow tube)
- ② Refrigerant gas line ø15.88 (wide tube)
- ③ Upper drain port (O.D. 32 mm)
- ④ Bottom drain port (O.D. 32 mm)
- ⑤ Suspension lug
- ⑥ Power supply outlet (2-ø30)
- ⑦ Fresh air intake port (ø150)
- ⑧ Flange for the flexible air outlet duct (ø200)
- ⑨ Tube cover
- ⑩ Electrical component box
- ⑪ Flange for the air intake duct (Option or field supply)

### 1-4. Dimensional Data

#### (A) Indoor Unit: Flange for Air Intake Duct (Field Supply) For Concealed-Duct Type

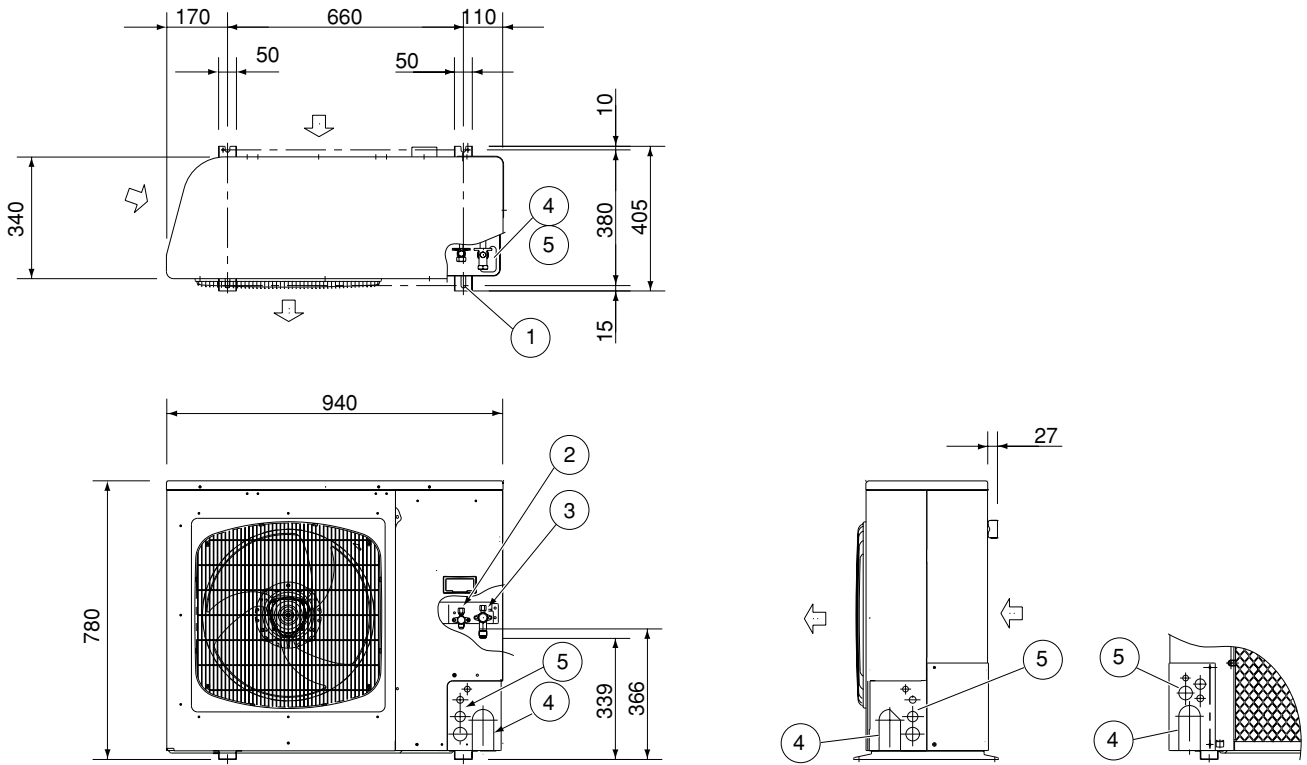


(mm)

	A	B	C	D	E	F	G	H	I
71 type	998	962	6	180	5 × 180P = 900	120	245 (245 × 1)	250	16
100, 125 type	1,478	1,442	7	230	6 × 230P = 1,380	120	490 (245 × 2)	240	20

# 1-4. Dimensional Data

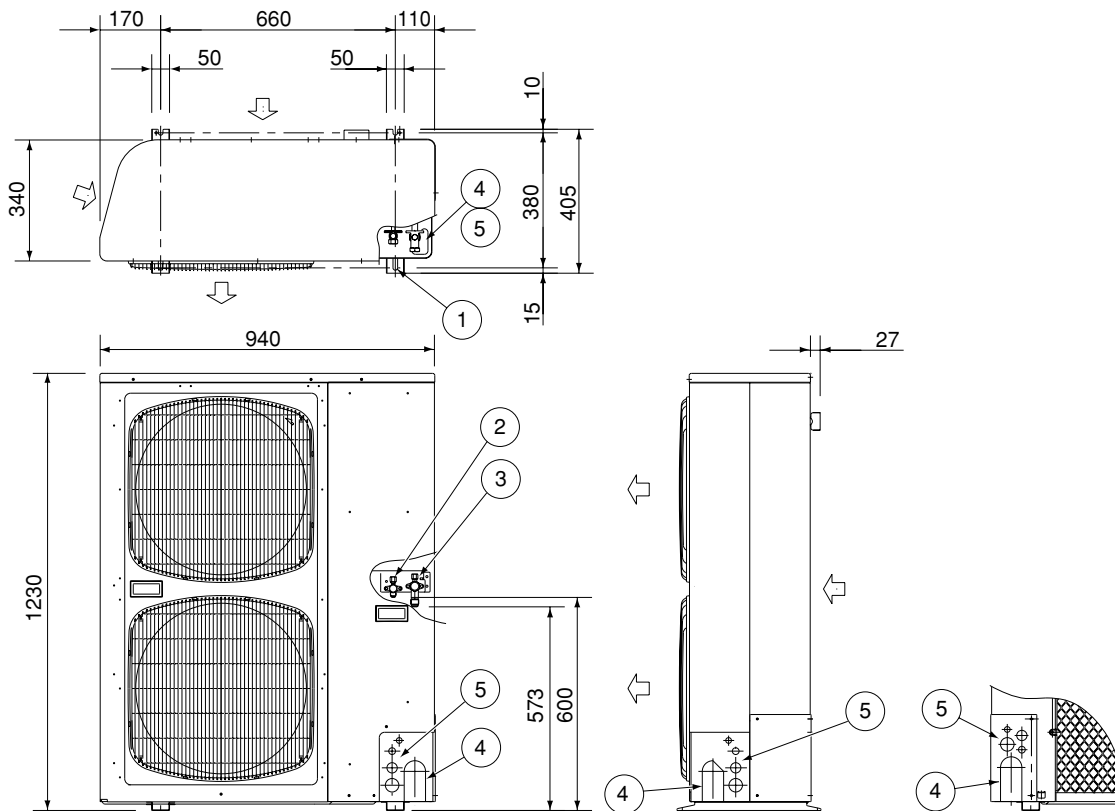
## (B) Outdoor Units: GRFP255-365



①	Hole for anchor bolt (4-R6.5) / Anchor bolt: M10
②	Refrigerant tube joint (liquid line tube) • Flare connection 3/8 in (9.52 mm)
③	Refrigerant tube joint (gas line tube) • Flare connection 5/8 in (15.88 mm)
④	Refrigerant tubing inlet (knock-out hole)
⑤	Power supply inlet (knock-out hole $\phi$ 38, $\phi$ 29, $\phi$ 19, $\phi$ 16 mm)

# 1-4. Dimensional Data

## (B) Outdoor Unit: GRFP485

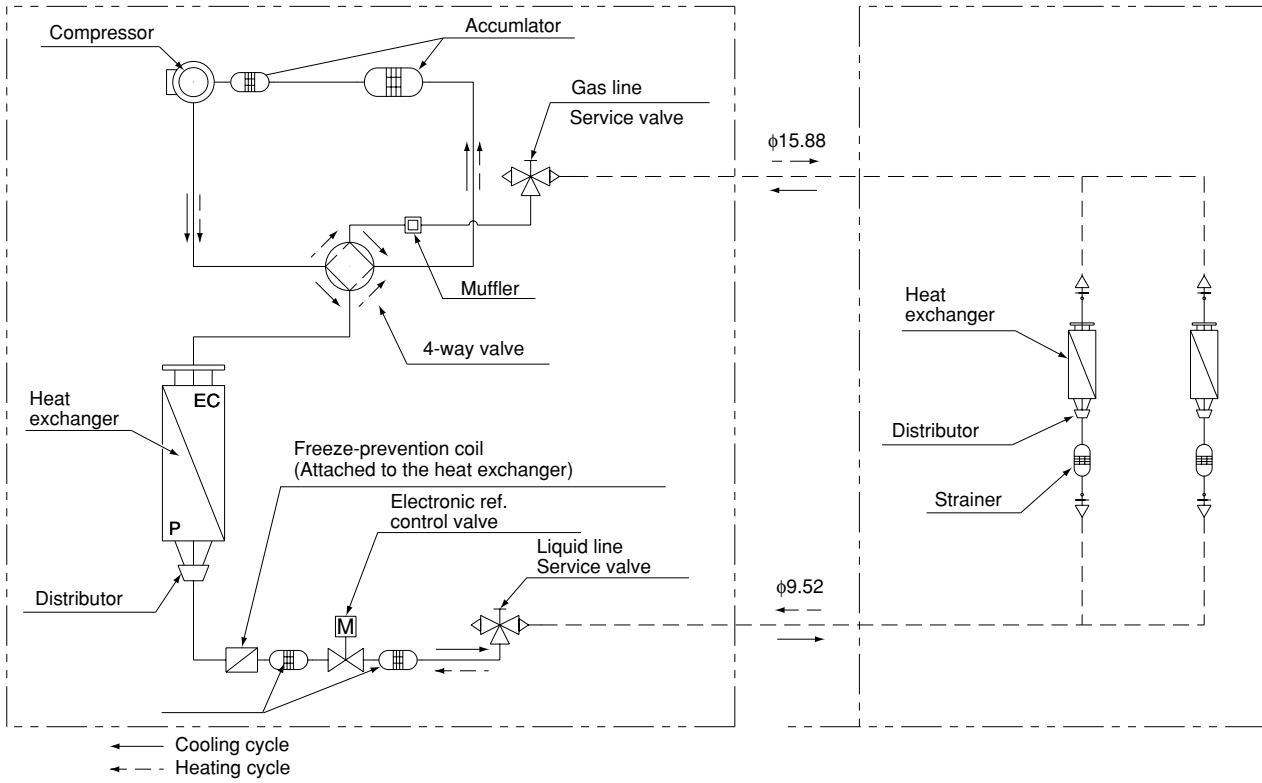


①	Hole for anchor bolt (4-R6.5) / Anchor bolt: M10
②	Refrigerant tube joint (liquid line tube) • Flare connection 3/8 in (9.52 mm)
③	Refrigerant tube joint (gas line tube) • Flare connection 5/8 in (15.88 mm)
④	Refrigerant tubing inlet (knock-out hole)
⑤	Power supply inlet (knock-out hole $\phi 38, \phi 29, \phi 19, \phi 16$ mm)

# 1-5. Refrigerant Flow Diagram

Outdoor Unit: GRFP255L-R  
GRFP365L-R

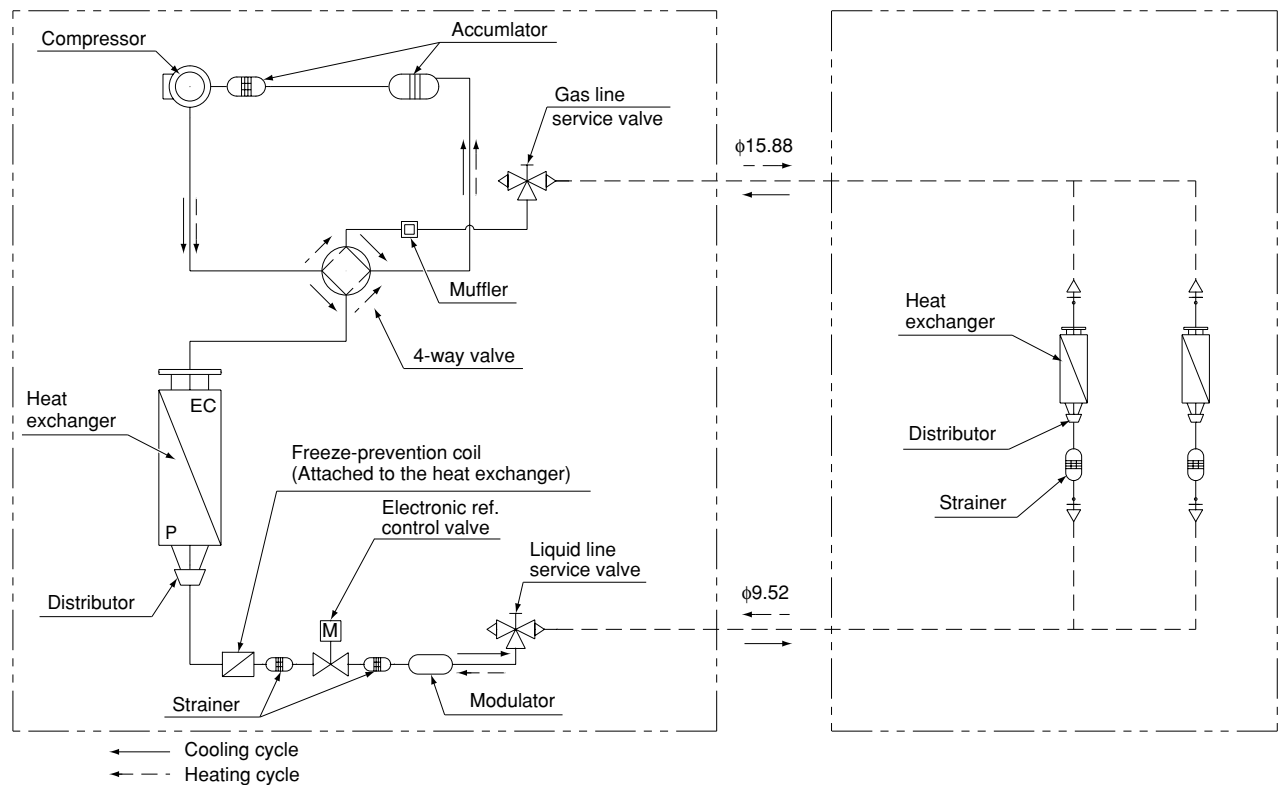
Indoor Unit: 25, 36 Types



### 1-5. Refrigerant Flow Diagram

Outdoor Unit: GRFP485L-R

Indoor Unit: 48 Type



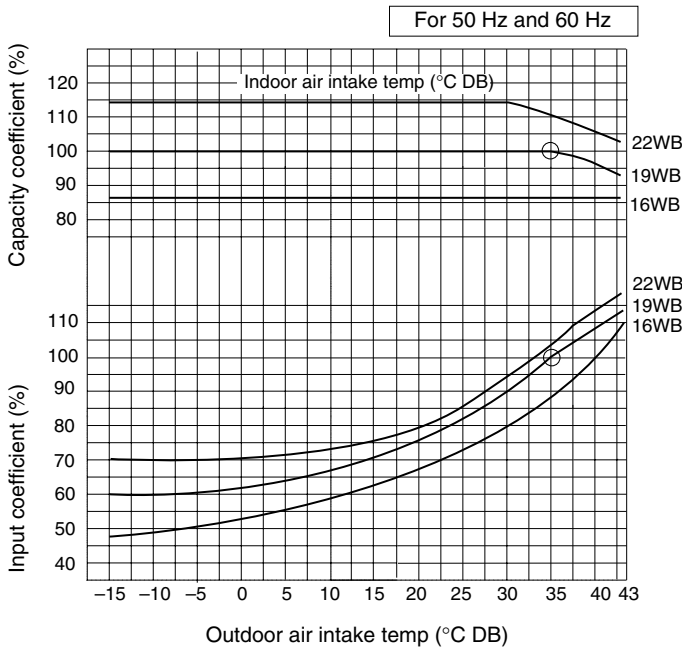
### 1-6. Operating Range

	Temperature	Indoor air intake temp.	Outdoor air intake temp.
Cooling	Maximum	32°C DB / 23°C WB	43°C DB
	Minimum	18°C DB / 14°C WB	-15°C DB
Heating	Maximum	30°C DB / - WB	15°C WB
	Minimum	-	-15°C WB

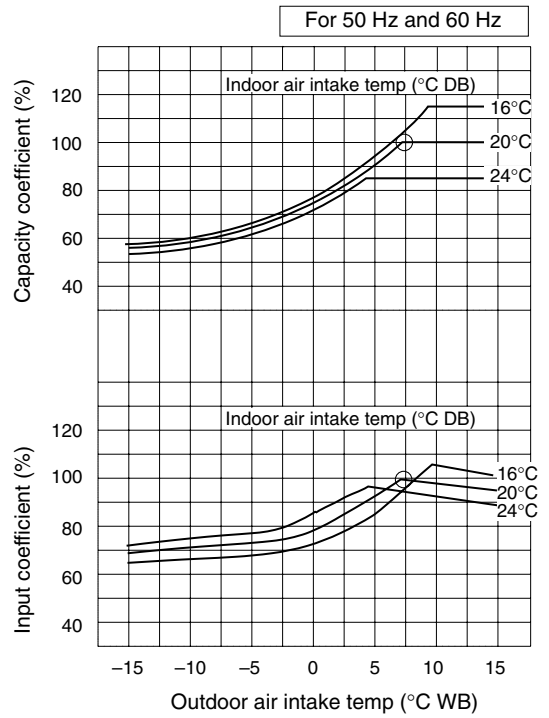
# 1-7. Capacity Correction Graph According to Temperature Condition

GRFP255-365-485R

Cooling capacity ratio (maximum capacity)



Heating capacity ratio (maximum capacity)



Outdoor unit heating capacity correction coefficient during of frosting/defrosting (RH approximately 85%)

Outdoor intake air temperature °C WB (85% RH)	-15	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Correction coefficient	0.97	0.97	0.96	0.96	0.95	0.94	0.91	0.89	0.88	0.87	0.87	0.87	0.88	0.89	0.91	0.92	0.95	1.0

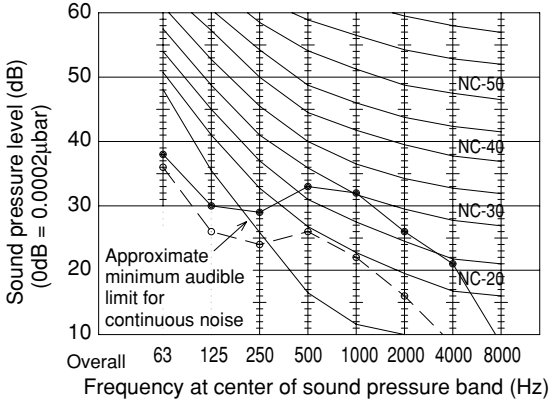
To calculate the heating capacity with consideration for frosting/defrosting operation, multiply the heating capacity found from the capacity graph by the correction coefficient from the table above.

# 1-8. Noise Criterion Curves

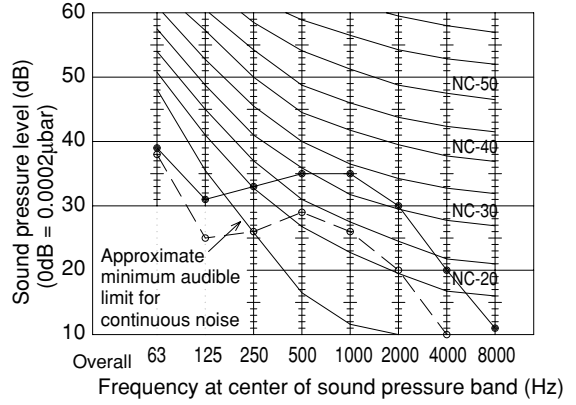
## Wall-Mounted Type

Both 50Hz and 60Hz  
 —●— Strong  
 - - - Weak

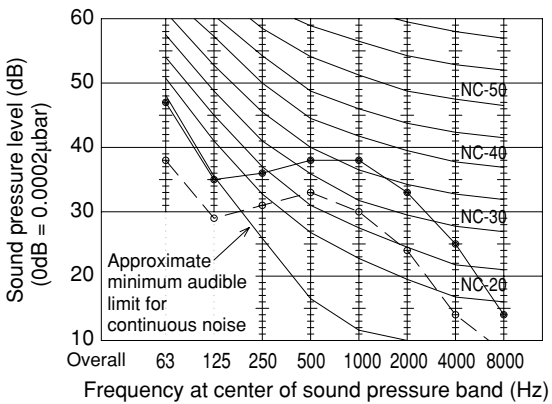
MODEL	:MAFP125-165R
SOUND LEVEL : STRONG	36 dB(A)
HIGH	32 dB(A)
LOW	28 dB(A)
CONDITION	: 1 m in front at height of 1 m



MODEL	:MAFP185R
SOUND LEVEL : STRONG	39 dB(A)
HIGH	35 dB(A)
LOW	31 dB(A)
CONDITION	: 1 m in front at height of 1 m



MODEL	:MAFP255R
SOUND LEVEL : STRONG	42 dB(A)
HIGH	38 dB(A)
LOW	35 dB(A)
CONDITION	: 1 m in front at height of 1 m



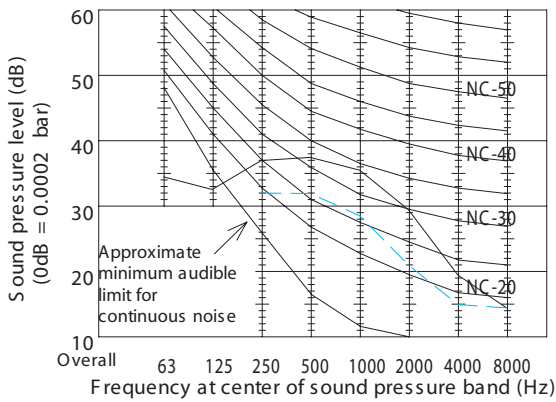
# 1-8. Noise Criterion Curves

## Ceiling-Mounted Type

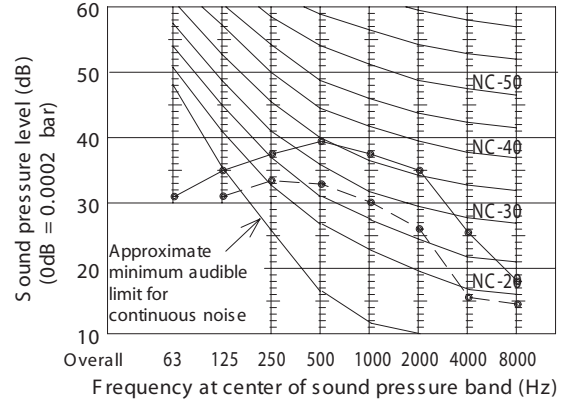
Both 50Hz and 60Hz

- Strong
- Weak

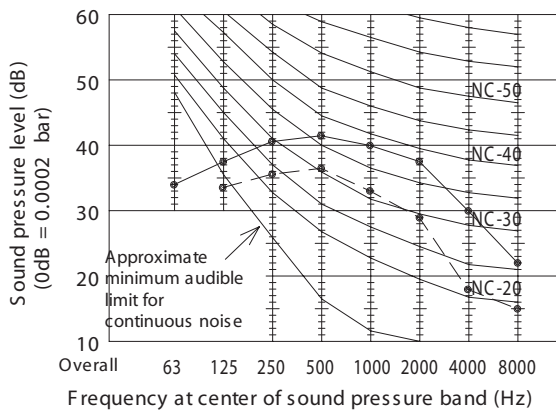
MODEL	:SPAFP255R
SOUND LEVEL : STRONG	39 dB(A)
HIGH	37 dB(A)
LOW	33 dB(A)
CONDITION	: 1 m from front of outlet at height of 1.5 m



MODEL	:SPAFP365R
SOUND LEVEL : STRONG	42 dB(A)
HIGH	40 dB(A)
LOW	35 dB(A)
CONDITION	: 1 m from front of outlet at height of 1.5 m



MODEL	:SPAFP485R
SOUND LEVEL : STRONG	44 dB(A)
HIGH	41 dB(A)
LOW	37 dB(A)
CONDITION	: 1 m from front of outlet at height of 1.5 m



# 1-8. Noise Criterion Curves

## Concealed-Duct Type

MODEL :DSAFP255R

---

SOUND LEVEL : HIGH 34 dB(A), NC 22 / LOW 27 dB(A), NC 18

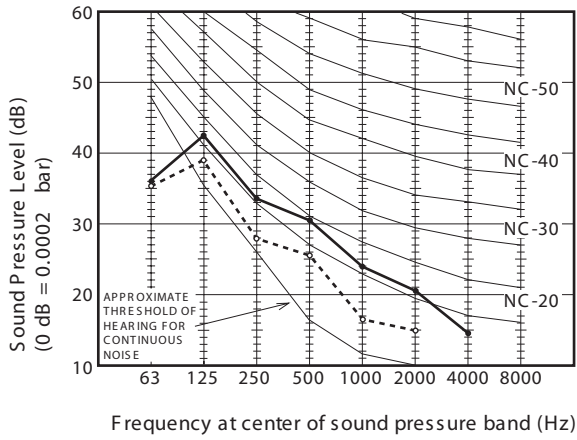
---

CONDITION : Under the unit 1.5 m

---

SOURCE : 220 - 230 - 240 V, Single Phase, 50 Hz

---

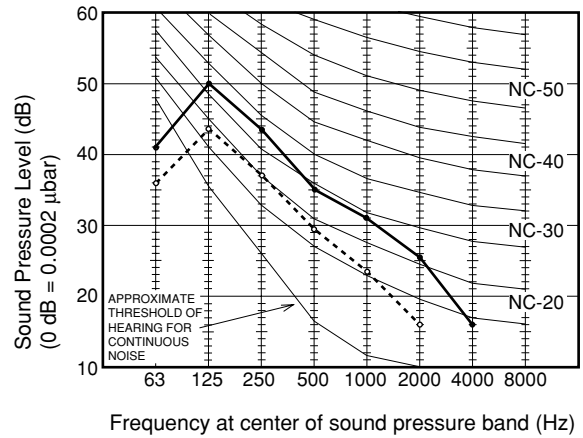
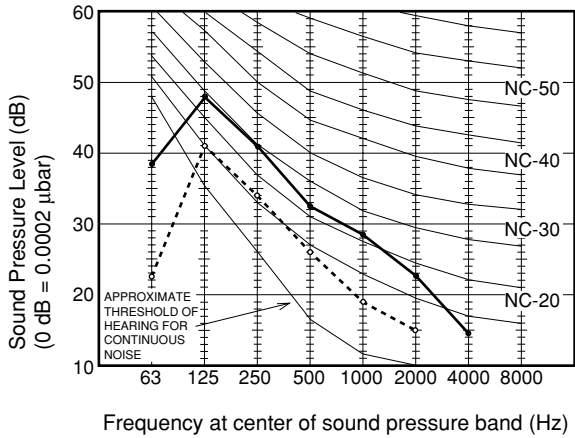


# 1-8. Noise Criterion Curves

## Concealed-Duct Type

MODEL	:DSAFP365R
SOUND LEVEL	: HIGH 38 dB(A), NC 30 / LOW 31 dB(A), NC 21
CONDITION	: Under the unit 1.5 m
SOURCE	: 220 - 230 - 240 V, Single Phase, 50 Hz

MODEL	:DSAFP485R
SOUND LEVEL	: HIGH 40 dB(A), NC 33 / LOW 33 dB(A), NC 25
CONDITION	: Under the unit 1.5 m
SOURCE	: 220 - 230 - 240 V, Single Phase, 50 Hz



- REMARKS:**
- Value obtained in the actual place where the unit is installed may be slightly higher than the values shown in this graph because of the conditions of operation, the structure of the building, the background noise and other factors.
  - The test results were obtained from an anechoic room.

**NOTE**

To evaluate the noise level, the maximum value of the measured sound pressure level is used. Read the value at each frequency level (on horizontal axis, center of the sound pressure band) from 63 Hz to 8000 Hz, and select the corresponding maximum value indicated on the vertical axis.

## 1-9. Indoor Fan Performance

### Concealed-Duct Type

If external static pressure is too great (due to long extension of ducts, for example), the air flow volume may drop too low at each air outlet. This problem may be solved by increasing the fan speed using the following procedure:

- (1) Remove 4 screws on the electrical component box and remove the cover plate.
- (2) Disconnect the fan motor sockets in the box.
- (3) Take out the booster cable (sockets at both ends) clamped in the box.
- (4) Securely connect the booster cable sockets between the disconnected fan motor sockets in step 2 as shown in Fig. 1-1.
- (5) Place the cable neatly in the box and reinstall the cover plate.

