
VII Control

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[1] Functions and Factory Settings of the Dipswitches

1. Outdoor unit

(1) Main board
[PUHY]

Switch		Function	Function according to switch setting		Switch setting timing	
			OFF	ON	OFF	ON
SWU	1-2	Unit address setting	Set to 00 or 51-100 with the dial switch		Before power on	
SW1	1-10	For self-diagnosis/operation monitoring	Refer to the LED monitor display on the outdoor unit board.		Anytime after power on	
SW2	1	Centralized control switch	Without connection to the centralized controller	With connection to the centralized controller	Before power on	
	2	Deletion of connection information	Normal control	Deletion	Before power on	
	3	Deletion of error history SW	Storage of IC/OC error history	Deletion of IC/OC error history	Anytime after power on (When switched from OFF to ON)	
	4	Refrigerant amount