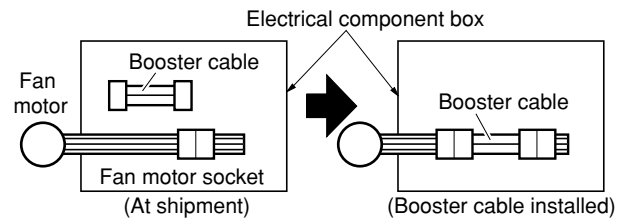
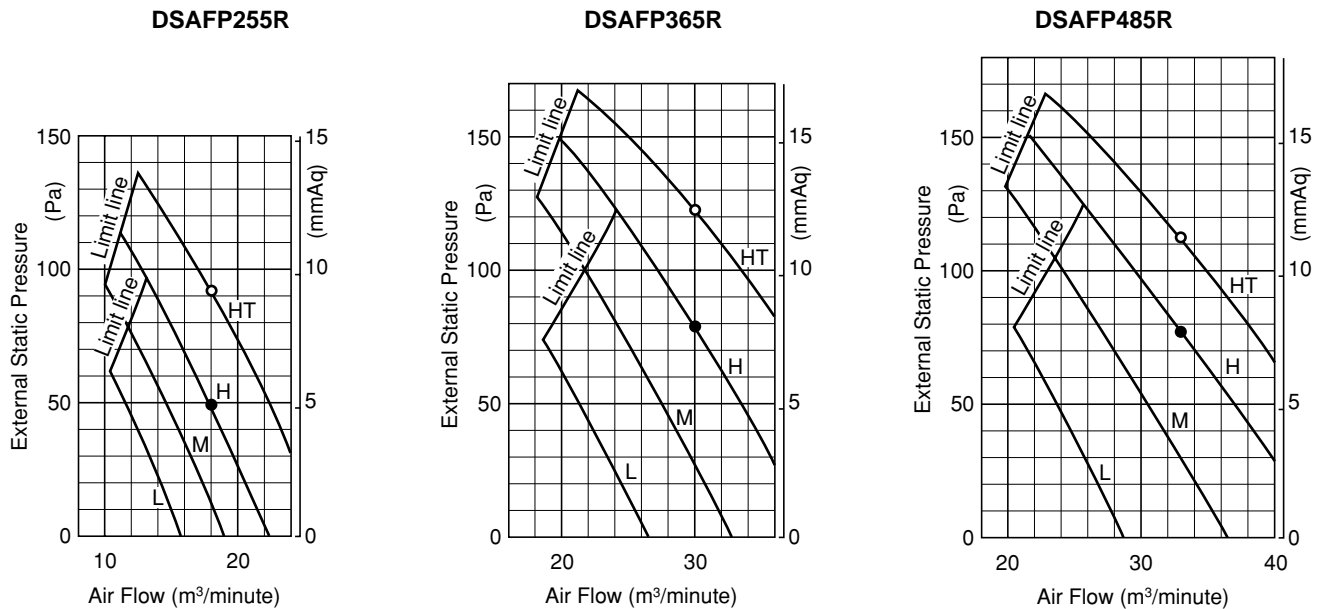


Fig. 1-1

### Indoor Fan Performance





**NOTE** HT : Using the booster cable   
 H : At shipment 

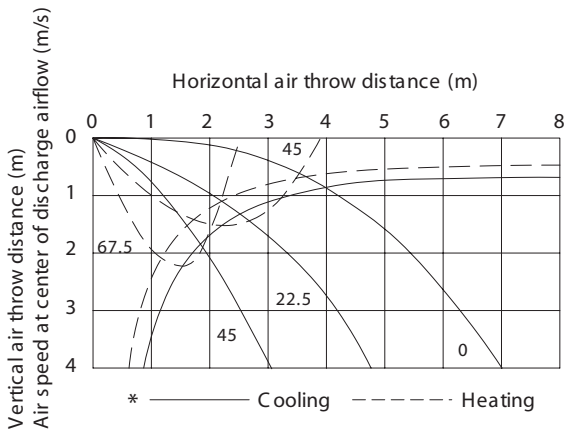
Fig. 1-2

#### ■ How to read the diagram

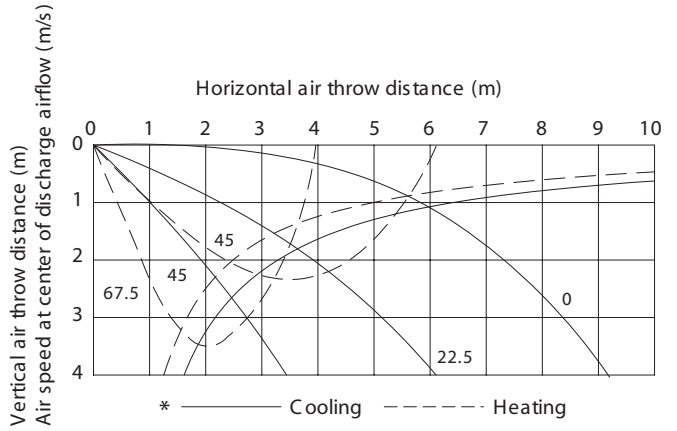
The vertical axis is the external static pressure (Pa) while the horizontal axis represents the air flow (m<sup>3</sup>/minute). The characteristic curves for "HT," "H," "M" and "L" fan speed control are shown. The nameplate values are shown based on the "H" air flow. For the 25 type, the air flow is 18 m<sup>3</sup>/minute, while the external static pressure is 49 Pa at "H" position. If external static pressure is too great (due to long extension of ducts, for example), the air flow volume may drop too low at each air outlet. This problem may be solved by increasing the fan speed as explained above.

**1-10. Air Throw Distance Chart (Indoor temp.: Cooling 27°C , Heating 20°C)  
Wall-Mounted Type**

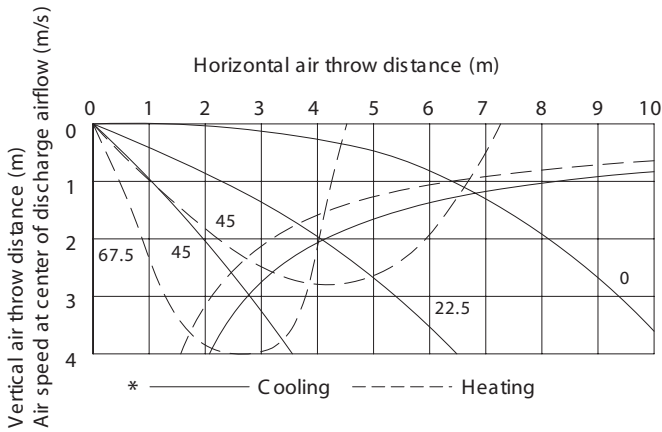
MAFP125-165R



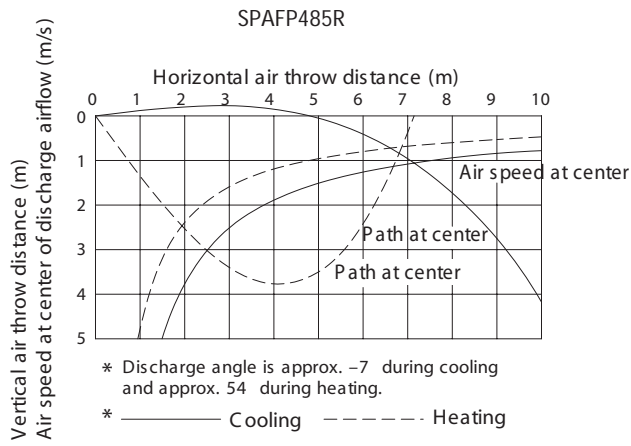
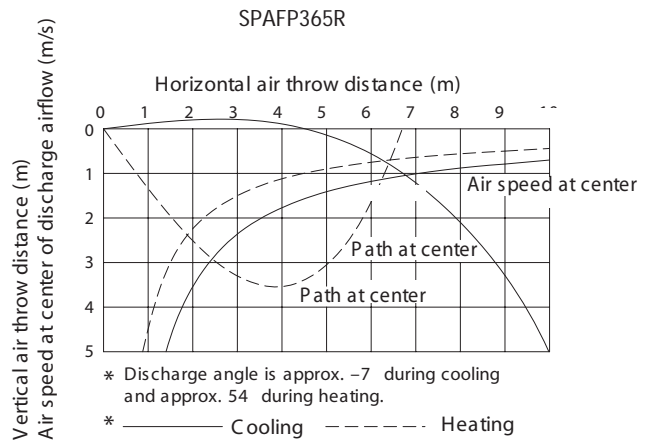
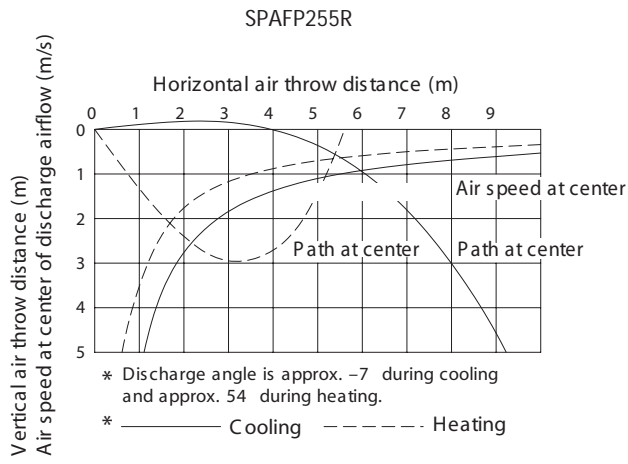
MAFP185R



MAFP255R



Ceiling-Mounted Type



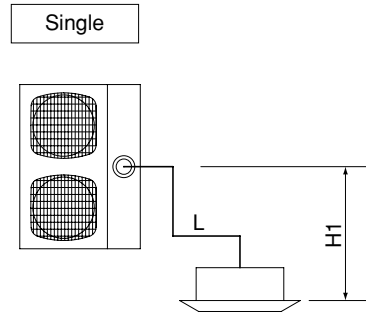
## 1-11. Installation Instructions

### ■ TUBING LENGTH

#### (A) Single type

- Keep refrigerant tubing between the indoor and outdoor units as short as possible.
- The length of the refrigerant tubes between the indoor and outdoor units is limited by the elevation difference between the 2 units. During tubing work, try to make both the tubing length (L) and the difference in elevation (H1) as short as possible.

Refer to Table 1-5.



**Table 1-1**

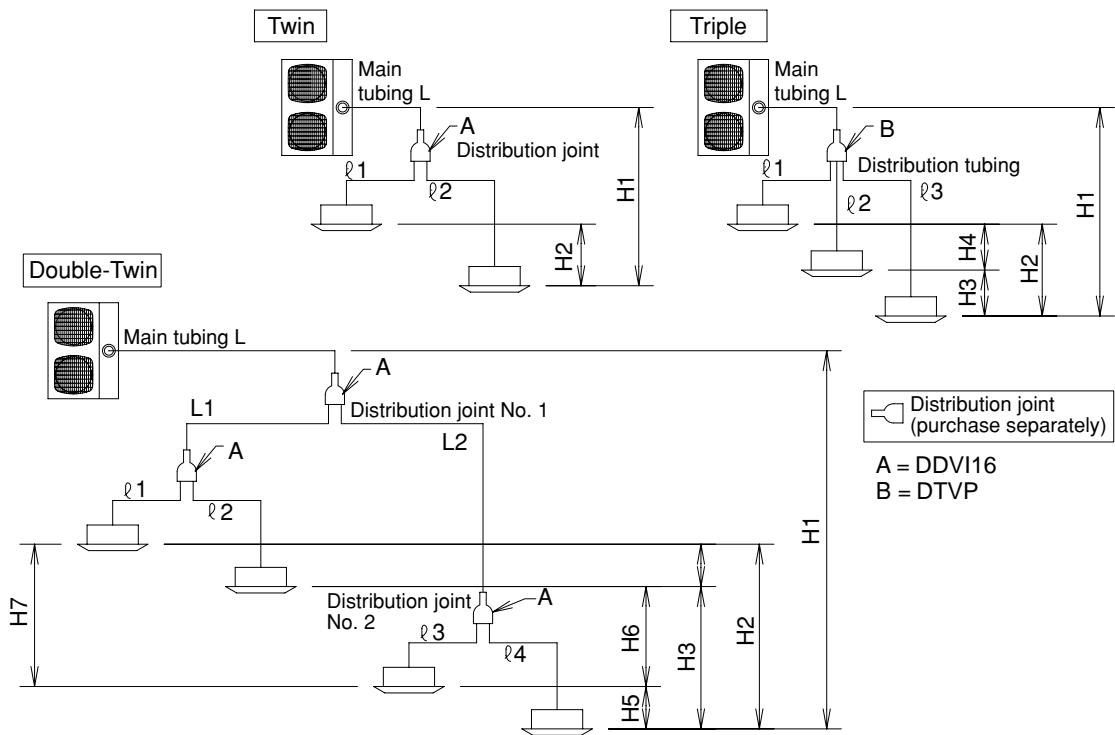
Indoor unit type	71 types	100, 125 types
Maximum allowable tubing length	50 m	50 m
Charge-less tubing length (actual length)	30 m	30 m
Additional refrigerant charge per 1 m	40g	
Minimum tubing length	3 m	5 m

(B) Simultaneous operation multi (Twin, Triple, Double-Twin)

**NOTE** Because the indoor units run simultaneously, install them within the same room.

Item		Description	Symbol				Actual length (m)
			Single	Twin	Triple	Double-Twin	
Allowable tubing lengths	Maximum allowable tubing length	One-way length of tubing from outdoor unit to the most distant indoor unit	L	L + l1 L + l2	L + l1, L + l2 L + l3	L + L1 + l1, L + L1 + l2 L + L2 + l3, L + L2 + l4	≤ 50
	Maximum distribution tubing length	Maximum length following the first branch point (No. 1 distribution)	-	l1, l2	l1, l2, l3	L1 + l1, L1 + l2 L2 + l3, L2 + l4	≤ 15
Maximum branch tubing length		Difference between the maximum length and minimum length in tubing following the first branch point	-	l1 > l2 l1 - l2	l1 > l2 > l3 l1 - l2 l1 - l3 l2 - l3	Max.: L2 + l4 Min.: L1 + l1 (L2 + l4) - (L1 + l1)	≤ 10
Maximum difference between lengths of No. 1 distribution tubing (Double-Twin)			-	-	-	L2 > L1 L2 - L1	≤ 10
Maximum difference between lengths of No. 2 distribution tubing (Double-Twin)			-	-	-	l2 > l1 l4 > l3 l2 - l1 l4 - l3	≤ 10
Maximum allowable height difference	Maximum indoor-outdoor height difference	If outdoor unit is higher	H1				≤ 30
		If outdoor unit is lower	H1				≤ 15
	Maximum height difference between indoor units		-	H2	H2, H3, H4	H2, H3, H4, H5, H6, H7	≤ 0.5

\* For connection tubing sizes, refer to table above.



**NOTE**

- For refrigerant tube branches, use the optional distribution joints.
- For cautions on the use of the optional distribution joints, be sure to refer to the provided instruction sheet. Also, be careful to install them in the correct direction (orientation).

**Table 1-2 Tubing Data for Models (Single, Twin, Triple, Double-Twin)**

Tubing Data		Models	GRFP255L-R	GRFP365L-R	GRFP485L-R
		Tubing size	Narrow tube mm (in.)	9.52 (3/8)	9.52 (3/8)
outer diameter	Wide tube mm (in.)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)	
Limit of tubing length (m)		50	50	50	
Limit of elevation difference between the 2 units	Outdoor unit is placed higher (m)	30	30	30	
	Outdoor unit is placed lower (m)	15	15	15	
Max. allowable tubing length at shipment (m)		3 – 30	3 – 30	5 – 30	
Required additional refrigerant *1 (g/m)		a) 40	b) 40	b) 40	
Refrigerant charged at shipment (kg)		1.2	1.2	1.2	

No additional charge of compressor oil is necessary.

\*1 If total tubing length becomes 30 to 50 m, charge additional refrigerant by 40 g/m.

**Table 1-3 List of Connection Tube Sizes**

	Main tubing (L)	Double-Twin distribution tube (L1, L2)	Indoor unit connection tube (l1, l2, l3, l4)	
		Total type capacity of indoor units connected after the branch	l1	l2, l3, l4
Type capacity of indoor units	25 – 48	25	25 – 48	12 – 18
Wide tube	φ15.88	φ15.88	φ15.88	φ12.7
Narrow tube	φ9.52	φ9.52	φ9.52	φ6.35
Amount of additional charge per 1 m	40 g	40 g	40 g	20 g

Charge with an amount of additional refrigerant calculated using the formula below, based on the values in Table 1-3 and the size and length of the liquid (narrow) tubing.

**Amount of additional refrigerant charge (g)**

Do not remove refrigerant from the system, even if the result of the calculation is negative. (Use with the current refrigerant charge.)

$$\begin{aligned} \text{Additional refrigerant amount (g)} &= \text{Additional refrigerant for main tubing (g)} + \text{Additional refrigerant for distribution tubing (g)} \\ &\quad - \text{Outdoor unit charge-less refrigerant amount (g)} \\ &= 40X(a) + 40X(b) + 20X(c) - 1200 \quad (25 - 48 \text{ type}) \end{aligned}$$

(a) Actual length (m) of main tubing (φ9.52)

Refrigerant charge per 1 m of actual length = 40 g/m (25 – 48 type)

(b) Total length of distribution tubing (φ9.52)

Refrigerant charge per 1 m of actual length = 40 g/m

(c) Total length of distribution tubing (φ6.35)

Refrigerant charge per 1 m of actual length = 20 g/m

**Example**

## ● Sample tubing lengths

L = 35 m      l 1 = 5 m

L1 = 10 m     l 2 = 5 m

L2 = 5 m      l 3 = 5 m

l 4 = 10 m

## ● Find the liquid (narrow) tube size from Table 1-3.

L : φ9.52 (48 type)

L1 : φ9.52 (Total type capacity of indoor units 24)

L2 : φ9.52 (Total type capacity of indoor units 24)

l 1 – l 4 : φ6.35

## ● The amount of additional on-site refrigerant charge is found by subtracting the outdoor unit charge-less refrigerant amount from the total charge amount for all tube sizes.

φ9.52 → L : 35 m × 40 g / m = 1400

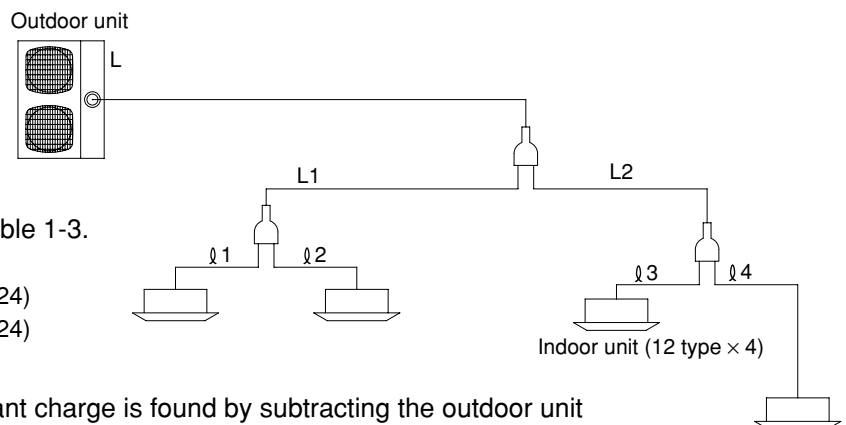
φ9.52 → L1 + L2 : (10 + 5) m × 40 g / m = 600

φ6.35 → l 1 – l 4 : (5 + 5 + 5 + 10) m × 20 g / m = 500

Outdoor unit charge-less refrigerant amount      -1200

Total +1300

## ● The amount of additional on-site refrigerant charge is 1,300 g.





**CAUTION**

1. This unit requires no additional refrigerant charge up to tubing length 30 m. In case of more than 30 m, additional refrigerant charge is required. Refer to Tables 1-2 and 1-3.
2. In case of multi type installation, indoor units should be installed within the same room. If multi type indoor units are installed in different rooms, temperature control may develop problems because thermostat operation must follow the thermostat condition of 1 indoor unit only (the main unit).



**WARNING**

Always check the gas density for the room in which the unit is installed.

**■ Check of limit density**

When installing an air conditioner in a room, it is necessary to ensure that even if the refrigerant gas accidentally escapes, its density does not exceed the limit level. If the density might exceed the limit level, it is necessary to set up an opening between it and the adjacent room, or to install mechanical ventilation which is interlocked with a leak detector.

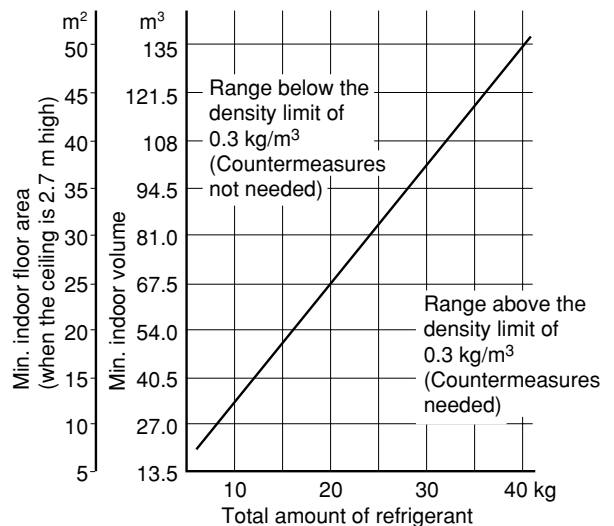
(Total refrigerant charged amount: kg)

(Min. indoor volume where the indoor unit is installed: m<sup>3</sup>)  
 $\leq$  Limit density 0.3 (kg/m<sup>3</sup>)

The limit density of refrigerant which is used in this unit is 0.3 kg/m<sup>3</sup> (ISO 5149).

The shipped outdoor unit comes charged with the amount of refrigerant fixed for each type, so add it to the amount that is charged at the field. (For the refrigerant charge amount at shipment, refer to the unit's nameplate.)

Minimum indoor volume & floor area relative to the amount of refrigerant is roughly as given in the following table.



**CAUTION**

Pay special attention to any location, such as a basement or recessed area, etc. where leaked refrigerant can collect, since refrigerant gas is heavier than air.

## ■ SELECTING THE INSTALLATION SITE

### Indoor Unit

#### AVOID:

- areas where leakage of flammable gas may be expected.
- places where large amounts of oil mist exist.
- direct sunlight.
- locations near heat sources which may affect the performance of the unit.
- locations where external air may enter the room directly. This may cause “sweating” on the air discharge ports, causing them to spray or drip.
- locations where the remote controller will be splashed with water or affected by dampness or humidity.
- installing the remote controller behind curtains or furniture.
- locations where high-frequency emissions are generated.

#### DO:

- select an appropriate position from which every corner of the room can be uniformly cooled.
- select a location where the ceiling is strong enough to support the weight of the unit.
- select a location where tubing and drain pipe have the shortest run to the outdoor unit.
- allow room for operation and maintenance as well as unrestricted air flow around the unit.
- install the unit within the maximum elevation difference above or below the outdoor unit and within a total tubing length (L) from the outdoor unit as detailed in Tables 1-1 and 1-2.
- allow room for mounting the remote controller about 1m off the floor, in an area that is not in direct sunlight nor in the flow of cool air from the indoor unit.

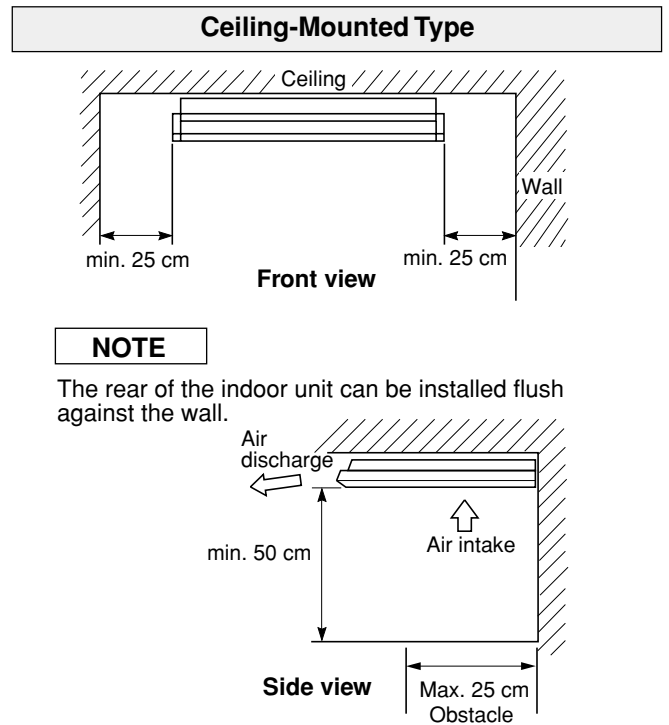


Fig. 1-1

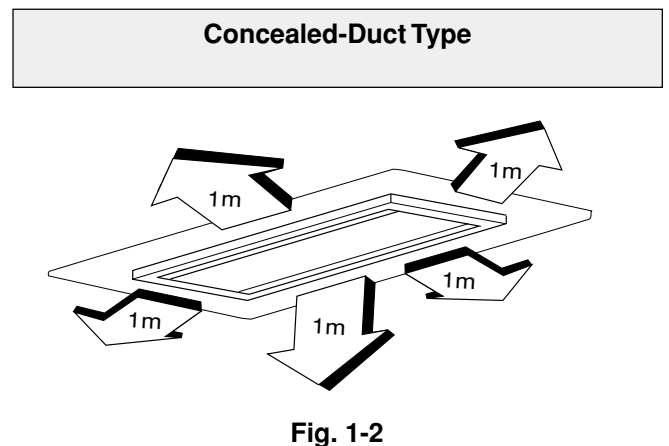
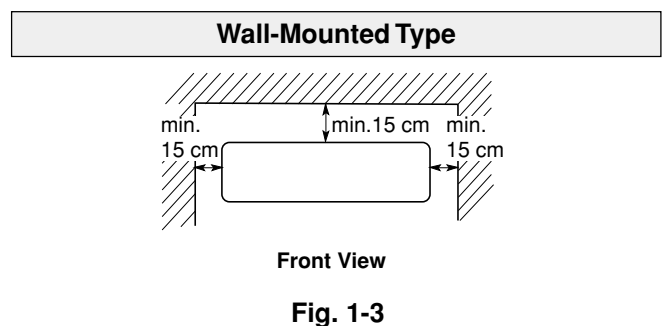


Fig. 1-2



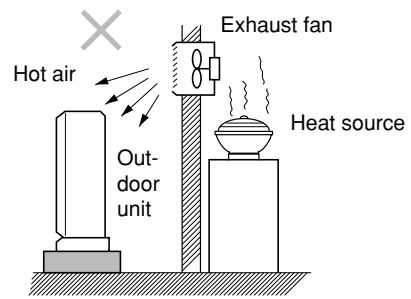
**Outdoor Unit**

**AVOID:**

- heat sources, exhaust fans, etc. (Fig. 1-4)
- damp, humid or uneven locations

**DO:**

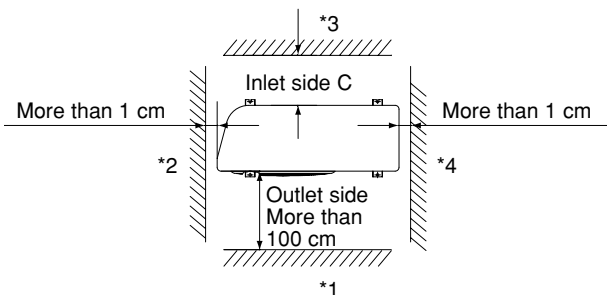
- choose a place as cool as possible.
- choose a place that is well ventilated and outside air temperature does not exceed maximum 45°C constantly.
- allow enough room around the unit for air intake/exhaust and possible maintenance. (Fig. 1-5)
- use lag bolts or equal to bolt down unit, reducing vibration and noise.



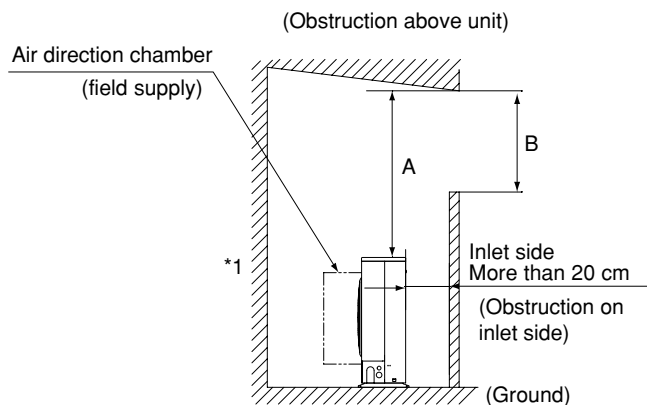
**Fig. 1-4**

**Installation space**

Distance between obstructions and the unit air inlet and outlet must be as shown below.



**Fig. 1-5**



**Fig. 1-6**

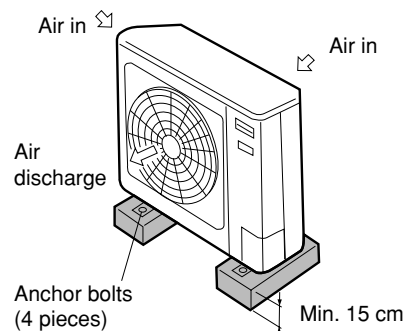


**CAUTION**

- Concerning inlet-side distance “C” (Fig. 1-5)  
The minimum for distance “C” is 15 cm if there are no obstructions on the outlet side (wall \*1 side) and \*2 or \*4 is not present. In all other cases, the minimum for distance “C” is 20 cm.
- If the unit is installed with the outlet side facing wall \*1, then there must be no obstructions on 2 of the remaining 3 sides: \*2, \*3, \*4.
- If wall \*1 is on the outlet side (Fig. 1-5), or if obstructions are present on all 3 sides \*2, \*3, and \*4 (Fig. 1-5), then the minimum distance for “A” and “B” is 2 m (Fig. 1-6). Even if there is no wall on the outlet side, a minimum of 100 cm is required.

**In case of multiple installations**

- provide a solid base (concrete block, 10 × 40 cm beams or equal), a minimum of 15 cm above ground level to reduce humidity and protect the unit against possible water damage and decreased service life. (Fig. 1-7)
- use lug bolts or equal to bolt down unit, reducing vibration and noise.



**Fig. 1-7**

## ■ ELECTRICAL WIRING

### ● General Precautions on Wiring

- (1) Before wiring, confirm the rated voltage of the unit as shown on its nameplate, then carry out the wiring closely following the wiring diagram.
- (2) Provide a power outlet to be used exclusively for each unit, and a power supply disconnect and circuit breaker for overcurrent protection should be provided in the exclusive line.
- (3) To prevent possible hazards from insulation failure, the unit must be grounded.
- (4) Each wiring connection must be done in accordance with the wiring system diagram. Wrong wiring may cause the unit to misoperate or become damaged.
- (5) Do not allow wiring to touch the refrigerant tubing, compressor, or any moving parts of the fan.
- (6) Unauthorized changes in the internal wiring can be very dangerous. The manufacturer will accept no responsibility for any damage or misoperation that occurs as a result of such unauthorized changes.
- (7) Regulations on wire diameters differ from locality to locality. For field wiring rules, please refer to your LOCAL ELECTRICAL CODES before beginning.  
You must ensure that installation complies with all relevant rules and regulations.
- (8) To prevent malfunction of the air conditioner caused by electrical noise, care must be taken when wiring as follows:
  - The remote control wiring and the inter-unit control wiring should be wired apart from the inter-unit power wiring.
  - Use shielded wires for inter-unit control wiring between units and ground the shield on both sides.
- (9) If the power supply cord of this appliance is damaged, it must be replaced by a repair shop appointed by the manufacture, because special-purpose tools are required.

### Recommended Wire Length and Wire Diameter for Power Supply System

#### Outdoor unit

	(A) Power supply		Time delay fuse or circuit capacity
	Wire size	Max. length	
GRFP255L-R	4 mm <sup>2</sup>	24 m	25 A
GRFP365L-R	4 mm <sup>2</sup>	22 m	25 A
GRFP485L-R	6 mm <sup>2</sup>	30 m	35 A

#### Indoor unit

Type	(B) Power supply	Time delay fuse or circuit capacity
	2.5 mm <sup>2</sup>	
MAPF	Max. 150 m	10 A
SPAFP, DSAFP	Max. 130 m	10 A

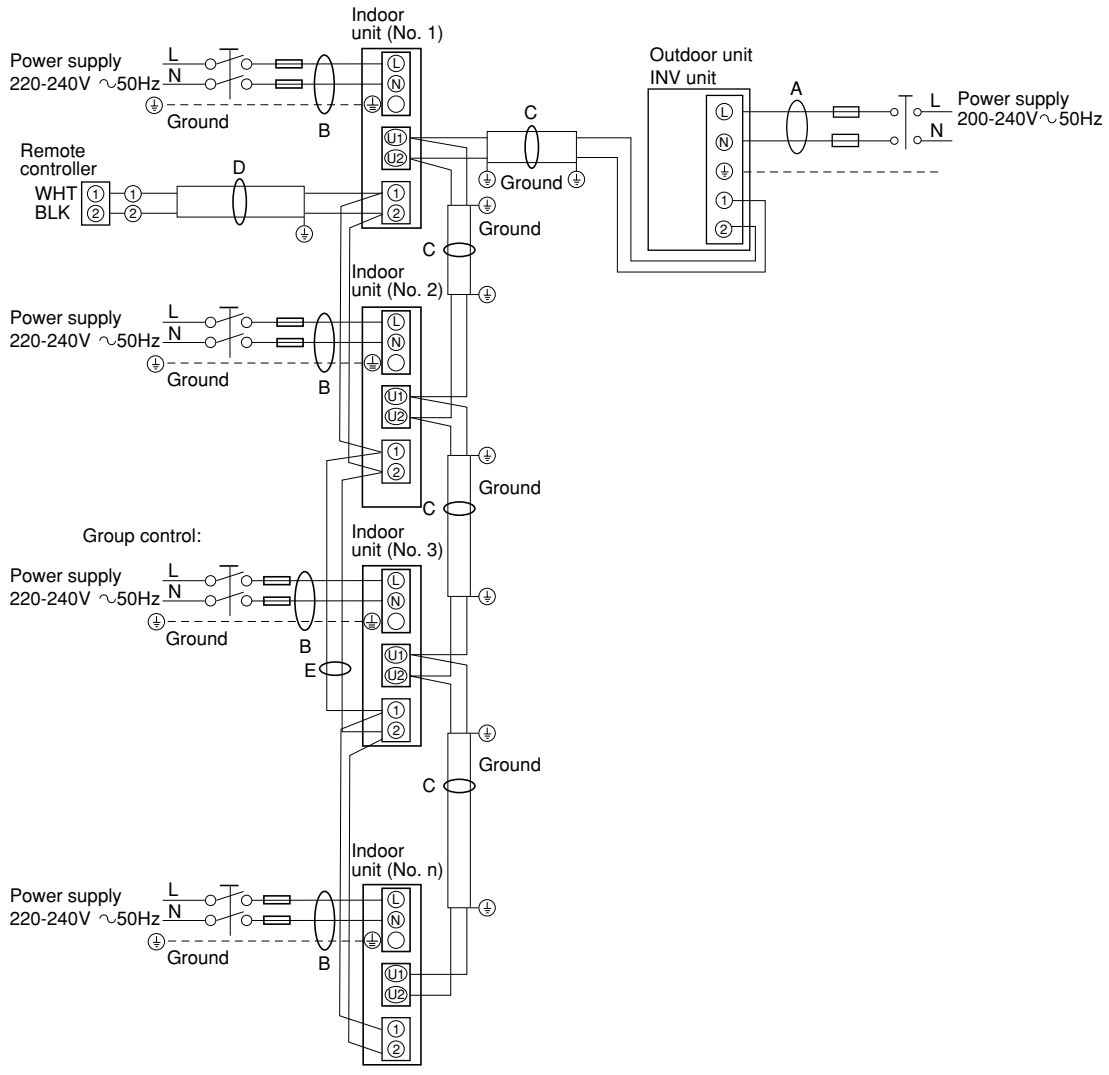
#### Control wiring

(C) Inter-unit (between outdoor and indoor units) control wiring	(D) Remote control wiring	(E) Control wiring for group control
0.75 mm <sup>2</sup> (AWG #18) Use shielded wiring*	0.75 mm <sup>2</sup> (AWG #18) Use shielded wiring	0.75 mm <sup>2</sup> (AWG #18) Use shielded wiring
Max. 1,000 m	Max. 500 m	Max. 500 m (Total)

#### NOTE

\* With ring-type wire terminal.

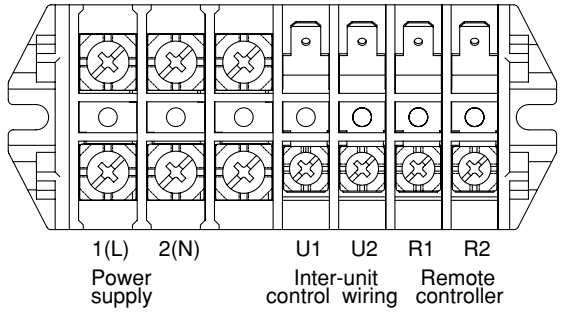
● Wiring System Diagrams



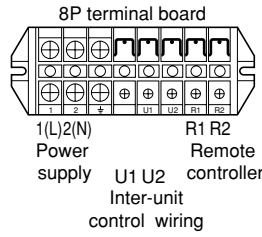
**NOTE**

- (1) Refer to the section “Recommended Wire Length and Wire Diameter for Power Supply System” for the explanation of “A,” “B,” “C,” “D,” and “E,” in the above diagram.
- (2) The basic connection diagram of the indoor unit at right shows the 7P terminal board, so the terminal board in your equipment may differ from the diagram.
- (3) The refrigerant Circuit (R.C.) address should be set before turning the power on.

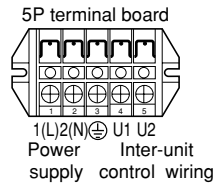
7P terminal board



SPAFP Type



DSAFP Type



MAFP Type

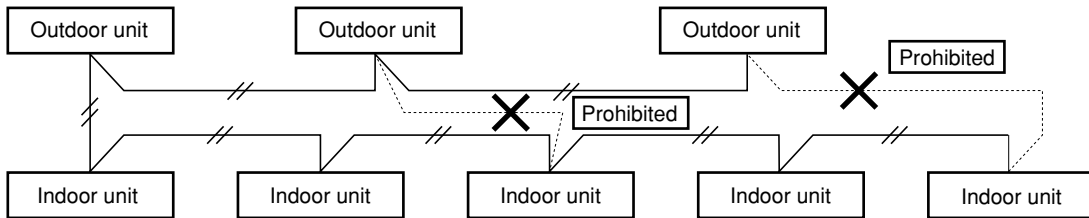


**CAUTION**

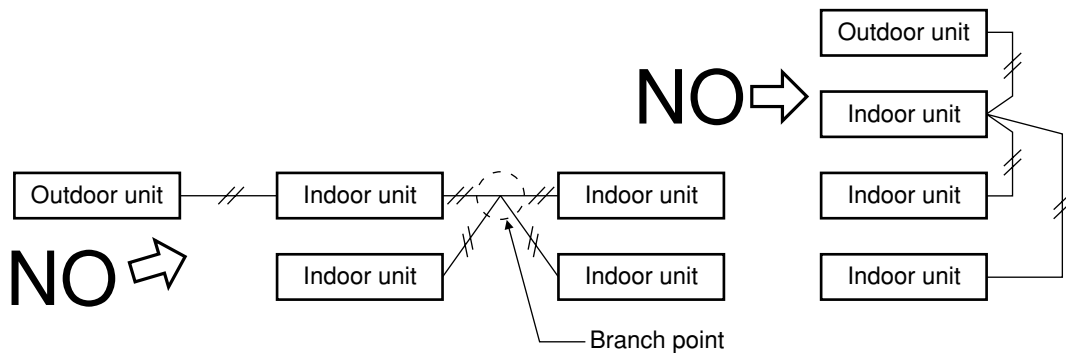
(1) When linking outdoor units in a network (S-net link system), disconnect the terminal extended from the short plug (CN003, 2P Black, location: right bottom on the outdoor main control PCB) from all outdoor units except any one of the outdoor units.  
(When shipping: In shorted condition.)

Otherwise the communication of S-net link system is not performed. For a system without link (no connection wiring between outdoor units), do not remove the short plug.

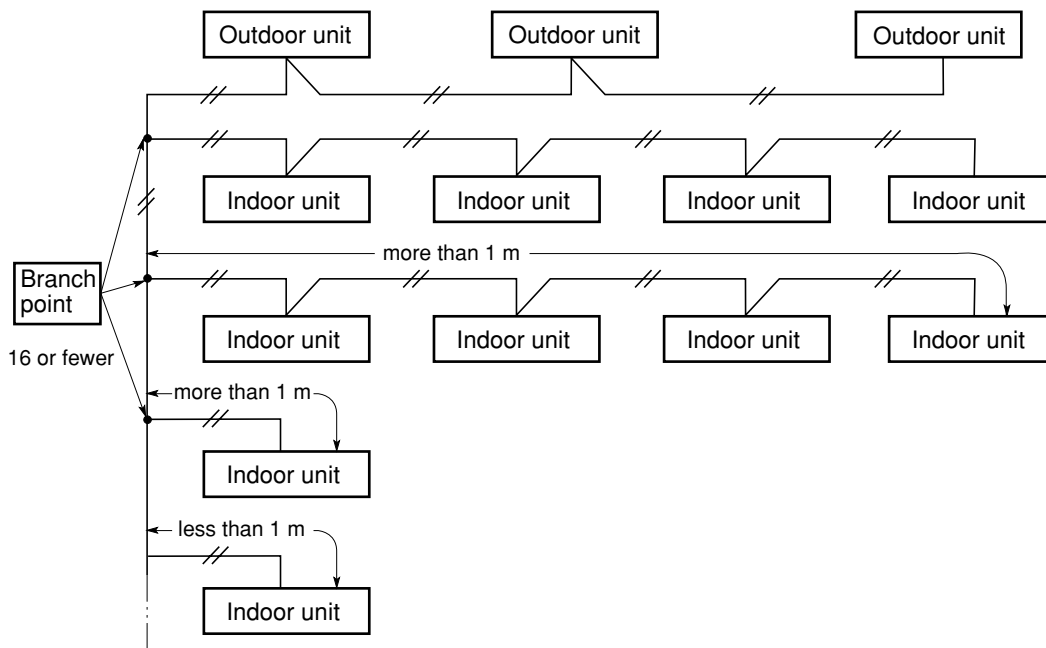
(2) Do not install the inter-unit control wiring in a way that forms a loop.



(3) Do not install inter-unit control wiring such as star branch wiring. Star branch wiring causes mis-address setting.



(4) If branching the inter-unit control wiring, the number of branch points should be 16 or fewer.  
(Branches less than 1 m are not included in the total branch number.)

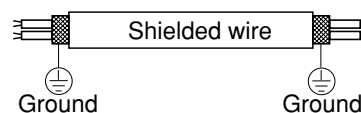


- (5) Use shielded wires for inter-unit control wiring (C) and ground the shield on both sides, otherwise misoperation from noise may occur. Connect wiring as shown in the section “Wiring System Diagrams.”



**WARNING**

Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also exist. Therefore, ensure that all wiring is tightly connected.

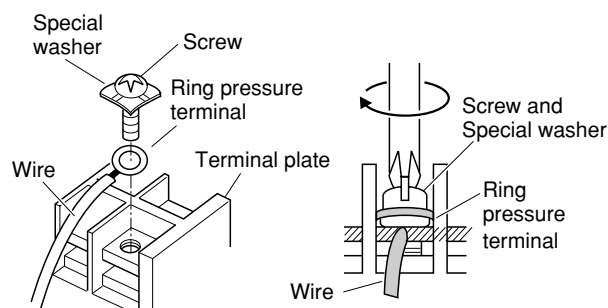
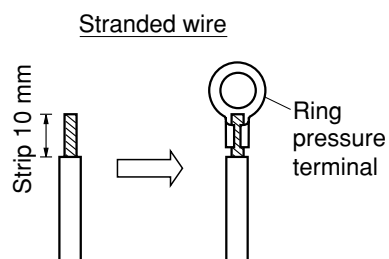


When connecting each power wire to the terminal, follow the instructions on “How to connect wiring to the terminal” and fasten the wire securely with the fixing screw of the terminal plate.

### How to connect wiring to the terminal

#### ■ For stranded wiring

- (1) Cut the wire end with cutting pliers, then strip the insulation to expose the stranded wiring about 10 mm and tightly twist the wire ends.
- (2) Using a Phillips head screwdriver, remove the terminal screw(s) on the terminal plate.
- (3) Using a ring connector fastener or pliers, securely clamp each stripped wire end with a ring pressure terminal.
- (4) Place the ring pressure terminal, and replace and tighten the removed terminal screw using a screwdriver.



## 2. PROCESS AND FUNCTIONS

2-1. Control Functions .....	2 - 2
2-2. Outdoor Unit Control PCB .....	2 - 5
2-3. Indoor Unit Control PCB Switches and Functions .....	2 - 9

## 2-1. Control Functions

### Electronic control valve control

Opening of the electronic control valve is controlled so that the appropriate operating conditions are maintained, based on the signal from each sensor (discharge temperature [TD], intake temperature [TS], outdoor heat exchanger temperature [C1], and indoor heat exchanger temperature [E1, E2]).

### Discharge temperature release control

- (1) This control lowers the operating frequency of the compressor when electronic control valve control is unable to maintain the appropriate operating conditions because the discharge temperature fails to decline or because there is a sudden increase in the discharge temperature.
- (2) If the discharge temperature exceeds 111°C, the compressor is stopped and then restarted. (Error count = 1)
- (3) The error count is cleared when operation has continued for 10 minutes after the compressor was restarted.
- (4) If (2) repeats 4 times without the error count being cleared (error count = 4), alarm "P03" occurs.

### Current release control

The compressor operating frequency is controlled so that the current that is input to the inverter compressor does not exceed the designated value (control value).

### Outdoor unit fan control

#### 1. Cooling fan control

- (1) The outdoor unit fan minimum speed and maximum speed are determined according to the outdoor air temperature and the operating frequency. The speed is controlled in stages between the minimum speed and maximum speed, based on the outdoor heat exchanger temperature (C2) at that time.
- (2) For 60 seconds after start, the outdoor unit fan operates at maximum speed, as determined by the outdoor air temperature and operating frequency at that time.  
Subsequently, the fan operates at low speed until the outdoor heat exchanger temperature (C2) rises.
- (3) If the discharge temperature (TD) sensor is abnormal or has become disconnected, the fan will not operate and a protective device is activated.

#### 2. Heating fan control

- (1) The outdoor unit fan minimum speed and maximum speed are determined according to the outdoor air temperature and operating frequency. The speed is controlled in stages between the minimum speed and maximum speed, based on the outdoor heat exchanger temperature (C1) at that time.

- (2) If the outdoor heat exchanger temperature (C2) is 24°C or higher continuously for 5 minutes, fan operation may stop (same conditions as when the thermostat is OFF). In this case, the fan will restart after 3 minutes.
- (3) This control is not performed during the 3 minutes after start, for 1 minute after defrost ends, and while defrost is in progress.

### Coil heating control

- (1) This control applies current to the coil of the stopped compressor to heat the compressor in place of the crank case heater.
- (2) When the discharge temperature (TD) is less than 25°C, the current application judgment is made based on the outdoor air temperature (TO).
  - Current application starts when the outdoor air temperature drops to 15°C or below.
  - Current application stops when the outdoor air temperature rises above 18°C.

### Control for prevention of short intermittent operation

In order to protect the compressor, this control does not allow the compressor to be stopped for 10 minutes after operation starts, even if the thermostat OFF signal is received from the indoor unit.

### Control for prevention of high cooling loads

- (1) This control reduces abnormal high-pressure increases during cooling operation.
- (2) If the outdoor heat exchanger temperature (C2) reaches 64°C or above, the compressor is stopped. (Error count = 1)
- (3) 3 minutes after the compressor stops, if the outdoor heat exchanger temperature (C2) is less than 55°C the compressor is restarted. If operation subsequently continues for 10 minutes, the error count is cleared.
- (4) If the outdoor heat exchanger temperature (C2) again reaches 64°C or higher within 10 minutes after the compressor restarts, the compressor is stopped again. (Error count = 2)
- (5) If the above start/stop of the compressor is repeated 10 times (error count = 10), alarm "P20" occurs. At this time, operation stops and does not restart.
- (6) If the compressor has stopped because the outdoor heat exchanger temperature (C2) reached 64°C or higher, and the temperature remains at 64°C or higher for 30 seconds, alarm "P20" occurs even when the error count is less than 10. At this time, operation stops and does not restart.
- (7) For 30 minutes or longer after the compressor restarts, the control value for "current release control" is reduced to 70 – 90%.

### Overcurrent protection control

- (1) If the overcurrent protection circuit detects abnormal current, the compressor is stopped. (Error count = 1.) The compressor then restarts after 3 minutes.
- (2) If compressor start/stop is repeated 4 times (error count = 4), alarm “P26,” “P29,” or “H01” (count = 2 in this case only) occurs. Operation stops and does not restart.

### Current release value shift control

- (1) This control is intended to improve compressor reliability by preventing continuous high-frequency operation under overload conditions when the outdoor air temperature is high, and by preventing intermittent operation through “control for prevention of high cooling loads.”
- (2) The control value for “current release control” is corrected according to the outdoor air temperature (TO).  
Depending on the temperature, the control value is lowered to 55 – 90% for cooling operation, and to 85 – 98% for heating operation.

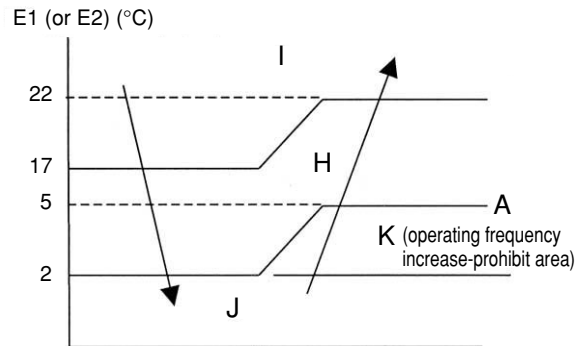
### Freeze prevention (low-temperature release) control

The below control is performed during cooling operation (including dehumidifying operation), using whichever of the indoor heat exchanger temperatures (E1 or E2) is lower. (See the figure below.)

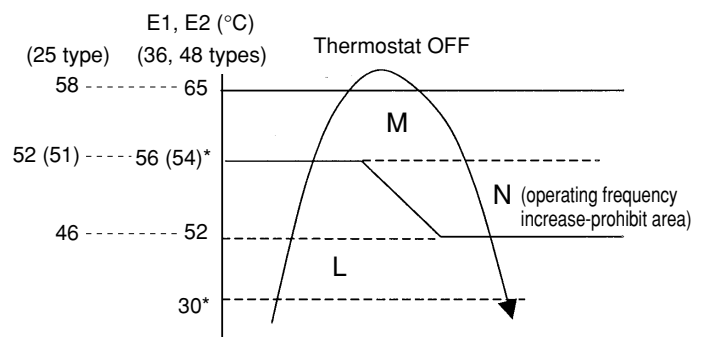
- (1) If a temperature in the “J” area (operating frequency reduction and thermostat OFF area) is detected for 6 minutes, the compressor operating frequency is reduced.  
The compressor operating frequency is reduced every 30 seconds as long as the temperature remains within this area.
- (2) If the temperature is in the “K” area (operating frequency increase-prohibit area), the compressor operating frequency is maintained.
- (3) If the temperature is in the “H” area (operating frequency control area), and the outdoor air temperature is less than 32°C, the compressor maximum operating frequency is limited according to the indoor unit fan speed.
- (4) If the temperature is in the “I” area (normal operating area), the compressors operate normally.
- (5) If the temperature is continuously in the “J” area and the compressor operating frequency reaches 0, then temperature A (temperature for changing from “J” area to “H” area) is raised from 5°C to 12°C, and operation continues with the thermostat OFF until the temperature reaches the “H” area.

### Heating high-load control

The below control is performed during heating operation, based on the indoor heat exchanger temperature (E2).

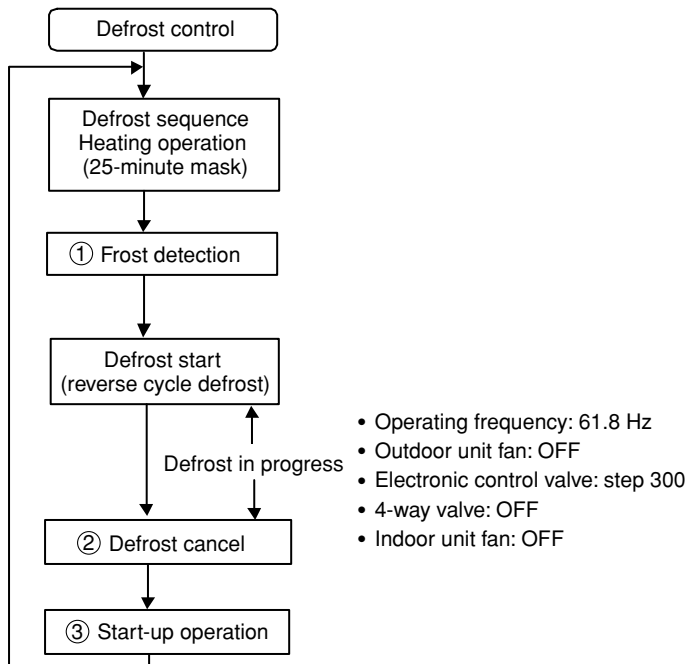


- (1) If the temperature is in the “M” area (operating frequency reduction and thermostat OFF area), the compressor operating frequency is reduced. The compressor operating frequency is reduced every 30 seconds as long as the temperature remains within this area.
- (2) If the temperature is continuously in the “M” area, the thermostat turns OFF.
- (3) If the temperature is in the “N” area, operating frequency increases are prohibited.
- (4) If the temperature is in the “L” area, the operating frequency is raised to the original frequency (the frequency prior to frequency reduction) by 6 Hz every 60 seconds.



- \* When the compressor turns ON and the E2 temperature rises, the temperature at which the “M” area is first entered is 54°C (36, 48 types) or higher than 51°C (25 type).  
If the E1, E2 temperature subsequently falls to the “L” area, the temperature for entering the “M” area is raised to 56°C (36, 48 types) or 52°C (25 type). However if the E1, E2 temperature falls to the “L” area and falls below 30°C, then the temperature for entering the “M” area is changed back to 54°C (36, 48 types) or 51°C (25 type).

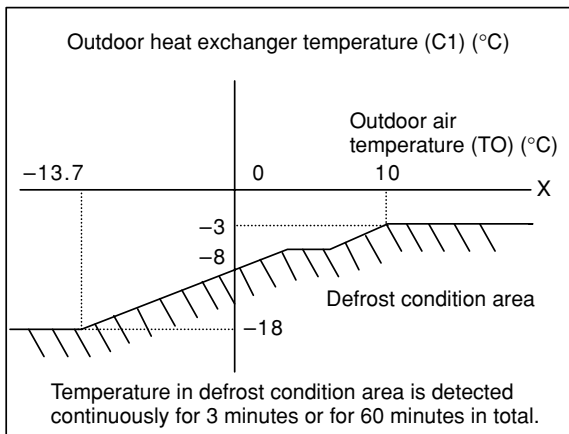
## Defrost control



2

### (1) Frost detection

1. Outdoor heat exchanger temperature (C1) method  
(15-minute mask after operation start)



2. Outdoor air temperature is  $-13^{\circ}\text{C}$  or above and outdoor heat exchanger temperature (C1) of  $-18^{\circ}\text{C}$  or below is detected continuously for 20 seconds.
3. Outdoor air temperature is below  $-13^{\circ}\text{C}$  and outdoor heat exchanger temperature (C1) of below (outdoor air temperature  $- 5^{\circ}\text{C}$ ) is detected continuously for 20 seconds.

### (2) Defrost cancel

#### • Defrost end conditions

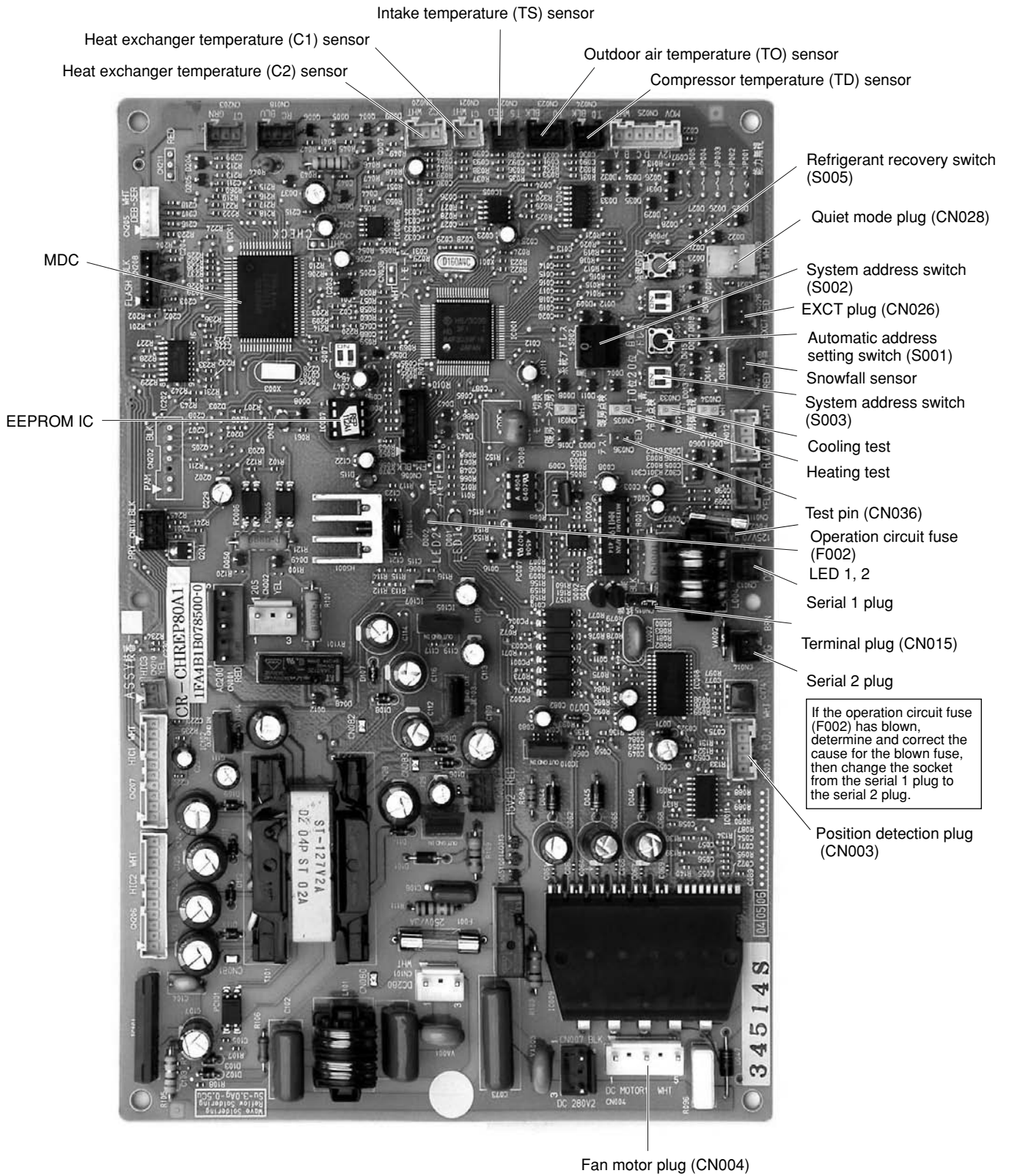
1. Outdoor heat exchanger temperature (C1) rises to  $12^{\circ}\text{C}$  or higher.
2. Outdoor heat exchanger temperature is  $7^{\circ}\text{C}$  or higher continuously for 1 minute.
3. Defrost time of 10 minutes has elapsed.

### (3) Startup operation

After defrost ends, the compressors and outdoor unit fan stop for approximately 40 seconds, then operation begins in heating mode.

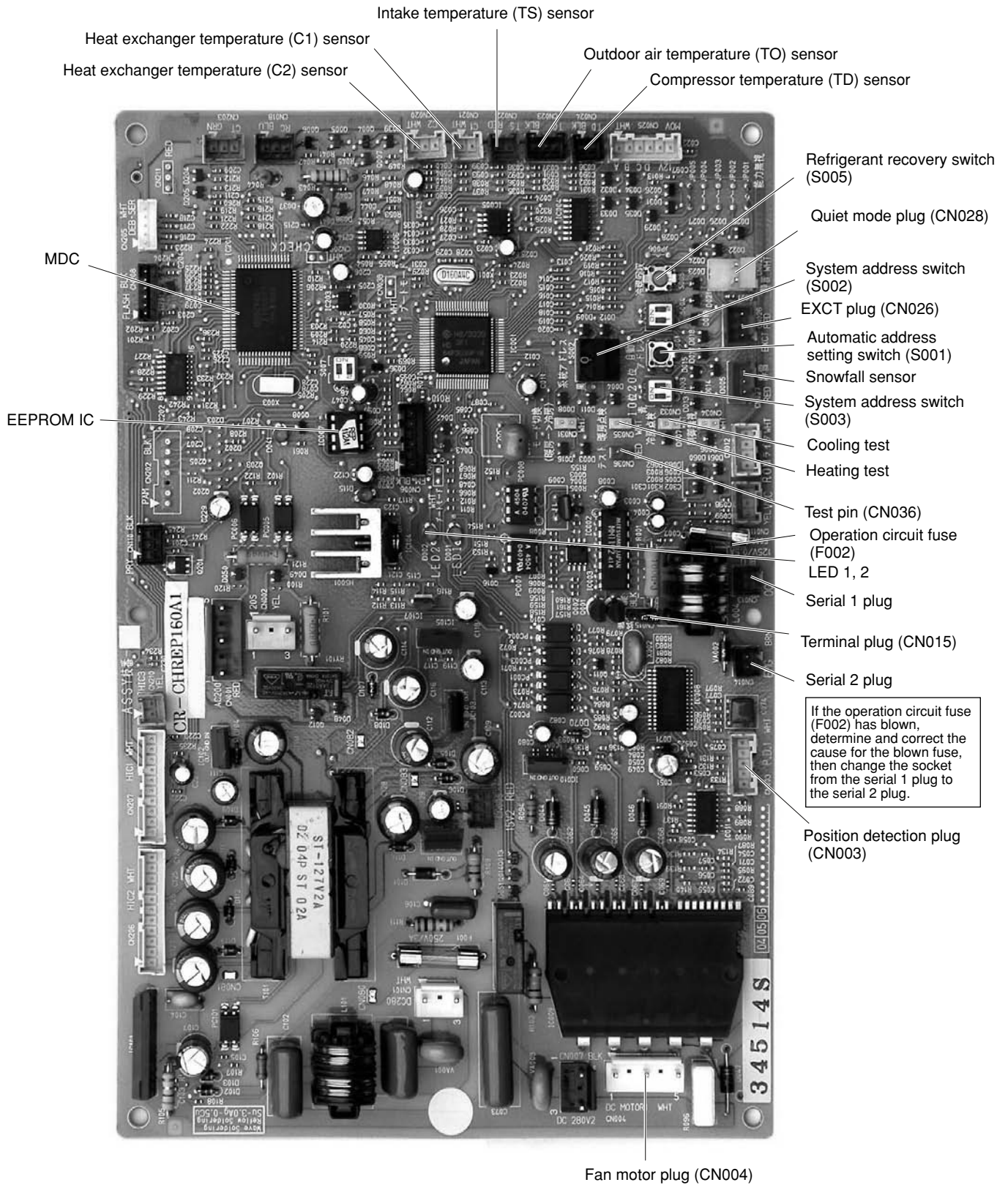
## 2-2. Outdoor Unit Control PCB

### (1) Layout Diagram (GRFP255-365)



## 2-2. Outdoor Unit Control PCB

### (2) Layout Diagram (GRFP485)



2

## 2-2. Outdoor Unit Control PCB (AES125PIH)

### (3) Explanation of Functions

S001	<p>Push-button switch (black): Automatic address setting switch</p> <ul style="list-style-type: none"> <li>If the system address switch (S002: set to 0 at time of shipment) setting is other than “0” (central control), press this switch once to automatically set the addresses at all indoor units which are in the same system, and are connected to that outdoor unit. During automatic address setting, the 2 LEDs (red) on the outdoor unit control PCB blink alternately. (Pressing this switch again stops automatic address setting.)</li> <li>If automatic address setting is currently in progress at another system that is subject to central control, only LED 1 on the outdoor unit control PCB blinks to indicate that automatic address setting is in progress at another unit. If automatic address setting is in progress at another unit, automatic address setting cannot be started at this unit, even if S001 is pressed.</li> </ul>																	
S002	<p>Rotary switch (10 positions, black): System address setting switch</p> <ul style="list-style-type: none"> <li>This switch is set to 0 (1 system control) at the time of shipment. However the address for each system must be set when multiple systems are controlled or when central control is used. (Figure 1)</li> <li>If the system address is set to 0, automatic address setting is started when the power is turned ON. Therefore it is not necessary to use switch SW01 and perform automatic address setting in the case of single or simultaneous-operation multi control of a single system.</li> <li>When using central control for multiple systems, a maximum of 30 systems (maximum 64 units) can be connected. In the case of group control or central control, set the system address to a setting other than 0 (1 or above).</li> <li>If the number of systems is greater than 9, this switch can be used in combination with DIP switch S003 to set up to 30 systems. The setting can be made as high as 39, however all settings above 30 are handled as 30 for control. (For details, refer to Table 1.)</li> <li>If system addresses are duplicated (the same address exists more than once), LED 1 on the outdoor unit control PCB lights up, and alarm “L04” is displayed on the remote controller.</li> </ul>																	
S003	<p>DIP switch (2P, blue): System address 10s-digit and 20s-digit place setting switch</p> <ul style="list-style-type: none"> <li>When setting 10 systems or more, set this switch in combination with S002.</li> <li>For 10 – 19 systems, set 1P (10s-digit place) to ON.</li> <li>For 20 – 29 systems, set 2P (20s-digit place) to ON, and set 1P (10s-digit place) to OFF.</li> <li>For 30 systems, set both 1P (10s-digit place) and 2P (20s-digit place) to ON. (For details, refer to Table 1.)</li> </ul>																	
S005	<p>Refrigerant recovery switch (red button switch)</p> <ul style="list-style-type: none"> <li>Press this switch to perform refrigerant recovery control using cooling operation. The indoor unit fan will operate at HIGH and 55 Hz for a maximum of 10 minutes. When refrigerant recovery is completed, close the valves and press this switch to stop the operation.</li> </ul>																	
Test (CN036)	<p>2P plug (red): Pin used for PCB inspection at the factory</p>																	
EXCT (CN026)	<p>3P plug (red): Can be used for demand control</p> <ul style="list-style-type: none"> <li>The operating ranges are shown in the table.</li> </ul> <table border="1" data-bbox="1020 1704 1357 1883"> <thead> <tr> <th colspan="2">Short-circuited</th> <th rowspan="2">Operating range</th> </tr> <tr> <th>2P and 3P</th> <th>1P and 3P</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>100%</td> </tr> <tr> <td>0</td> <td>1</td> <td>75%</td> </tr> <tr> <td>1</td> <td>0</td> <td>50%</td> </tr> <tr> <td>1</td> <td>1</td> <td>0%</td> </tr> </tbody> </table>	Short-circuited		Operating range	2P and 3P	1P and 3P	0	0	100%	0	1	75%	1	0	50%	1	1	0%
Short-circuited		Operating range																
2P and 3P	1P and 3P																	
0	0	100%																
0	1	75%																
1	0	50%																
1	1	0%																

Terminal plug (CN015)

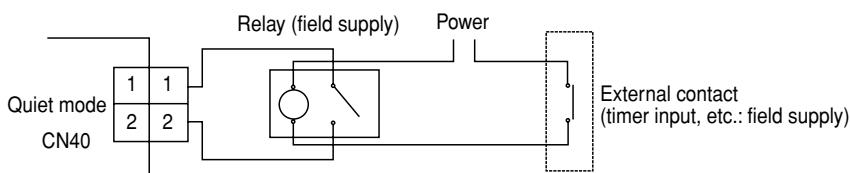
3P plug (black): Terminal plug for the communications line

- At the time of shipment from the factory, the short-circuiting socket (2P, black) is installed between pins 1 and 2 on the terminal plug (terminal = yes).
- When central control is used for multiple systems, leave the short-circuiting socket in place only on the outdoor unit with a system address of 1. At all other outdoor units (other than unit No. 1), move the short-circuiting socket to between 2 and 3 (terminal = no). If multiple short-circuiting sockets remain in place during central control, a communications failure will occur.
- In the case of a single system only (system address = 0), do not remove the short-circuiting socket. (Alarm "E04" will occur.)

Quiet mode (CN028)

2P plug (white): Enables operation in quiet mode.

- The outdoor unit fan and compressor frequencies are subject to limits during operation.
- Low-noise operation is enabled when the relay is turned ON.
  - Example of wiring



Outdoor unit control PCB

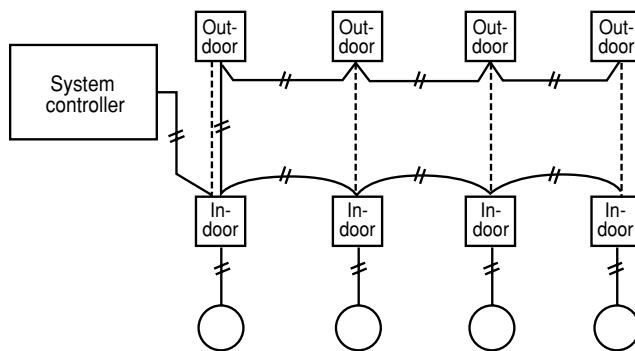
**Note 1:** The maximum length of the wiring between the outdoor unit PCB and the relay is 2 m.

- Lead wire with 2P plug (special-order part: WIRE K/ 623-161-2098)
- Relay, field supply, contact input specifications: DC 5 V, 0.5 mA  
(Recommended relay: Fuji Electric HH62SW, compatible with micro contacts)
- Use a commercially available timer (such as the Omron H5 daily time switch).

**Table 1. Method of System Address Setting**

[S002 (rotary, black), S003 (2P DIP switch, green or blue)]

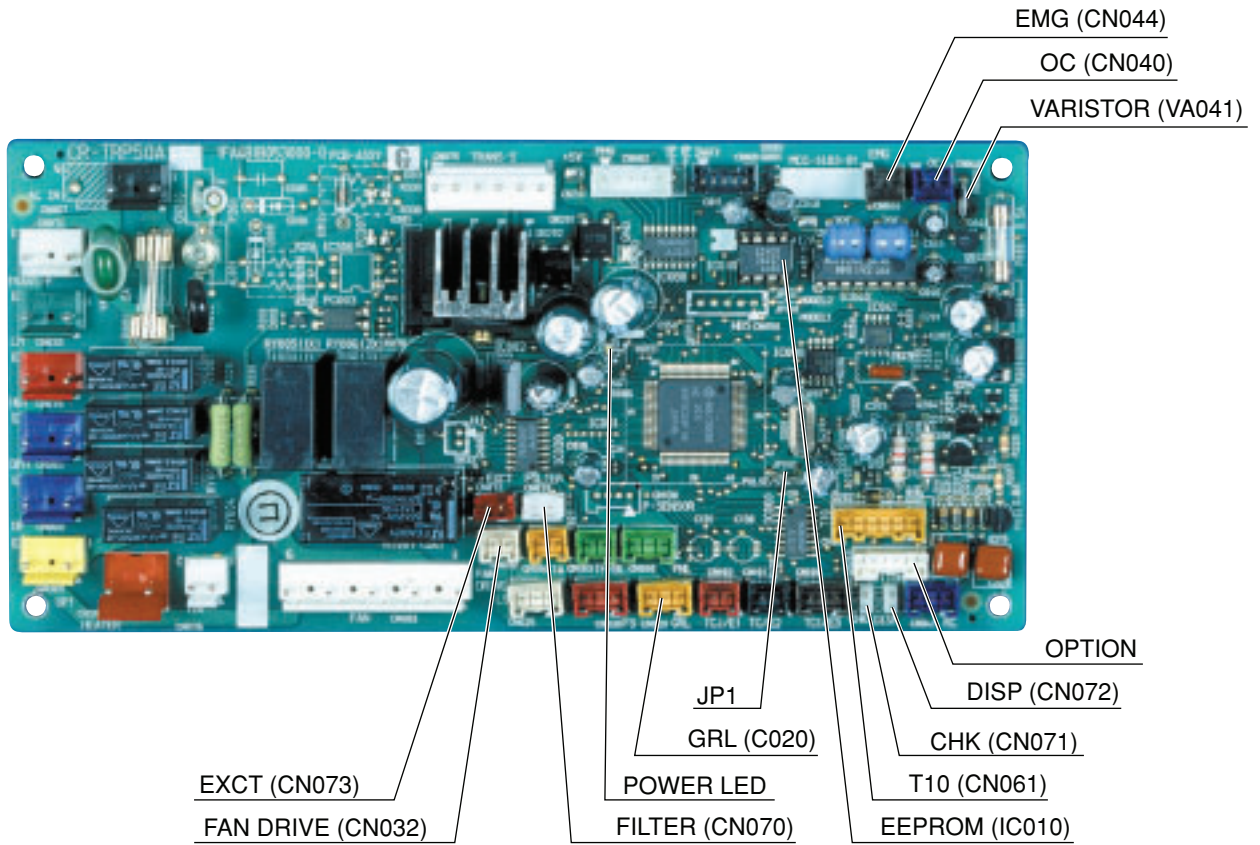
	Outdoor system address No.	S002 setting (system address switch)	S003 setting	
			1P (10s-digit place)	2P (20s-digit place)
1 system only	1	0	OFF	OFF
Central control	1	1	OFF	OFF
	2	2	OFF	OFF
	3	3	OFF	OFF
	4	4	OFF	OFF
	5	5	OFF	OFF
	6	6	OFF	OFF
	7	7	OFF	OFF
	8	8	OFF	OFF
	9	9	OFF	OFF
	10	0	ON	OFF
	11	1	ON	OFF
	12	2	ON	OFF
	13	3	ON	OFF
	14	4	ON	OFF
	15	5	ON	OFF
	16	6	ON	OFF
	17	7	ON	OFF
	18	8	ON	OFF
	19	9	ON	OFF
	20	0	OFF	ON
	21	1	OFF	ON
	22	2	OFF	ON
	23	3	OFF	ON
	24	4	OFF	ON
	25	5	OFF	ON
	26	6	OFF	ON
	27	7	OFF	ON
	28	8	OFF	ON
	29	9	OFF	ON
	30	0	ON	ON



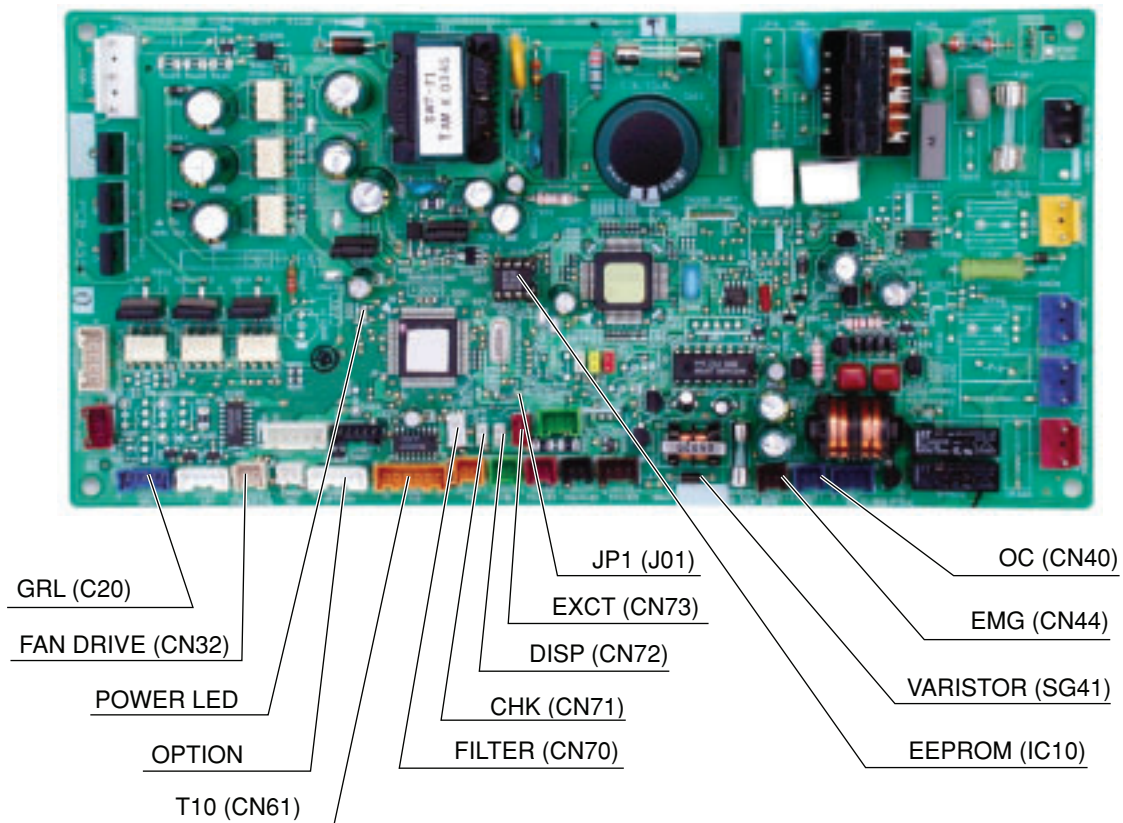
**Fig. 1**

## 2-3. Indoor Unit Control PCB Switches and Functions

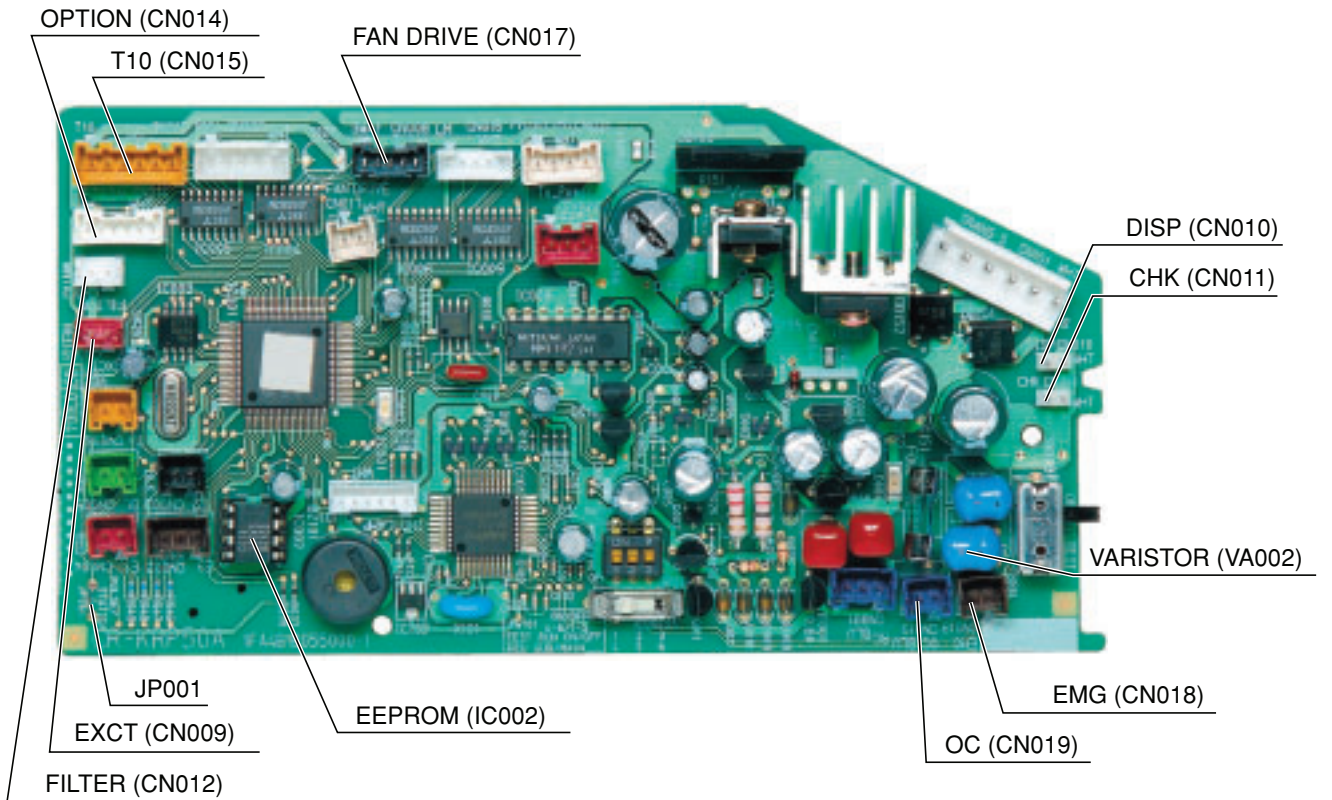
### ■ For AC fan motor (CR-TRP50A)



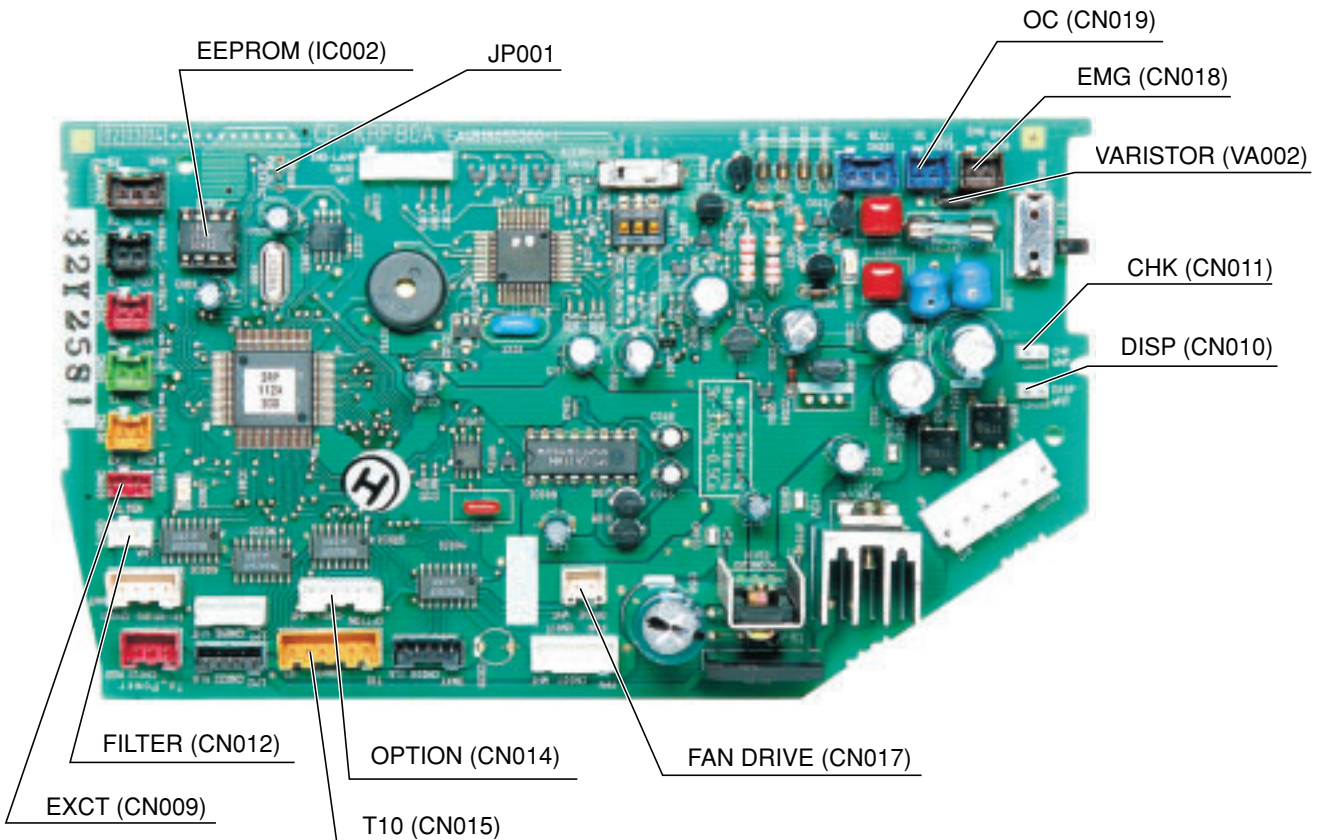
### ■ For DC fan motor (CR-SRP50A-1)



■ For DC fan motor (CR-KRP50A)



■ For DC fan motor (CR-KRP80A)

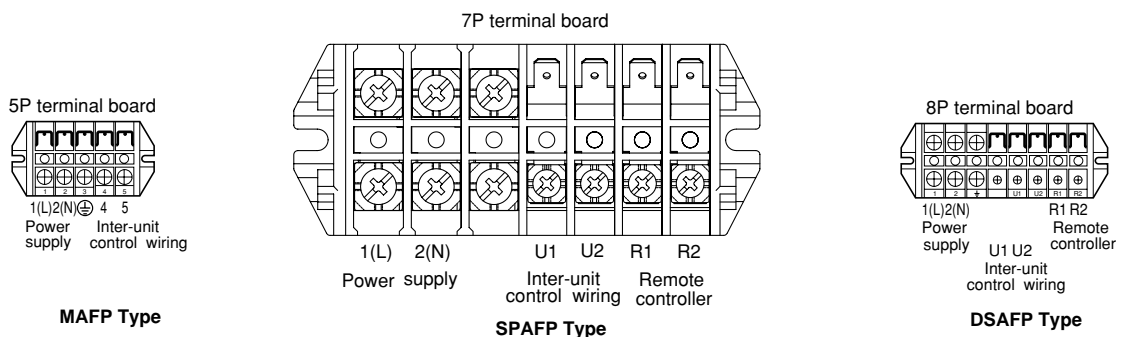


## PCB Settings Section

### 1. Indoor Unit Control PCB Switches and Functions

#### [Indoor unit control PCB]

- T10 (CN61-15):** **6P plug (YEL)** / Used for remote control operation. (Refer to the Remote Control Section.)  
Control items: (1) Start/stop input (2) Remote controller prohibit input  
(3) Start signal output (4) Alarm signal output
- EXCT (CN73-9):** **2P plug (RED)** / Can be used for demand control. When input is present, forces the unit to operate with the thermostat OFF.
- DISP (CN72-10):** **2P plug (WHT)** / Short-circuiting this plug allows operation to be controlled by the remote controller even when an outdoor unit is not connected. (In this case, alarm “E04,” which indicates trouble in the serial communication between the indoor and outdoor unit, does not occur.)
- CHK (CN71-11):** **2P plug (WHT)** / Test pin. Short-circuiting this pin allows the indoor FM (H fan speed), drain pump, flap motor (F1 position), and electronic expansion valve full-open position to be checked.  
However this function turns OFF if the indoor unit protection mechanism is activated.  
The components will operate even if the remote controller and outdoor unit are not connected, however the remote control cannot be used for control even if it is connected. This plug can be used for short-term tests.
- JP1 (J01):** **Jumper wire** / Allows selection of the T10 terminal start/stop signal. (Refer to the Remote Control Section.)  
Setting at time of shipment: Pulse signal  
Jumper wire cut: Static signal (continuous signal)
- Fan drive (CN32-17):** **2P plug (WHT)** / This terminal sends the signal to the ventilation fan when a commercially available ventilation fan is operated by the FAN button on the wired remote controller. (Refer to the Remote Control Section.)  
Use a ventilation fan which can accept the no-voltage contact A signal as the external input signal.
- Filter (CN70-12):** **2P (WHT)** / This terminal is used to connect contact input from the differential-pressure switch, used to detect filter clogging. When the contact is ON, “FILTER” appears on the display of the wired remote controller.
- Power LED:** **LED (RED)** / Illuminates when the power is ON. Flashes when there is trouble with the EEPROM (IC10, IC010: nonvolatile memory).
- EEPROM (IC10-02):** **Nonvolatile memory** / Used to store model information and other data. When replacing the PCB, remove the EEPROM from the old PCB and install it onto the new PCB. If there is IC trouble, replace with a new IC (provided with the servicing PCB), and set the necessary information using the wired remote controller. (For the setting procedure, refer to the servicing technical materials.)
- GRL (CN20):**
- For AC fan motor (CR-TRP50A) – 3P (YEL)
  - For DC fan motor (CR-SRP50A) – 5P (BLU)
- There are 5P, 7P and 8P control PCB types for indoor units.



# 3. ELECTRICAL DATA

**3-1. Indoor Units (Electric Wiring Diagram, Schematic Diagram) . . . . . 3 - 2**  
    Wall-Mounted Type . . . . . 3 - 2

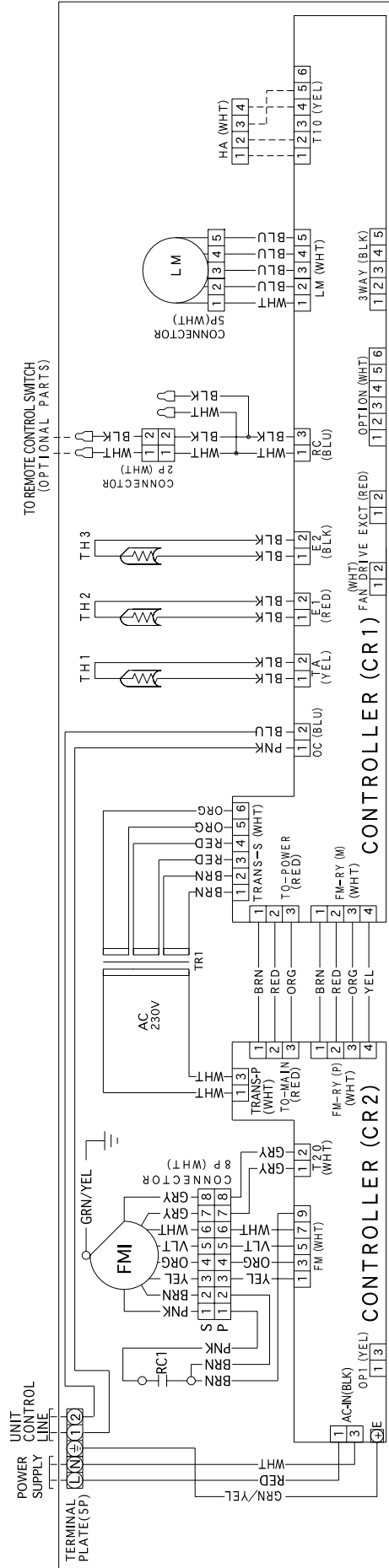
**3-2. Outdoor Units (Electric Wiring Diagram, Schematic Diagram) . . . . . 3 - 6**

# 3-1. Indoor Units

## Wall-Mounted Type MAFP125-165-185R

### Electric Wiring Diagram

3

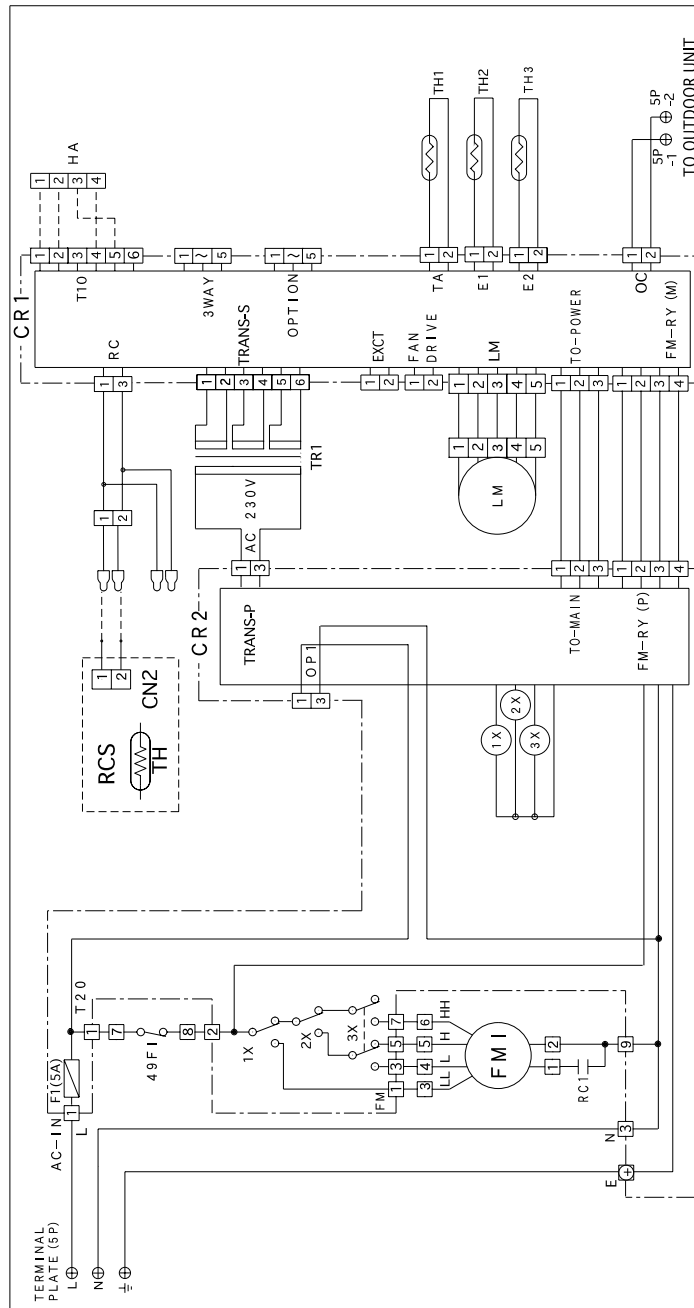


### 3-1. Indoor Units

#### ■ Wall-Mounted Type MAFP125-165-185R

##### Schematic Diagram

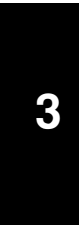
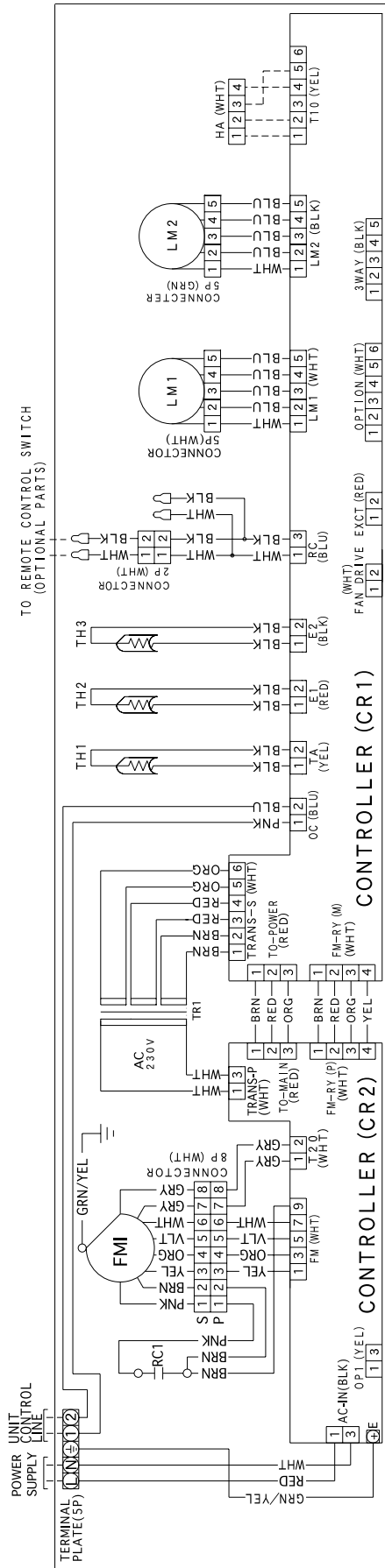
SYMBOLS	DESCRIPTION
FMI	INDOOR FAN MOTOR
49FI	INDOOR MOTOR THERMAL PROTECTOR
RC1	RUNNING CAPACITOR
TR1	POWER TRANSFORMER
TH1	ROOM THERMISTOR
TH2	THERMISTOR (INDOOR COIL E1)
TH3	THERMISTOR (INDOOR COIL E2)
F1	FUSE
LM	AUTO LOUVER MOTOR
1X-3X	AUXILIARY RELAY
CR1,CR2	INDOOR CONTROLLER
(RCS)	REMOTE CONTROL SWITCH (OPTIONAL PARTS)
⊕	TH:ROOM THERMISTOR
⊕	TERMINAL PLATE
⊕	CONNECTOR
⊕	TERMINAL



### 3-1. Indoor Units

#### ■ Wall-Mounted Type    MAFP255R

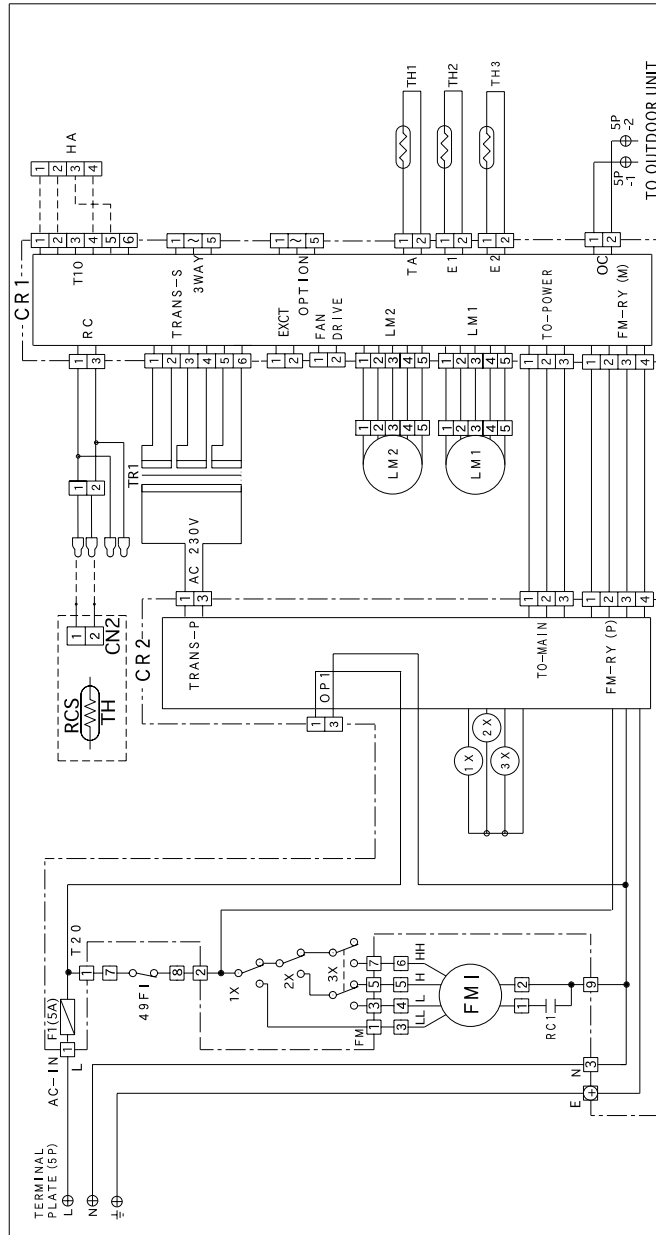
#### Electric Wiring Diagram



# 3-1. Indoor Units

## ■ Wall-Mounted Type MAFP255R Schematic Diagram

SYMBOLS	DESCRIPTION
FMI	INDOOR FAN MOTOR
4.9F1	INDOOR MOTOR THERMAL PROTECTOR
RC1	RUNNING CAPACITOR
TR1	POWER TRANSFORMER
TH1	ROOM THERMISTOR
TH2	THERMISTOR (INDOOR COIL E1)
TH3	THERMISTOR (INDOOR COIL E2)
F1	FUSE
LM	AUTO LOUVER MOTOR
TX-3X	AUXILIARY RELAY
CR1,CR2	INDOOR CONTROLLER
(RCS)	REMOTE CONTROL SWITCH (OPTIONAL PARTS)
⊕	TH:ROOM THERMISTOR
⊕	CONNECTOR
⊕	TERMINAL

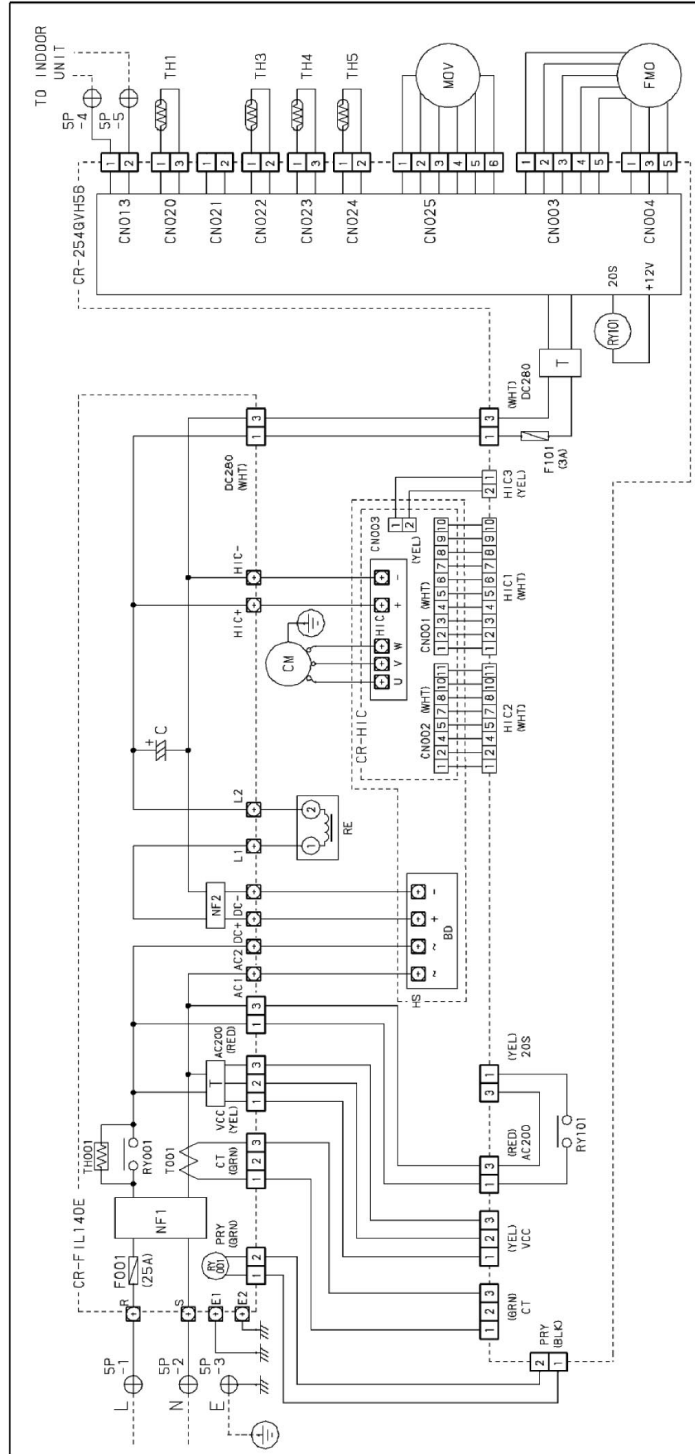




# 3-2. Outdoor Units

## Schematic Diagram GRFP255L

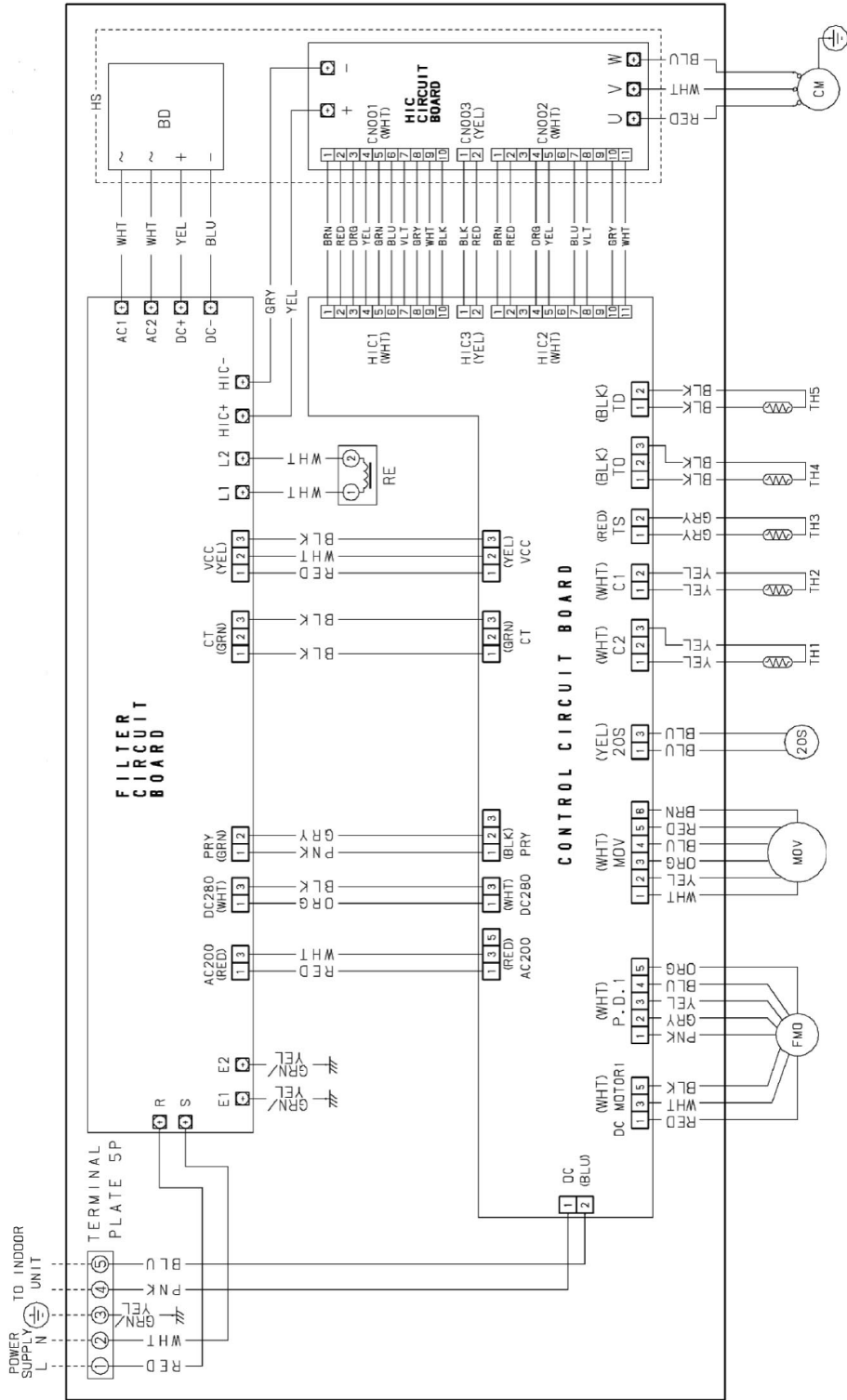
SYMBOLS	DESCRIPTION
CM	COMPRESSOR MOTOR
FMO	OUTDOOR FAN MOTOR
MOV	MOTOR OPERATED VALVE
FOO1, 101	OPERATION CIRCUIT FUSE
NF1, 2	NOISE FILTER
C	ELECTROLYTIC CAPACITOR
RE	REACTOR
HIC	HYBRID IC
BD	BRIDGE DIODE
HS	HEAT SINK (RADIATOR)
T	TRANSFORMER
CT	CURRENT TRANSFORMER
RY001, 101	RELAY
CR-254GVH56	CONTROL CIRCUIT BOARD
CR-FIL140E	FILTER CIRCUIT BOARD
CR-HIC	HIC CIRCUIT BOARD
	THERMISTOR
	CONNECTOR
	TERMINAL
	TERMINAL BOARD
	LEAD WIRE



### 3-2. Outdoor Units

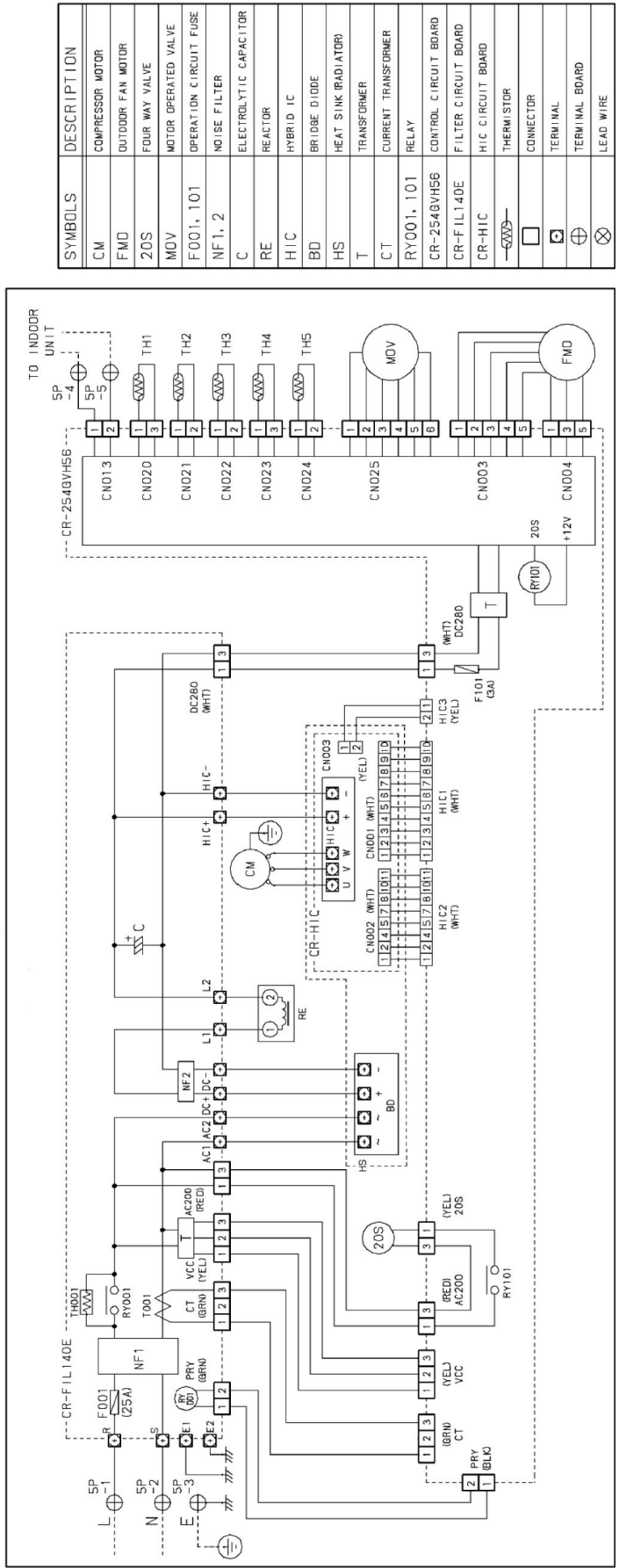
#### Electric Wiring Diagram GRFP255R

3



## 3-2. Outdoor Units

### Schematic Diagram GRFP255R

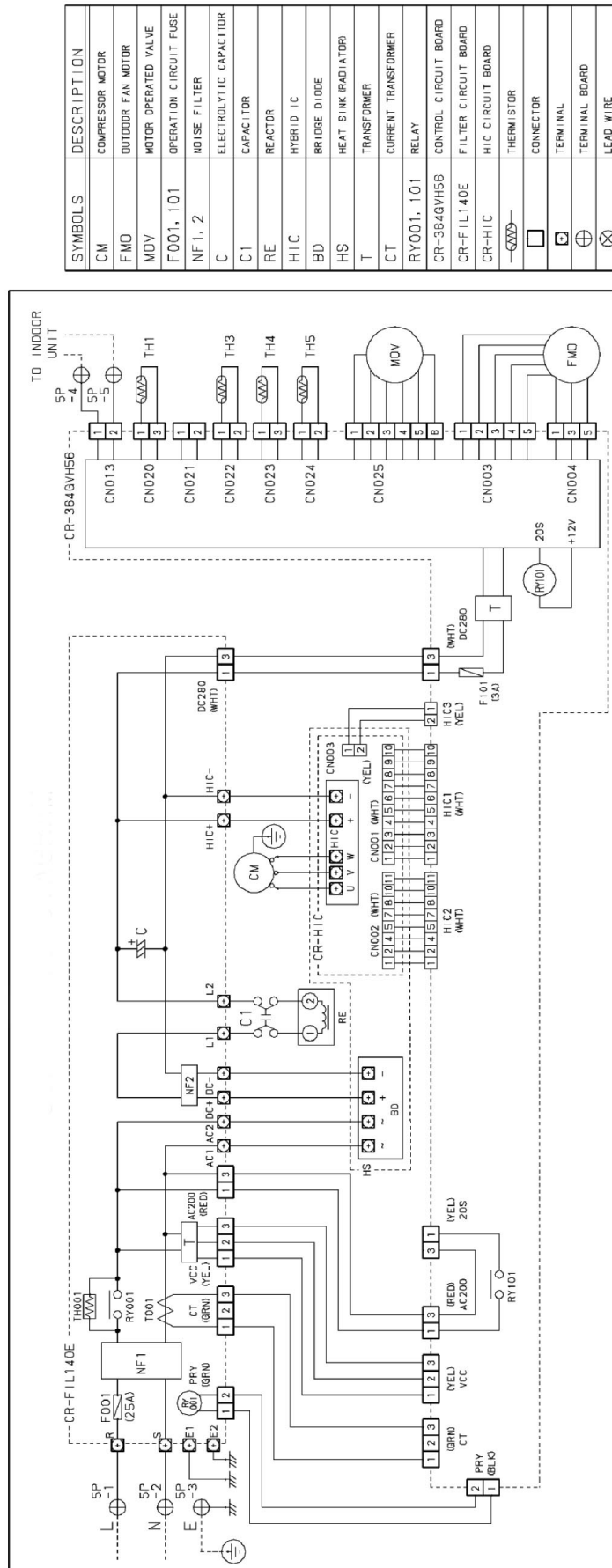


SYMBOLS	DESCRIPTION
CM	COMPRESSOR MOTOR
FMD	OUTDOOR FAN MOTOR
20S	FOUR WAY VALVE
MOV	MOTOR OPERATED VALVE
F001, 101	OPERATION CIRCUIT FUSE
NF1, 2	NOISE FILTER
C	ELECTROLYTIC CAPACITOR
RE	REACTOR
HIC	HYBRID IC
BD	BRIDGE DIODE
HS	HEAT SINK (RADIATOR)
T	TRANSFORMER
CT	CURRENT TRANSFORMER
RY001, 101	RELAY
CR-2548VH56	CONTROL CIRCUIT BOARD
CR-FIL140E	FILTER CIRCUIT BOARD
CR-HIC	HIC CIRCUIT BOARD
	THERMISTOR
	CONNECTOR
	TERMINAL
	TERMINAL BOARD
	LEAD WIRE



### 3-2. Outdoor Units

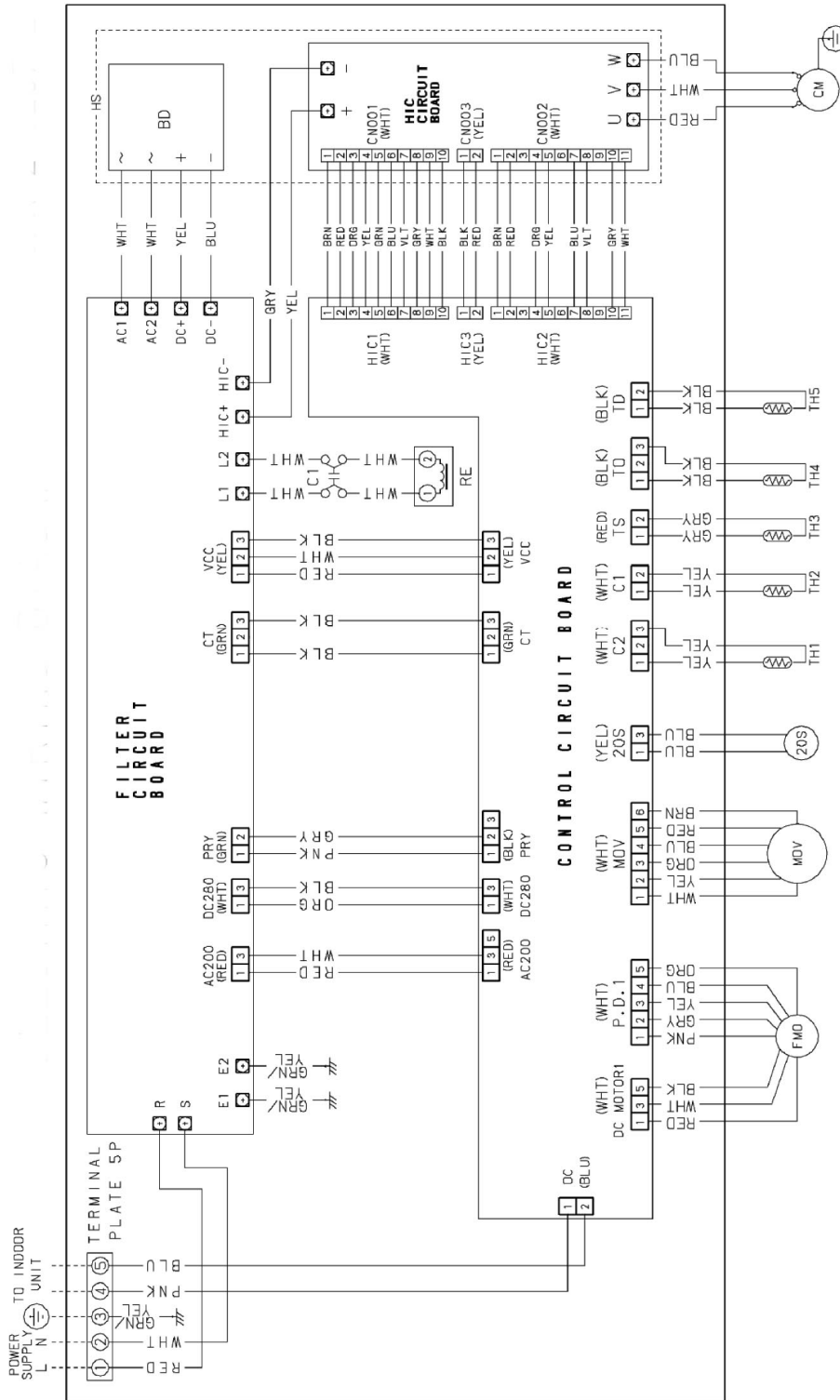
#### Schematic Diagram GRFP365L



SYMBOLS	DESCRIPTION
CM	COMPRESSOR MOTOR
FMD	OUTDOOR FAN MOTOR
MOV	MOTOR OPERATED VALVE
F001, 101	OPERATION CIRCUIT FUSE
NF1, 2	NOISE FILTER
C	ELECTROLYTIC CAPACITOR
C1	CAPACITOR
RE	REACTOR
H1C	HYBRID IC
BD	BRIDGE DIODE
HS	HEAT SINK (RADIATOR)
T	TRANSFORMER
CT	CURRENT TRANSFORMER
RY001, 101	RELAY
CR-3B4GVH56	CONTROL CIRCUIT BOARD
CR-FIL140E	FILTER CIRCUIT BOARD
CR-HIC	HIC CIRCUIT BOARD
⊖	THERMISTOR
□	CONNECTOR
⊕	TERMINAL
⊗	TERMINAL BOARD
⊗	LEAD WIRE

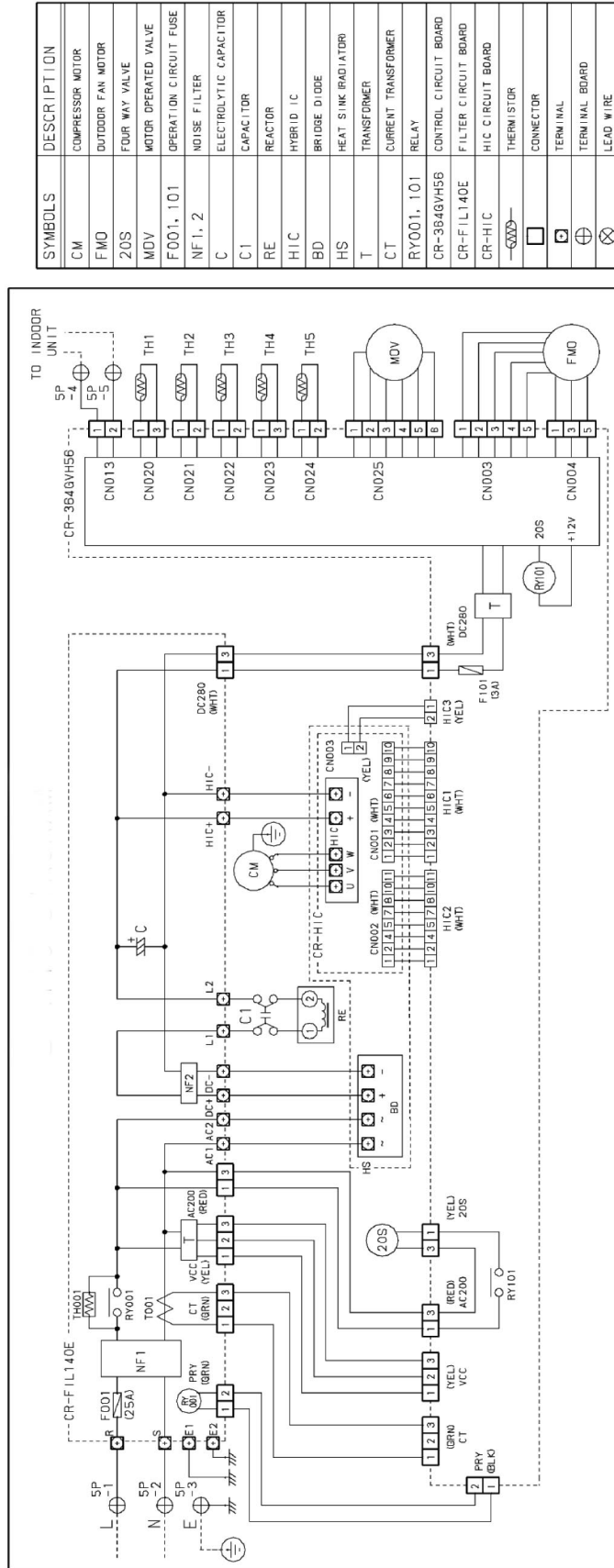
## 3-2. Outdoor Units

### Electric Wiring Diagram GRFP365R



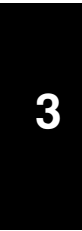
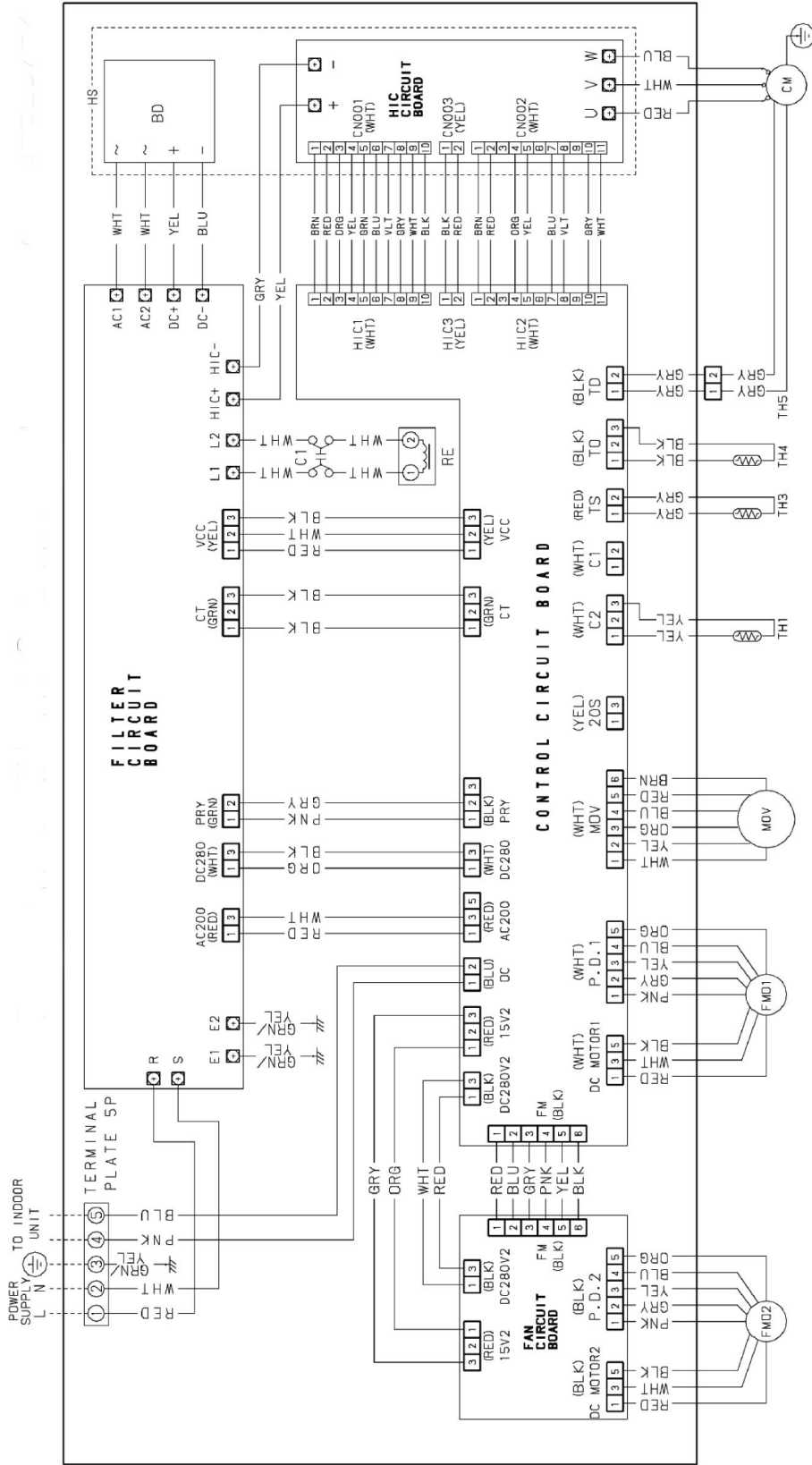
## 3-2. Outdoor Units

### Schematic Diagram GRFP365R



### 3-2. Outdoor Units

#### Electric Wiring Diagram GRFP485L

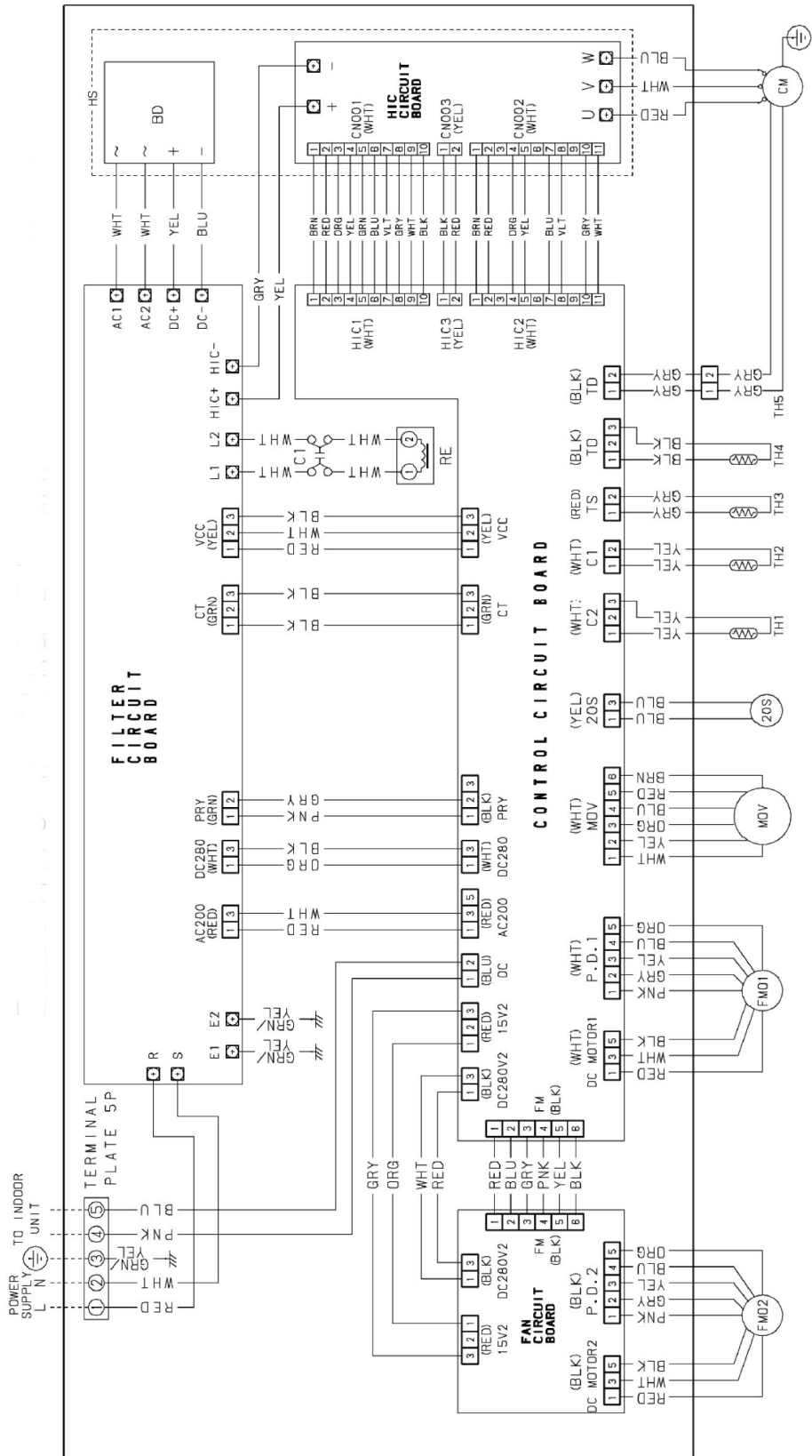




# 3-2. Outdoor Units

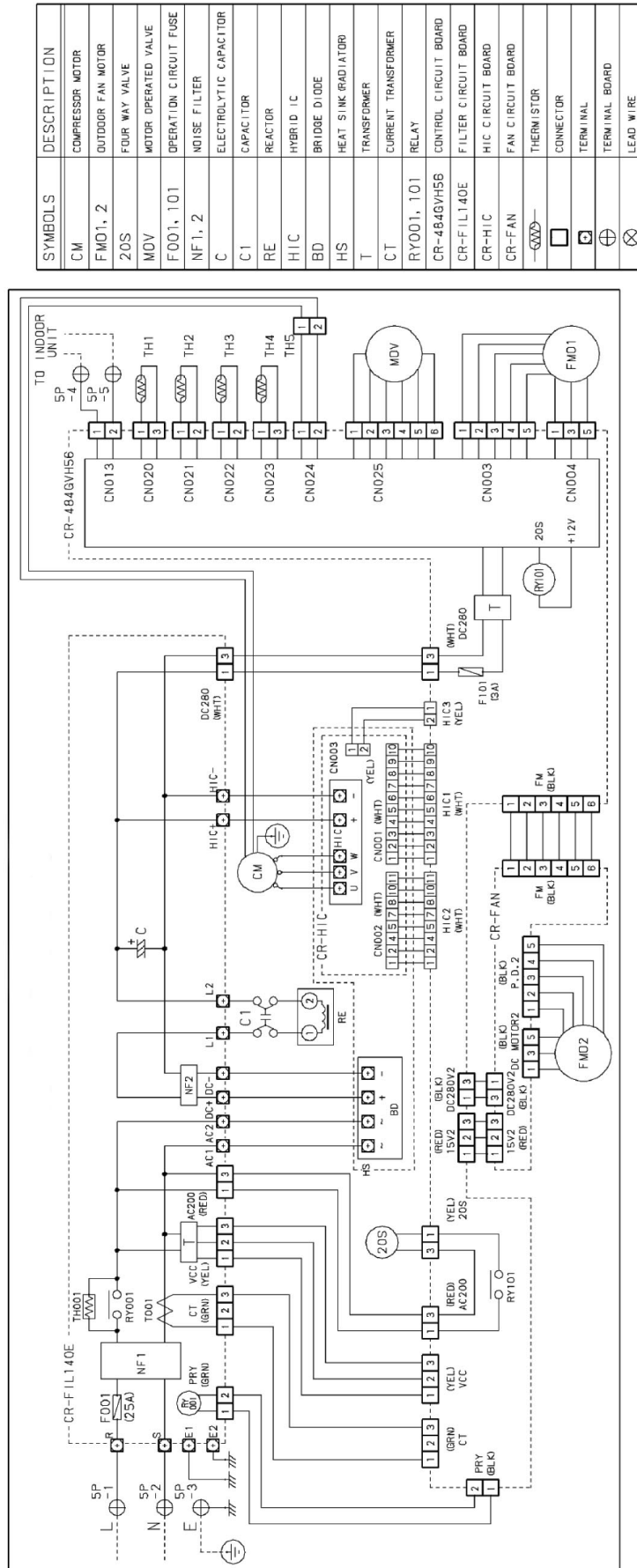
## Electric Wiring Diagram GRFP485R

3



## 3-2. Outdoor Units

### Schematic Diagram GRFP485R



## 4. SERVICE PROCEDURES

4-1. Meaning of Alarm Messages .....	4 - 2
4-2. LED Indicator Messages on Outdoor Control PCB .....	4 - 4
4-3. Symptoms and Parts to Inspect .....	4 - 5
4-4. Details of Alarm Messages .....	4 - 8
4-5. Table of Thermistor Characteristics .....	4 - 14

## 4-1. Meaning of Alarm Messages

ON: ○ Blinking: ☀ OFF: ●

Possible cause of malfunction			Wired remote control display	Wireless remote controller receiver display		
				Operation	Timer	Standby for heating
Serial communication errors Mis-setting	Remote controller is detecting error signal from indoor unit	Error in receiving serial communication signal (Signal from main indoor unit in case of group control) Outdoor system address, indoor system address, or indoor unit individual/main/sub setting is not set (Automatic address setting is not completed) Auto address is not completed	E01			
		Error in transmitting serial communication signal	E02	☀	●	●
	Indoor unit is detecting error signal from remote controller (and system controller)		E03			
	Improper setting of indoor unit or remote controller	Indoor unit address setting is duplicated	E08			
		Remote controller setting is duplicated	E09			
	Indoor unit is detecting error signaled from signal option	Error in transmitting serial communications signal	E10			
		Error in receiving serial communications signal	E11			
	Setting error	Main unit duplication in simultaneous-operation multi control (detected by outdoor unit)	E14			
	Indoor unit is detecting error signaled from outdoor unit	Error in receiving serial communications signal	E04			
		Error in transmitting serial communications signal	E05			
	Outdoor unit is detecting error signaled from indoor unit	Error in receiving serial communications signal (including unit quantity verification failure)	E06	●	●	☀
		Error in transmitting serial communications signal	E07			
	Automatic address setting failed	Indoor unit capacity too low	E15			
		Indoor unit capacity too high	E16			
		No indoor units connected	E20			
	An indoor unit detected trouble in the signal from another indoor unit	Error in transmitting serial communications signal	E17	☀	●	●
Error in receiving serial communications signal		E18				
Communications trouble between units	Communications failure with MDC	E31	●	●	☀	
Mis-setting	Setting error	Indoor unit group settings error	L01			
		Indoor/outdoor unit type mismatch	L02	☀	●	☀
		Main unit duplication in group control (detected by indoor unit)	L03		☀	☀
		Outdoor unit address duplication (system address)	L04	☀	○	☀
		Group wiring connected for independent indoor unit	L07		○	☀
		Address not set or group not set	L08	☀	●	☀
		Indoor unit capacity not set	L09			
		Outdoor unit capacity not set or setting error	L10	☀	○	☀
		Miswiring in group control wiring	L11			
Indoor unit type setting error (capacity)	L13					

Continued

Possible cause of malfunction			Wired remote control display	Wireless remote controller receiver display		
				Operation	Timer	Standby for heating
Ceiling panel connection failure			P09			
Activation of protective device	Indoor protection	Fan protective thermostat	P01	●	☀	☀
		Float switch	P10	☀	☀	☀
	Outdoor protection	Discharge temperature trouble	P03			
		Open phase detected, AC power trouble	P05			
		No gas	P15			
		4-way valve locked	P19			
		High cooling load	P20			
		Outdoor fan trouble	P22			
		Inverter compressor trouble (HIC PCB)	P26			
		Inverter compressor trouble (MDC)	P29			
		Simultaneous-operation multi control trouble	P31			
		Compressor current failure (overload)	H01	●	☀	●
	Thermistor fault	Thermistor open circuit • Short circuit (indoor)	Indoor heat exchanger temperature sensor (E1)	F01	☀	☀
Indoor heat exchanger temperature sensor (E2)			F02	☀	☀	●
Indoor temperature sensor			F10			
Thermistor open circuit • Short circuit (outdoor)		Discharge temperature (TD)	F04			
		Outdoor heat exchanger temperature (C1)	F06			
		Outdoor heat exchanger temperature (C2)	F07	☀	☀	○
		Outdoor air temperature (TO)	F08	☀	☀	○
		Intake temperature (TS)	F12			
		Indoor EEPROM error	F29	☀	☀	●
		Outdoor EEPROM error	F31	☀	☀	○

## 4-2. LED Indicator Messages on Outdoor Control PCB

	LED 1	LED 2	Remarks
<b>Power ON sequence</b> 1. No communication from indoor units in system 2. Communication received from 1 or more indoor units in system 3. Regular communication OK (Capacity and unit quantity match)	○ ● ●	○ ○ ●	If it is not possible to advance to 3, repeats 1 → 2. At 3, changes to normal control.
<b>Normal operation</b> EEPROM error (F31)  Pre-trip (insufficient gas) Pre-trip (P20) Pre-trip (other)	○  ☀ (0.25/0.75) ☀ (0.75/0.25) ☀	☀  ● ● ●	Displayed during automatic address setting 1 and initial communication. After these are completed, alarm F31 is displayed.  <b>P03</b>
<b>Alarm</b>	<b>Alternate blinking during alarms</b> LED 1 blinks M times, then LED 2 blinks N times. The cycle then repeats. M = 2: P alarm 3: H alarm 4: E alarm 5: F alarm 6: L alarm N = Alarm No. * Refer to "1. Examples of alarm display" below.		
<b>Insufficient gas indicator</b>	☀	●	
<b>Refrigerant recovery mode</b>	☀	●	
<b>Automatic address setting</b> Automatic address setting in progress Automatic address setting alarm (E15) Automatic address setting alarm (E20) Automatic address setting alarm (Other than E15 and E20)	☀ ☀ (0.25/0.75) ☀ (0.75/0.25) ☀	☀ ☀ (0.25/0.75) ☀ (0.75/0.25) ☀	Blinking alternately Blinking simultaneously Blinking simultaneously Blinking simultaneously

○ : ON

☀ : **Blinking (0.25/0.75)** indicates that the lamp illuminates for 0.25 seconds, and then is OFF for 0.75 seconds. Unless otherwise indicated, the blinking is (0.5/0.5).

● : OFF

Examples of alarm display (other than E15, E16, and E20)

Alarm / Display	LED 1 ←	Alternately	→ LED 2
<b>P03</b>	☀ (Blinks 2 times)		☀ (Blinks 3 times)
<b>P04</b>	☀ ( " )		☀ (Blinks 4 times)
<b>P05</b>	☀ ( " )		☀ (Blinks 5 times)
<b>P31</b>	☀ ( " )		☀ (Blinks 31 times)
<b>H01</b>	☀ (Blinks 3 times)		☀ (Blinks 1 times)
<b>H02</b>	☀ ( " )		☀ (Blinks 2 times)
<b>H03</b>	☀ ( " )		☀ (Blinks 3 times)
•		•	
<b>E04</b>	☀ (Blinks 4 times)		☀ (Blinks 4 times)
•		•	
<b>F07</b>	☀ (Blinks 5 times)		☀ (Blinks 7 times)
•		3	
<b>L13</b>	☀ (Blinks 6 times)		☀ (Blinks 13 times)
•		•	

Note:

This table shows example alarms. Other alarms may also be displayed.

### 4-3. Symptoms and Parts to Inspect

Remote controller alarm display	Alarm contents	Judgment condition	Clear condition	Judgment and correction
P03	Abnormal discharge temperature • Discharge temp. detected at or above the specified value.	Stops when temp. exceeds 111°C.	Recovery at restart	1. Check refrigerant cycle (gas leak). 2. Electronic control valve trouble 3. Check tubing sensor (TD).
P05	Missing phase detected. (CT disconnected or AC power trouble)	Current value sent from MDC on outdoor unit control PCB is low. No AC power input for 3 minutes or longer: pre-trip - 5	Recovery at restart	1. Check R/S/T power. 2. Check inverter control PCB. 3. Check outdoor unit control PCB.
P15	Insufficient gas level detected.	The following conditions continue for 1 minute. • Discharge temp. is 95°C or higher. • Electronic control valve is at step 480. • Current value from MDC is 1.7 A (3-phase) or 1.0 A (1-phase) or less.	Recovery at restart	Check refrigerant cycle (gas leak).
P19	4-way valve locked • Judgment occurs after compressor has been ON for 5 minutes.	Indoor heat exchanger temp. drops although compressors are ON in heating mode: [min(E1, E2)] ≤ 10°C. Indoor heat exchanger temp. rises although compressors are ON in cooling mode: E2 ≥ 40°C	Recovery at restart	1. Check 4-way valve. 2. Check 4-way valve wiring. 3. Check outdoor unit control PCB.
P20	High-pressure protection trouble detected from cooling high-load C2 temp.	Temp. exceeds 64°C and subsequently does not drop to 55°C or below. • Continuously for 30 seconds → Alarm is output when this occurs once. • Continuously for less than 30 seconds → Inverter stops.	Recovery at restart	1. Refrigerant cycle overload operation 2. Outdoor coil temperature sensor C2
P22	Outdoor unit fan motor trouble • Inverter protection circuit was activated, or lock was detected, at outdoor unit fan motor.	Inverter stops after alarm is detected	Recovery at restart	1. Position detection trouble 2. Overcurrent protection circuit at outdoor unit fan motor was activated. • Check outdoor unit control PCB. • Refer to outdoor unit fan judgment methods.
P26	Inverter protection circuit was activated, or G-Tr short-circuit (short time: 0.8 s or less) in inverter control	Inverter stops after alarm is detected. Alarm is output when inverter stops (pre-trip) consecutively 4 times.	Recovery at restart	1. Stops immediately when restarted. • Layer short in the compressor 2. Check inverter control PCB. • Wiring trouble

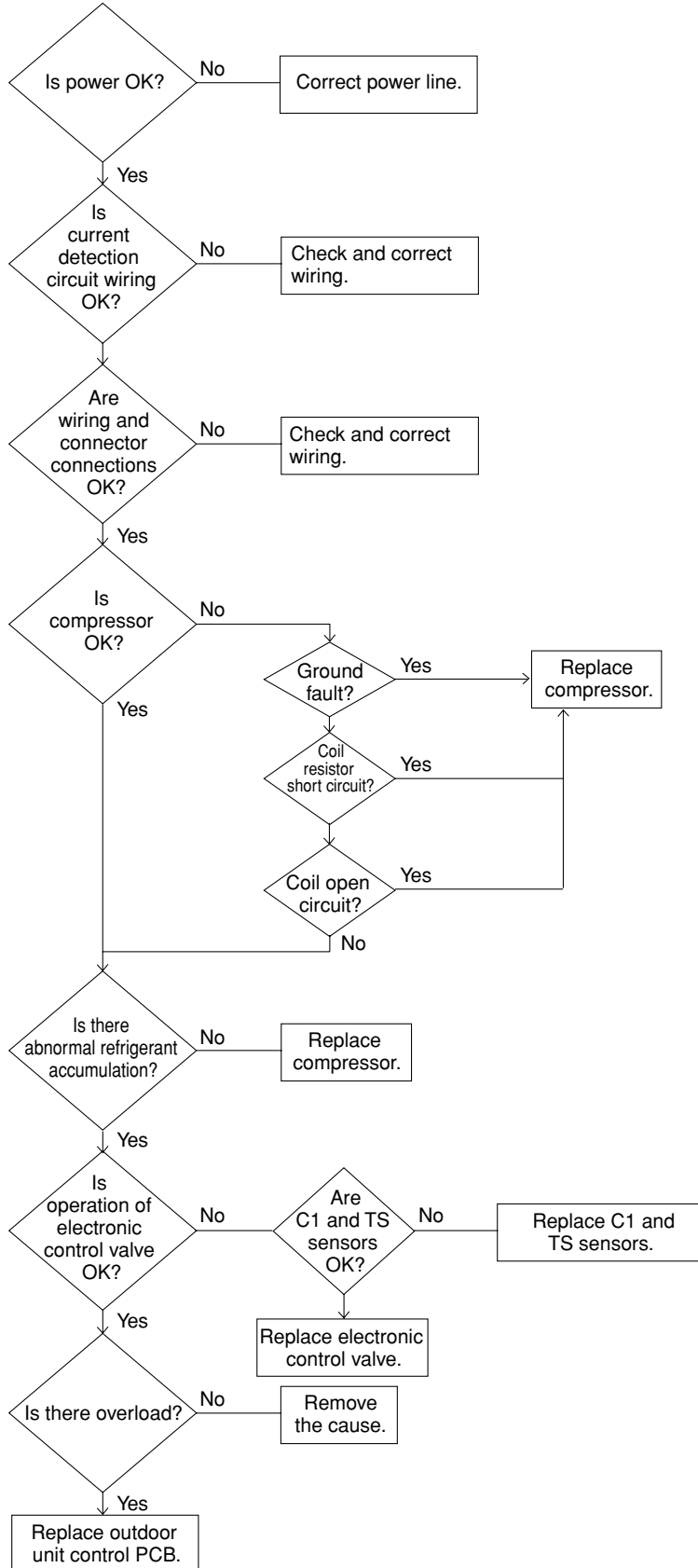
Remote controller alarm display	Alarm contents	Judgment condition	Clear condition	Judgment and correction
P29	Current detection circuit trouble • AC current value is high even when compressor is stopped.	Inverter stops after alarm is detected. Alarm is output when inverter stops (pre-trip) consecutively 4 times.	Recovery at restart	1. Stops immediately when restarted. • Layer short in the compressor 2. Check inverter control PCB. • Wiring trouble
	Compressor motor output trouble, Inverter compressor trouble, MDC trouble	Inverter stops after alarm is detected.	Recovery at restart	1. Refrigerant cycle trouble, overload operation 2. Loose screws and contact failure between HIC control PCB and radiating plate 3. Cooling failure of radiating plate 4. Check outdoor unit PCB wiring.
	Compressor does not run. (Overcurrent protection circuit activates after a certain period of time following compressor start.)	Inverter stops after alarm is detected.	Recovery at restart	1. Compressor trouble (locked, etc.) • Replace the compressor. 2. Compressor wiring trouble (missing phase)
	Compressor breakdown • Starts to operate but operating frequency drops and compressor stops.	Inverter stops after alarm is detected.	Recovery at restart	1. Check power voltage: AC 200 V $\pm$ 20 V. 2. Refrigerant cycle overload operation 3. Check AC current detection circuit.
	Inverter control PCB position detection circuit trouble	Inverter stops after alarm is detected.	Recovery at restart	Position detection circuit is activated even when the compressor 3P connector is disconnected and the compressor operated. • Replace the inverter control PCB.
F04	Disconnection, open circuit, or short circuit in discharge temp. sensor (TD)	Sensor detection trouble (90°C or higher when 15 minutes have elapsed after compressor stopped). (Open circuit)	Automatic recovery	1. Check discharge temp. sensor (TD). 2. Check outdoor unit control PCB.
F06	Disconnection, open circuit, or short circuit in outdoor heat exchanger temp. sensor (C1)	Open circuit or short circuit	Automatic recovery	1. Check outdoor heat exchanger temp. sensor (C1). 2. Check outdoor unit control PCB.
F07	Disconnection, open circuit, or short circuit in outdoor heat exchanger temp. sensor (C2)	Open circuit or short circuit	Automatic recovery	1. Check outdoor heat exchanger temp. sensor (C2). 2. Check outdoor unit control PCB.
F08	Disconnection, open circuit, or short circuit in outdoor air temp. sensor (TO)	Open circuit or short circuit	Automatic recovery	1. Check outdoor air temp. sensor (TO). 2. Check outdoor unit control PCB.
F12	Disconnection, open circuit, or short circuit in intake temp. sensor (TS)	Open circuit or short circuit	Automatic recovery	1. Check intake temp. sensor (TS). 2. Check outdoor unit control PCB.

Remote controller alarm display	Alarm contents	Judgment condition	Clear condition	Judgment and correction
F31	EEPROM trouble	Reading/writing failure	Recovery at power reset	1. Check EEPROM (IC901). 2. Check outdoor unit control PCB.
L02	Mismatch of indoor and outdoor unit types (Espacio, Multi, GHP)	Indoor unit judges that type does not match outdoor unit type.	Recovery at power reset	1. Check indoor unit EEPROM. 2. Check indoor unit control PCB.
L04	Settings failure	Duplicated outdoor unit address (system address)	Automatic recovery	1. Check outdoor unit system address. 2. Check inter-unit control wiring.
L07	Settings failure	Group control wiring is connected to an independent-control indoor	Recovery at power reset	1. Check inter-unit control wiring. 2. Check indoor unit EEPROM.
L10	Settings failure	Outdoor unit capacity not set.	Recovery at power reset	Check outdoor unit EEPROM.
L13	Indoor-outdoor unit types	Outdoor unit judges that type does not match indoor unit type.	Recovery at power reset	1. Check indoor unit EEPROM. 2. Check outdoor unit control PCB.
E06	Outdoor unit detected abnormal signal from indoor unit.	Serial signal receiving failure (including failure to verify No. of units)	Automatic recovery	1. Check inter-unit control wiring. 2. Check outdoor unit
E07	Outdoor unit sending failure to indoor unit	Serial signal sending failure	Automatic recovery	1. Check inter-unit control wiring. 2. Check outdoor unit control PCB.
E14	Settings failure	Duplicated master unit in simultaneous-operation multi control (Detected by outdoor unit)	Recovery at power reset	1. Check inter-unit control wiring. 2. Check indoor unit combination.
E15	Automatic address setting failure	Indoor unit capacity too low.	Recovery at power reset	1. Check inter-unit control wiring. 2. Check outdoor unit control PCB.
E16	Automatic address setting failure	Indoor unit capacity too high.	Recovery at power reset	1. Check inter-unit control wiring. 2. Check outdoor unit control PCB.
E20	Automatic address setting failure	Outdoor unit cannot receive any serial signals from indoor units.	Recovery at power reset	1. Check inter-unit control wiring. 2. Check outdoor unit control PCB.
E31	Communications trouble within unit	No communication possible with MDC for 3 minutes or longer.	Automatic recovery	Check outdoor unit control PCB.
H01	Overcurrent	Inverter stops after alarm is detected.	Recovery at restart	1. Refrigerant cycle trouble, overload operation 2. Loose screws between HIC control PCB and radiating plate 3. Cooling failure of radiating plate 4. Check outdoor unit PCB wiring.

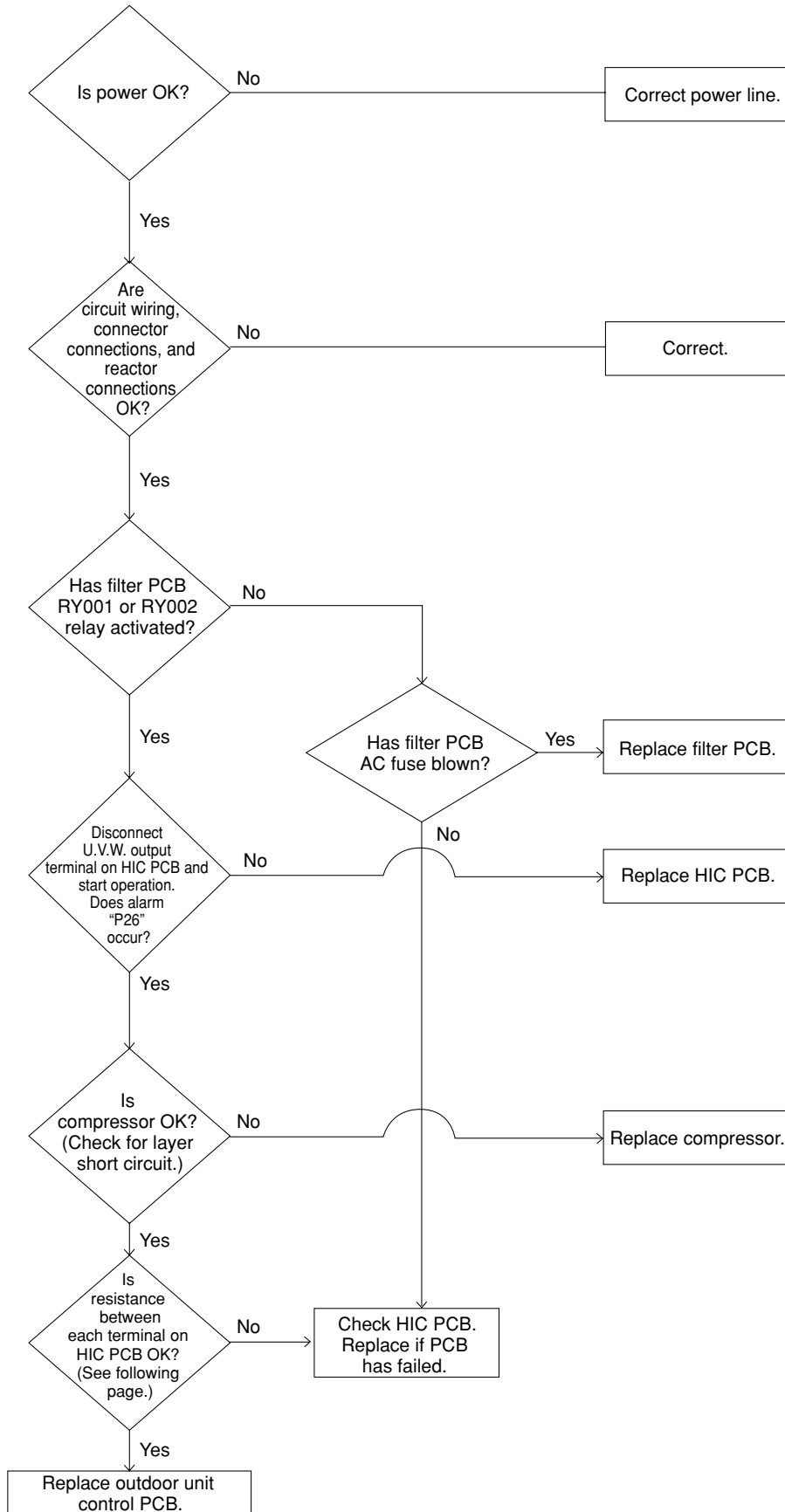
## 4-4. Details of Alarm Messages

(1) [Alarm "P29"]  
(MDC trouble)

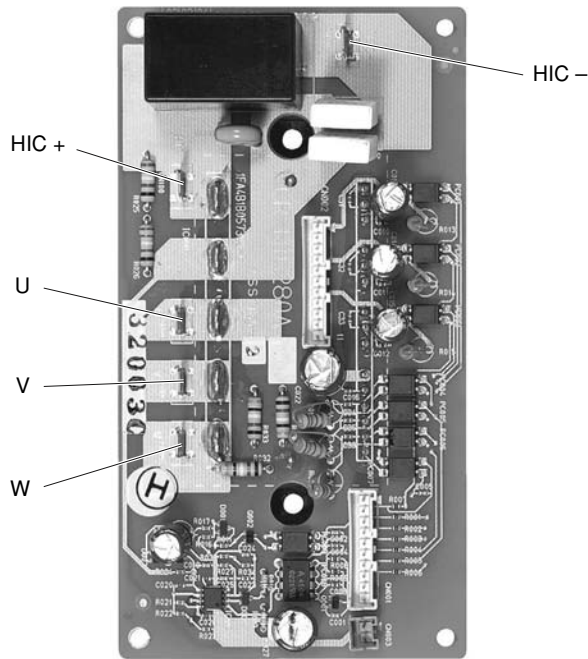
- Input power detection circuit trouble
- Compressor does not run.
- Breakdown
- Motor current detection circuit trouble



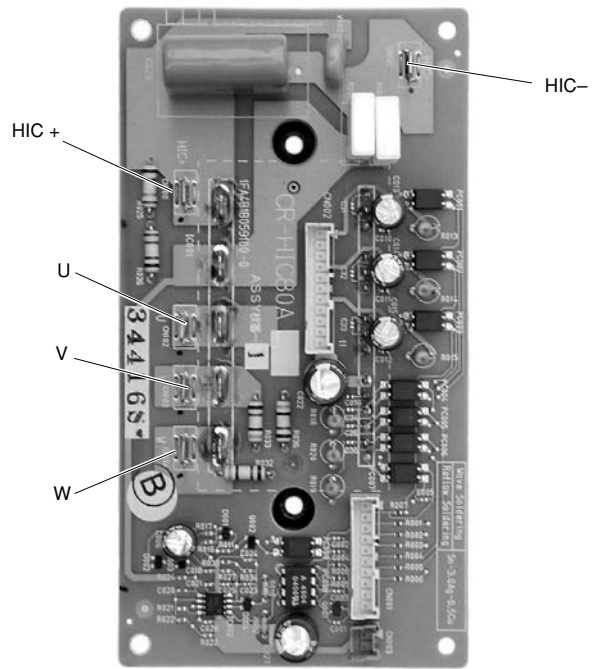
(2) [Alarm "P26"] IGBT short-circuit protection on inverter control (IPDU) PCB  
HIC PCB trouble



**CR-HIC280A  
(125 Type)**



**CR-HIC80A  
(71, 100 Type)**

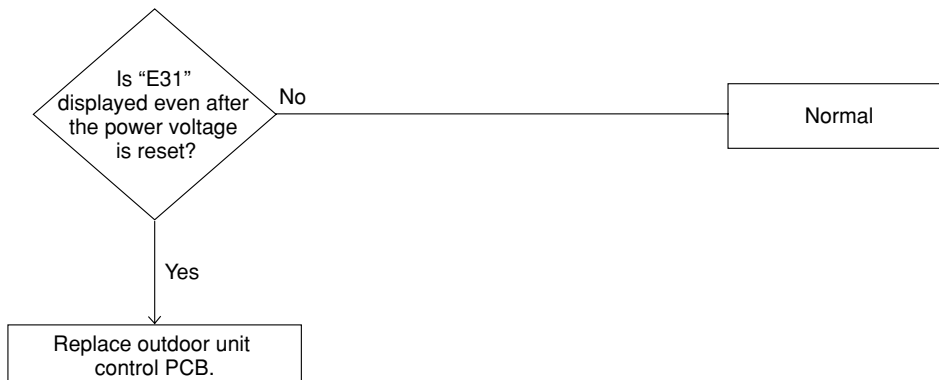


Resistance

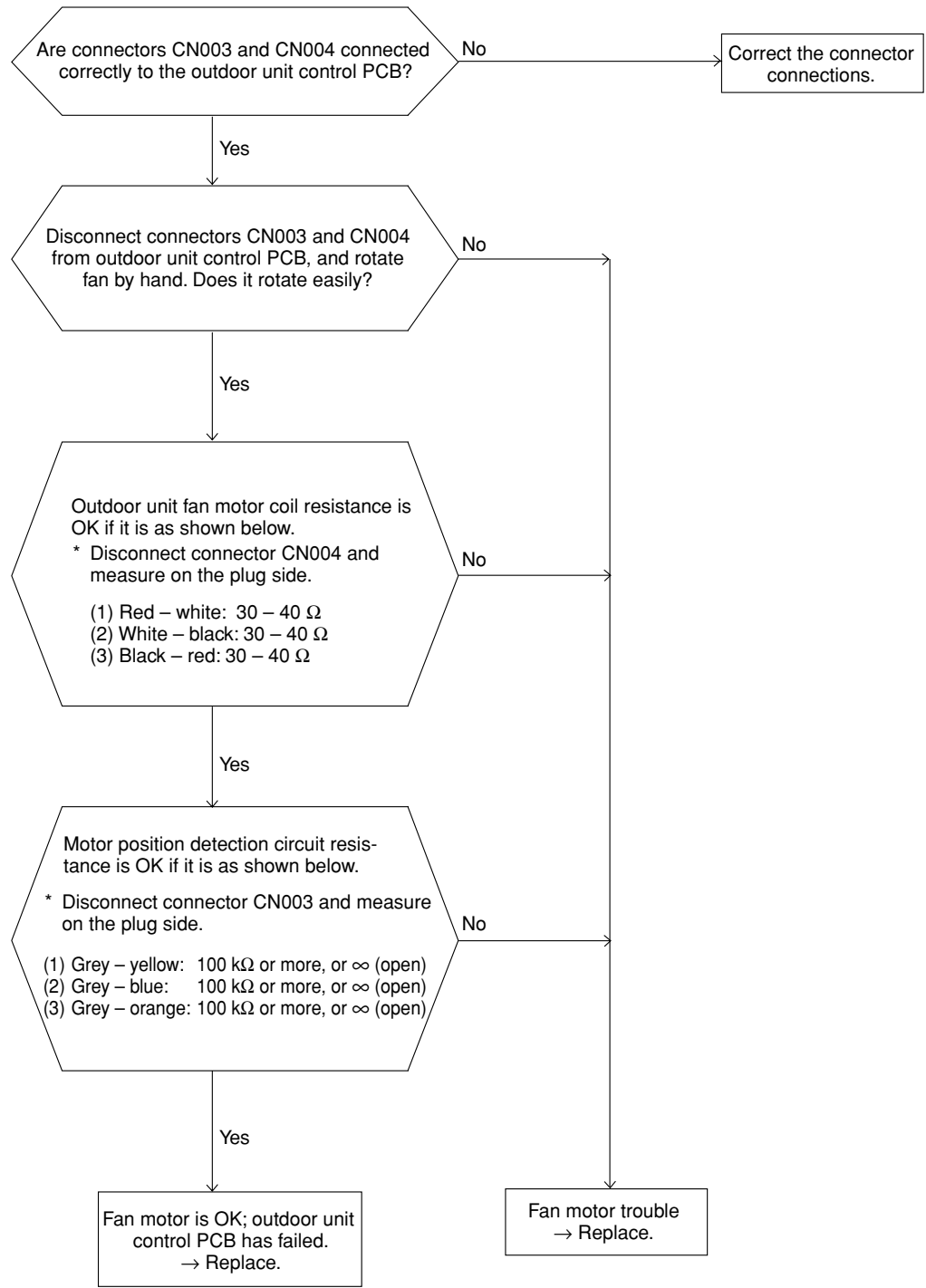
Between terminals	Resistance
HIC + — HIC -	200 kΩ or more
HIC + — U	300 kΩ or more
HIC + — V	300 kΩ or more
HIC + — W	300 kΩ or more
HIC - — U	200 kΩ or more
HIC - — V	200 kΩ or more
HIC - — W	200 kΩ or more

4

**(3) [Alarm “E31”]  
(communications  
trouble within unit)** ——— IGBT short-circuit protection

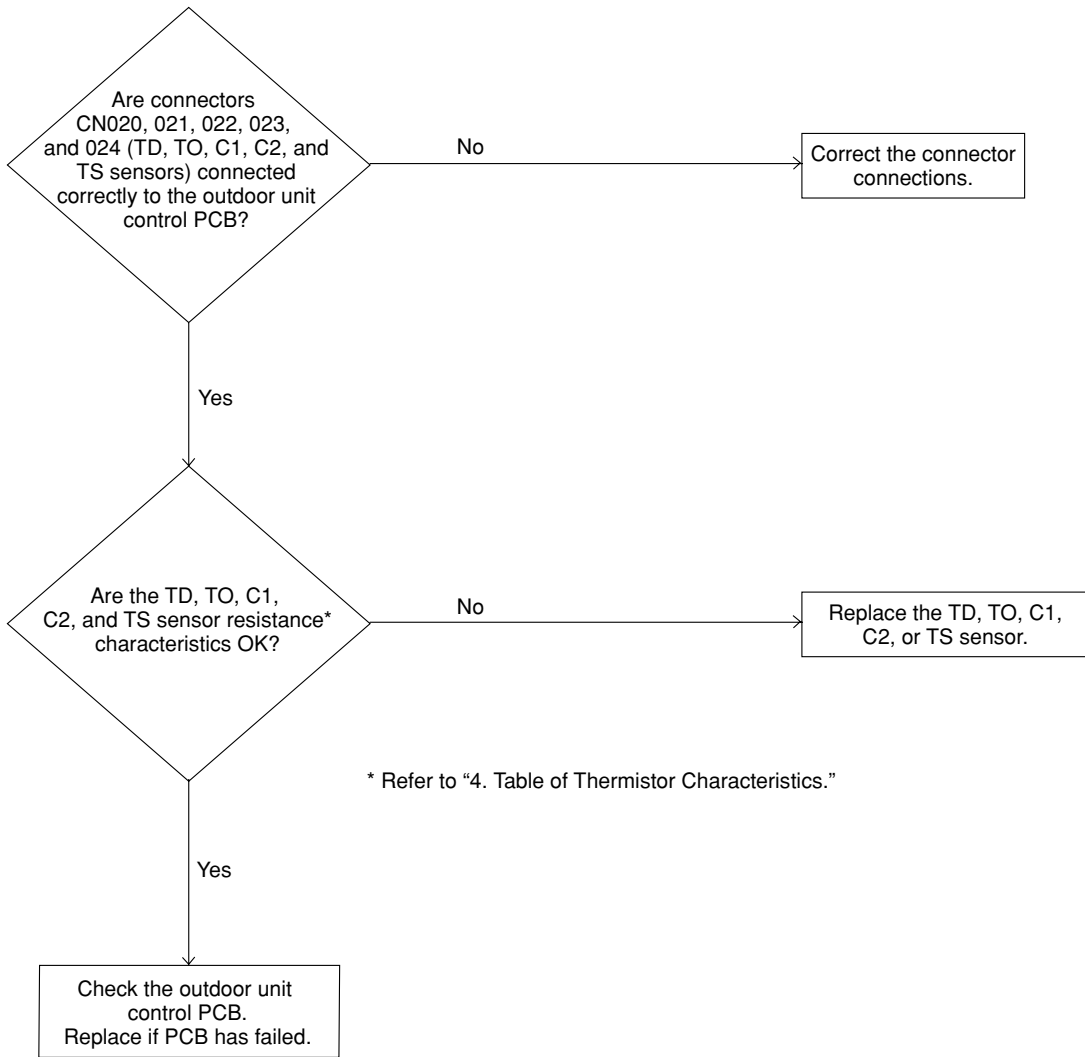


(4) [Alarm "P22"] ————— Outdoor unit fan motor drive circuit trouble



**Note:**  
 In the case of a GND circuit failure inside the motor, the results of the above check may be OK.  
 If operation is not OK after the outdoor unit control PCB has been replaced, then replace the outdoor unit fan motor.

(5) [Alarms “F04,” “F06,” “F07,” “F08,” “F12”] ——— Sensor trouble









4

## Sensor Temperature Display Function (Displayed both when operating and stopped)

- The below check procedure can be used to display all remote controller, indoor unit, and outdoor unit sensor temperatures.

### <Check procedure>

- (1) Press and hold the  button and  button simultaneously for 4 seconds or longer.
- (2) Unit No. X-X (main unit No.), item code XX (sensor address), and service monitor 00XX (sensor temperature) appear on the remote controller LCD. (See figure.)
- (3) Press the temperature setting  and  buttons and change the item code to the sensor address of the sensor that you want to monitor. (For the relationship between the sensor address and the sensor type, refer to the below Sensor Temperature Correlation Table.)
- (4) During group control and simultaneous-operation multi control, press the  button and change to the unit that you want to monitor.
- (5) Press the  button to return to normal remote controller operation.

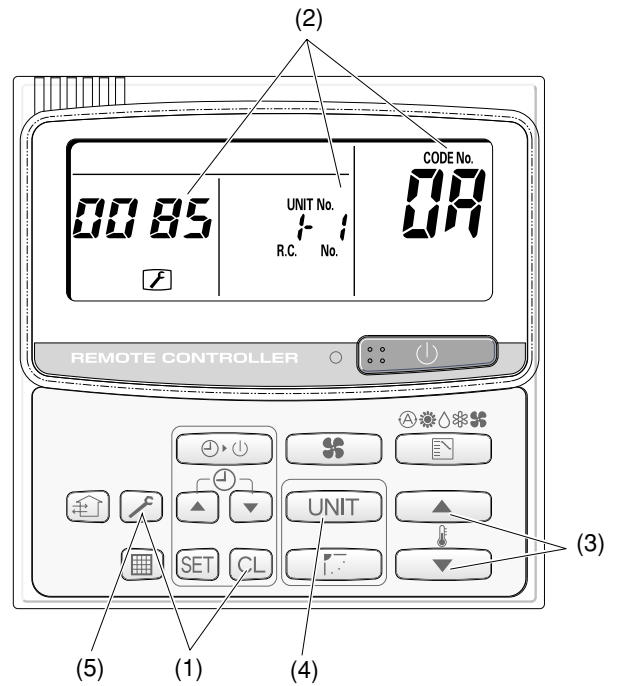


Figure: Sample display when discharge temperature at unit No. 1-1 is 85°C

### NOTE

The temperature display reads “- - - -” for units that are not connected.

\* If monitor mode is selected during normal operation, the only parts of the LCD that change are those shown in the figure.

All other displays do not change, and remain as they were during normal operation.

## Sensor Temperature Correlation Table

Sensor installation location	Sensor address	Sensor type	Sensor address	Sensor type
Indoor unit	00	Room temp. (temp. used for control)*	05	-
	01	Remote controller temp.	06	Discharge temp.
	02	Indoor intake temp.	07	-
	03	Indoor heat exchanger temp. (E1)	08	-
	04	Indoor heat exchanger temp. (E2)	09	-
Outdoor unit	0A	Discharge temp. (TD)	12	-
	0b	-	13	-
	0C	-	14	Current (AC current)
	0d	Intake temp. (TS)	15	Outdoor electronic control valve position
	0E	Outdoor heat exchanger temp. (C1)	16	-
	0F	Outdoor heat exchanger temp. (C2)	17	-
	10	-	18	-
11	Outdoor air temp.	19	-	

\* Main unit only when group control is enabled

## Check Pin

Short-circuit the cooling check pin (or heating check pin) on the outdoor unit control PCB to perform the control described below.

### 1. Thermistor checks

The checks listed below are performed for 1 second each, in order from the top down. The results are displayed by LED 1 and 2.

Thermistor	Check results	
	Normal	Abnormal
Discharge temp. (TD)	LED 1 lit	LED 1 and 2 OFF
Outdoor air temp. (TO)	LED 2 lit	
Heat exchanger temp. (C1)	LED 1 lit	
Heat exchanger temp. (C2)		
Intake temp. (TS)	LED 1 lit	



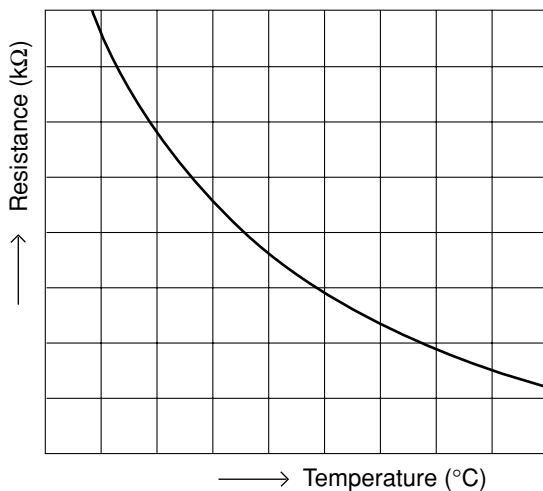
### 2. 4-way valve turns ON for 1 second.



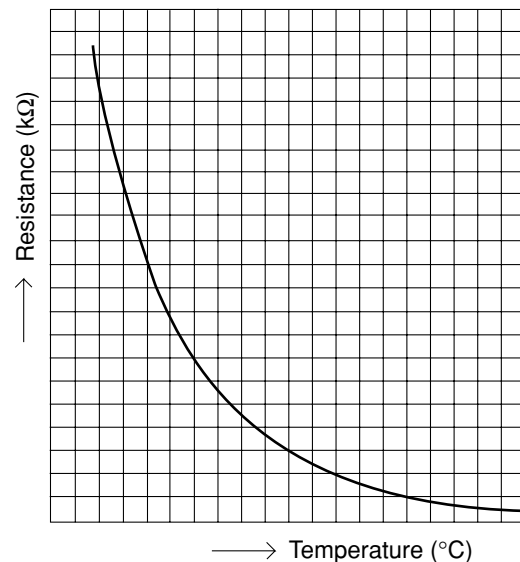
### 3. Forced cooling (or heating) operation

## 4-5. Table of Thermistor Characteristics

(1) Outdoor Air Temp. (TO), Intake Temp. (TS), Heat Exchanger Temp. (C1) Sensor, Heat Exchanger Temp. (C2) Sensor



(2) Discharge Temp. (TD) Sensors



## 5. OUTDOOR UNIT MAINTENANCE REMOTE CONTROL

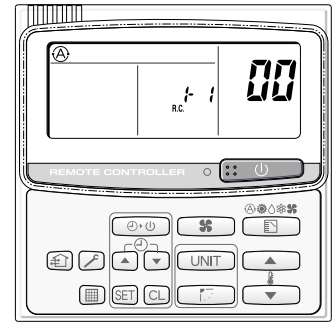
5-1. Overview .....	5 - 2
5-2. Functions .....	5 - 2
5-3. Normal Display Operations and Functions .....	5 - 3
5-4. Monitoring Operations: Display of Indoor Unit and Outdoor Unit Sensor Temperatures .....	5 - 6
5-5. Monitoring the Outdoor Unit Alarm History: Display of Outdoor Unit Alarm History .....	5 - 7
5-6. Settings Modes: Setting of Outdoor Unit EEPROM .....	5 - 7

## 5-1. Overview

### What is the outdoor unit maintenance remote controller?

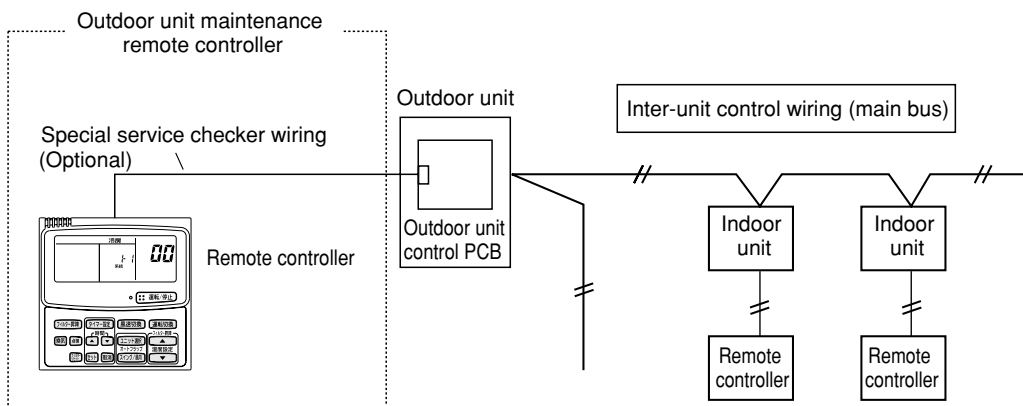
Beginning with the DC-INV series of outdoor units, nonvolatile memory (EEPROM) is used in the outdoor unit PCB. In this way, the setting switches that were located on earlier PCBs have been converted to EEPROM data. This remote controller is an outdoor unit maintenance tool that is used to make and change the EEPROM settings. This remote controller can be used for checking the outdoor unit EEPROM settings and contents, and also can be used to monitor the outdoor unit alarm history and indoor/outdoor unit temperatures, and to check the status of the indoor unit connections (No. of units, operating status, etc.).

**Note:** Because this tool does not function as a remote controller, it is used only during test runs and servicing.



REM HW

### System diagram



- \* The special service checker wiring is required in order to connect the outdoor unit maintenance remote controller to the outdoor unit PCB.
- \* Even when the outdoor unit maintenance remote controller is connected, a separate remote controller or other control device must be connected to the indoor unit.

## 5-2. Functions

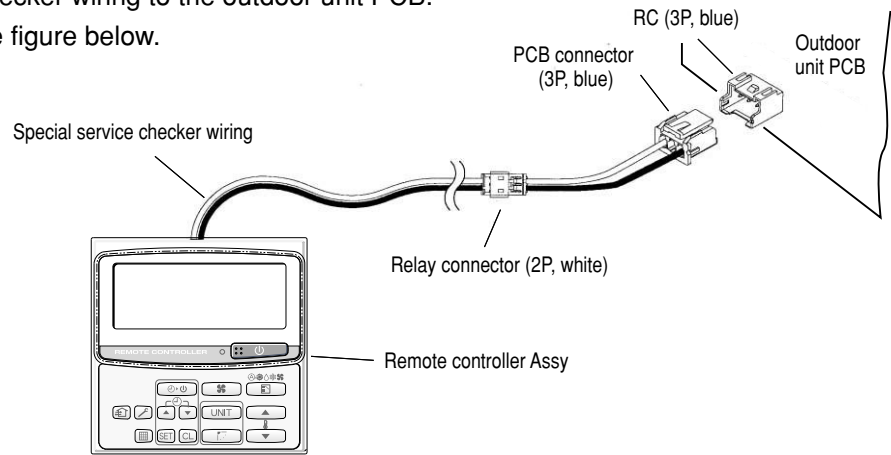
### ■ Normal display functions

- (1) Functions: Button operations can be used to perform the following functions.
    - Start/stop of all indoor units
    - Switching between cooling and heating
    - Test run of all indoor units
    - High-speed operation of indoor units (Do not use with actual units. This may damage the devices.)
  - (2) Display: The following can be displayed.
    - Alarm details display
    - No. of indoor/outdoor units
    - Unit Nos. of connected indoor/outdoor units
    - Indoor/outdoor unit operating status (blinks when an alarm occurs)
    - Indoor unit thermostat ON
    - Individual display of outdoor unit alarms
    - Outdoor unit compressor total operating time
    - Outdoor unit oil sensor oil level
    - Outdoor unit total power ON time
    - Outdoor unit microcomputer version
    - Other
- Temperature monitor
    - Displays the indoor/outdoor unit sensor temperatures.
  - Outdoor unit alarm history monitor
    - Displays the outdoor unit alarm history.
  - Settings modes
    - Settings mode 1 and settings mode 2 are used to make the outdoor EEPROM settings.

## 5-3. Normal Display Operations and Functions

### ■ Normal display functions


- Connect the special service checker wiring to the outdoor unit PCB.  
The connection is shown in the figure below.



- \* It is not necessary to disconnect the communications line in the inter-unit control wiring if it has already been connected at this time.
- \* Settings modes 1 and 2 can be used even when the outdoor unit is independent (when 1 maintenance remote controller is connected to 1 outdoor unit and automatic address setting for the indoor units has not been completed).
- \* Displays the overall system status for that refrigerant system.

### ● All units start/stop (Fig. 1)

<Operation>

The  button can be used to start and stop all the indoor units.

- The LED turns ON when 1 or more indoor units is operating.
- The LED blinks when an alarm has occurred at 1 or more indoor units during operation.

### ● Switching between cooling/heating (Fig. 1)


<Operation>

The  button switches between heating and cooling modes.

- The specifications are equivalent to the heating/cooling input that was present on earlier outdoor unit PCBs.
- The display shows the operating mode of the indoor unit with the lowest number.

### ● All units test run (Fig. 2)

<Operation>


The  button switches test run ON/OFF for all indoor units.

- Press and hold for 4 seconds to turn ON.  
“Test run” is displayed while the test run is in progress.
- Conditions of test runs that are started from the unit remote controller are not displayed on the outdoor unit maintenance remote controller.

### ● High-speed operation (Fig. 3)

- Do not use with actual units. (The devices may be damaged.)

<Operation>

The time  button changes between high-speed operation and normal operation.


- During high-speed operation, the “repeat” timer mark  is displayed.

Fig. 1

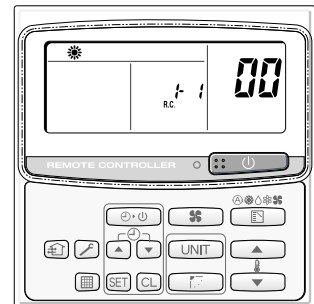


Fig. 2

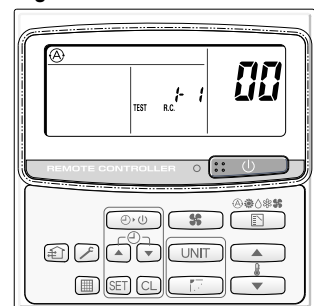
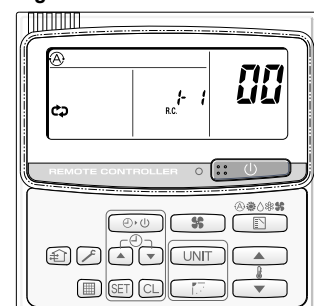




Fig. 3



## ■ Display (functions)

- Use the temperature setting  and  buttons to change the item code.

Item code	Display contents	Remarks
00 (1)	Outdoor unit alarm contents (code): OFF when normal Blinking 8-alarm code display at pre-trip, LED (2)	At initial status
01	No. of indoor units connected in that refrigerant system	
02	Unit. Nos. of connected indoor units in that refrigerant system *2	
03	Operating status of indoor units in that refrigerant system (blinks when alarms occur) *2	
04	Unit Nos. of indoor units in that refrigerant system where the thermostats are ON *2	
05	No. of outdoor units connected in that refrigerant system	No. of connected units: 1
06	Unit Nos. of connected outdoor units in that refrigerant system *2	
07	Operating status of outdoor units in that refrigerant system (blinks when alarms occur) *2	
08		
09		
0A		
0b		
0C		
0d		
0E		
0F		
10	Total compressor operating time (in 1-hr. units) *3	
11		
12		
13		
14		
15		
16	Total power ON time of outdoor unit (in 1-hr. units)	
17	Compressor start count	
18		
19		
FE	Outdoor unit microcomputer firmware version	
FF	Outdoor unit microcomputer software version	

### (3) XX-YY system

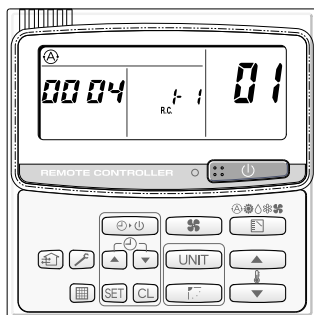
Displays the outdoor unit address of the selected outdoor sub-bus.

XX = Main bus line outdoor system address (1 – 30)

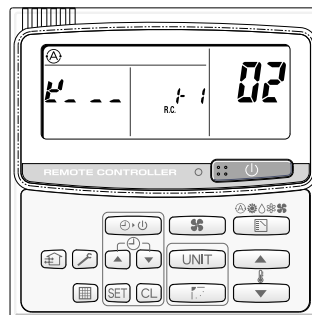
YY = Outdoor unit address in outdoor sub-bus (1 – 8). This is “1” when there is only 1 outdoor unit.

\* See following page for \*2 and \*3.

#### <Sample displays>

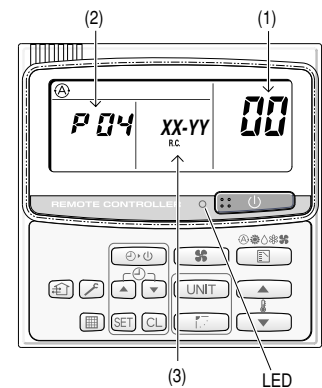


01: <No. of connected indoor units>  
4 units connected



02: <Unit Nos. 1, 2, 3, and 4 are connected>

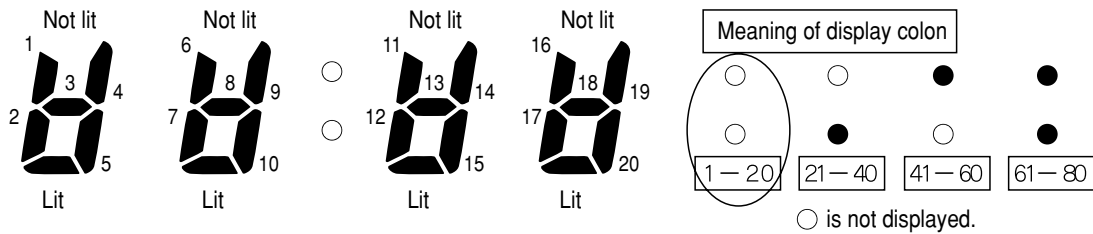
Locations where (1), (2), and (3) are displayed are shown below.



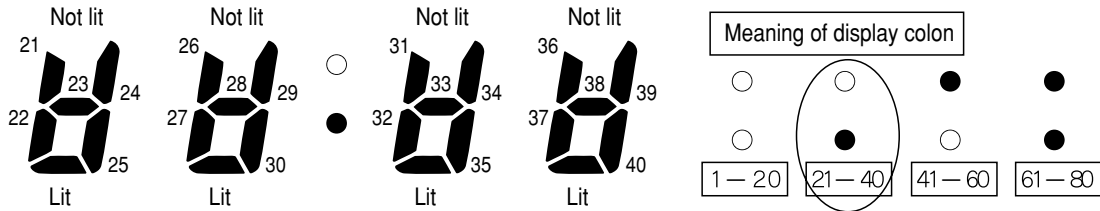
**\*2:** 7-segment, 4-digit display for remote controller timer display

The connected unit Nos. are displayed as shown below, using the 7-segment 4-digit ( **88 : 88** ) display and the colon.

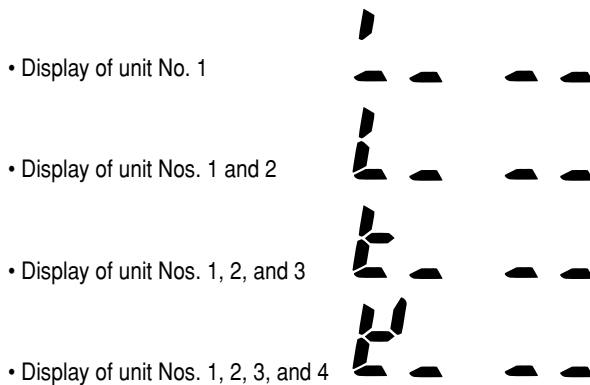
- Display for unit Nos. 1 – 20



- Display for unit Nos. 21 – 40



- The meaning of the colon display changes in the same way, allowing unit Nos. up to 80 to be displayed.
- Sample displays of the unit Nos. of connected indoor units



**NOTE**

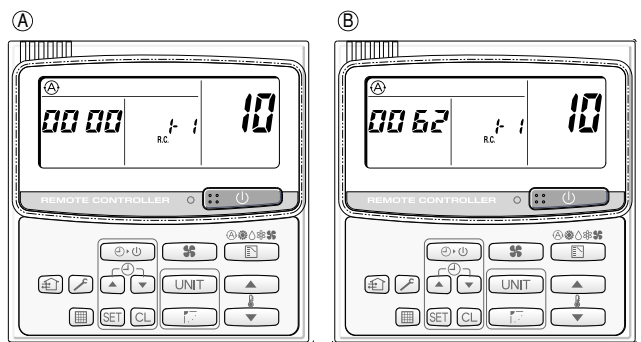
The colon display changes automatically every 10 seconds.

(The display does not change if higher unit numbers do not exist.)

Pressing the button switches the display immediately to the next higher level, even if 10 seconds have not passed.

**\*3:** The total compressor operating time is displayed (in 1-hour units) using 8 digits.

- When the first 4 digits are displayed, the top point of the colon is lit.
- When the last 4 digits are displayed, the colon points are not lit.
- The display of the first 4 and last 4 digits changes automatically every 10 seconds. It can also be changed by pressing the button.









10: <Total compressor operating time> (A) and (B) are displayed alternately.

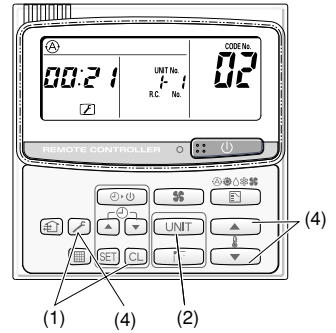
**NOTE**

With the outdoor unit maintenance remote controller (when connected to the outdoor unit), the unit remote controller check functions will not operate.

## 5-4. Monitoring Operations: Display of Indoor Unit and Outdoor Unit Sensor Temperatures

<Operating procedure>

- (1) Press and hold the  button and  button simultaneously for 4 seconds or longer to switch to temperature monitor mode.  
During temperature monitoring, "Service Monitor" is lit.  
(The display and operations are the same as when monitor mode is started from the unit remote controller.)
- (2) Press the  button and select the indoor unit to monitor.
- (3) Use the temperature setting  and  buttons to select the item code of the temperature to monitor.  
The selected indoor unit No. and the temperature data are displayed.
- (4) To end monitoring, press the  button. The display returns to the normal display.



\* The display does not blink.

	Item code	Meaning of Code
Indoor unit data	02	Indoor unit intake temp.
	03	Indoor unit heat exchanger temp. (E1)
	04	Indoor unit heat exchanger temp. (E2)
	05	Indoor unit heat exchanger temp. (E3)
	06	Indoor unit discharge temp.
	07	—
	08	—
	09	
	Outdoor unit data	0A
0b		—
0C		—
0d		Intake temp. (TS)
0E		Outdoor unit heat exchanger temp. (C1)
0F		Outdoor unit heat exchanger temp. (C2)
10		—
11		Outdoor air temp. (TO)
12		Heat sink temperature
13		—
14		Current value
15		Outdoor MV value
19		Frequency

\* Depending on the model, some items may not be displayed.

## 5-5. Monitoring the Outdoor Unit Alarm History: Display of Outdoor Unit Alarm History

\* Displays outdoor unit alarms only. Does not display indoor unit alarms.

\* Check the indoor unit alarm histories separately using the indoor unit remote controllers or other control device.


<Operating procedure>

- (1) Press and hold the  button and  button simultaneously for 4 seconds or longer to change to outdoor unit alarm history mode.



During the alarm history display, "Service Check" is lit.

The display and operations are the same as the monitoring of the alarm device history that is performed using the unit remote controller. However, the outdoor unit address appears instead of the unit No.



- (2) Press the  button and select the outdoor unit for alarm history monitoring.



- (3) Use the temperature setting  and  buttons to select the item code for the alarm history.

The display shows the address of the selected outdoor unit, the item code, and the alarm history (alarm data).

The outdoor unit address is displayed as system XX-YY.

System XX = Outdoor unit system address




YY = Outdoor unit sub-bus address

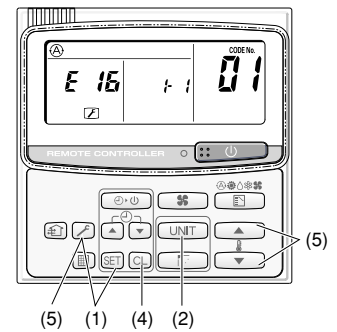
The item code is displayed as 01 – 08. 01 indicates the most recent alarm.

The alarm history is indicated by the alarm code. (If there have been no alarm codes, "----" is displayed.)

- (4) To clear the alarm history, press the  button. (The outdoor unit alarm history will be cleared.)





- (5) To end, press the  button. The display returns to the normal remote controller display.








## 5-6. Settings Modes: Setting the Outdoor Unit EEPROM

### ● Setting mode 1

<Operating procedure>


- (1) Press and hold the  button and  button simultaneously for 4 seconds or longer.

- (2) Use the temperature setting  and  buttons to change the item code. The item codes and setting data are shown in the table on the next page.

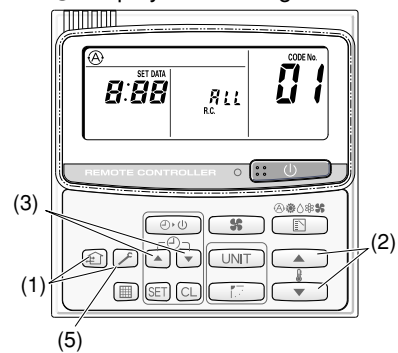
- (3) Use the timer time  and  buttons to change the setting data. To confirm the changed setting data, press the  button. (At this time, "Setting" stops blinking and remains lit.)

- (4) During this mode, "Setting" is displayed, blinking. The outdoor unit address display section displays "ALL," the item code and number (DN value in the table), and the setting data (6 digits).

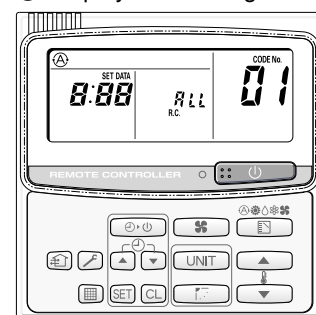
(The setting data is displayed in 6 digits. The display changes between the first 3 digits (Fig. A) and the last 3 digits (Fig. B). When the first 3 digits are displayed, the top point of the colon is lit.)

- (5) To end the setting mode, press the  button.

Ⓐ Display of first 3 digits



Ⓑ Display of last 3 digits



Ⓐ and Ⓑ are displayed alternately. (Example shows display of 000 001.)










## List of Item Codes

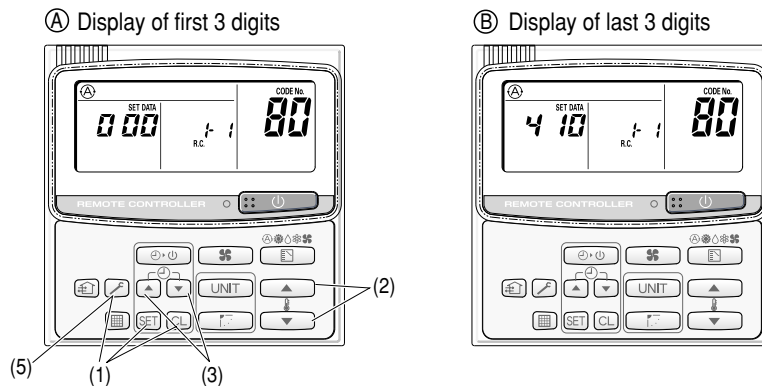
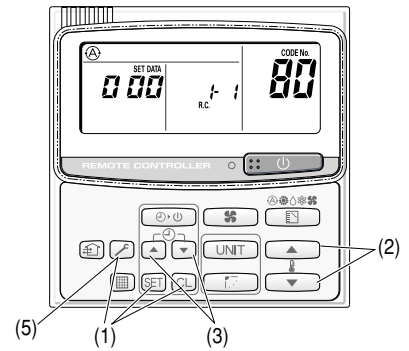
Item code	Parameter	
01	Control system schedule	
02	Control system schedule	
03	Control system schedule	
04	Snowfall sensor operation	0 = No sensor, control performed 1 = No sensor, control not performed 2 = Sensor present, control performed 3 = Sensor present, control not performed
05	Outdoor fan quiet mode	0 = Disabled      1 = Quiet mode
06	Defrost fan speed selection	0 = Disabled      1 = LL fan speed (This function is not present with the DC-INV.)
07	Ignore capacity	0 = Disabled      1 = Ignores capacity ratio
08	Control system schedule	
09	Control system schedule	
0A	Control system schedule	
0b	Control system schedule	
0C	Forced operation of indoor unit drain pump	0 = Disabled 1 = During cooling only, 2 hours stopped + 20 minutes operating (regardless of whether the unit is running or stopped) 2 = During cooling only, 4 hours stopped + 20 minutes operating (regardless of whether the unit is running or stopped) 3 = At all times, 4 hours stopped + 20 minutes operating 4 = At all times, 2 hours stopped + 20 minutes operating
0d	Odor countermeasure when indoor cooling thermostat is OFF	0 = Disabled      1 = Odor countermeasure is active
0E	Cool only	0 = Heat pump      1 = Cool only
0F	Control system schedule	
10	Control system schedule	
11	Multi-floor installation	0 = No      1 = Yes
12	Control system schedule	
13	Control system schedule	
50	Demand 1	40%, 45% ... 100% ... 160%
51	Demand 2	40%, 45% ... 100% ... 160%
52	Current control level	40%, 45% ... 100% ... 160%, -1 (no control)

\* Figures in parentheses indicate the data at the time of shipment from the factory.

● Settings mode 2

<Operating procedure>

- (1) Press and hold the  button,  button, and  button simultaneously for 4 seconds or longer.
- (2) Use the temperature setting  and  buttons to change the item code. The item codes and setting data are shown in the table below.
- (3) Use the timer time  and  buttons to change the setting data. To confirm the changed setting data, press the  button. (At this time, "Setting" stops blinking and remains lit.)
- (4) During this mode, "Setting" is displayed, blinking. The display shows the set outdoor unit address "System XX-YY" (System XX = System address, YY = Address at outdoor unit sub-bus), item code number (DN value in the table below), and the setting data (6 digits). (The setting data is displayed in 6 digits. The display changes between the first 3 digits (Fig. ①) and the last 3 digits (Fig. ②). When the first 3 digits are displayed, the top point of the colon is lit.)
- (5) To end the setting mode, press the  button. The display returns to the normal display mode.



80: <Refrigerant type> ① and ② are displayed alternately. (Example shows 000 410 (R410A).)

**List of Item Codes**

Item code	Parameter	
80	Refrigerant type	407 = R407C 22 = R22 410 = R410A
81	Outdoor unit capacity*	0 = Disabled 22 25 28 32 36 40 45 50 56 63 71 80 90 100 112 125 140 160 180 200 224 250 280 340 355 400 450 500 560 600 630 670 710 800 840
82	Control system schedule	
83	Control system schedule	
84	3-phase or single-phase	0 = 3-phase 1 = single-phase
85	Power frequency	0 = Disabled 1 = 50 Hz
86	Control system schedule	
87	Control system schedule	
88	Control system schedule	
89	Control system schedule	
8A	Control system schedule	
8b	Control system schedule	
8E	Control system schedule	

(\*) Figures represent the capacity data for each model.



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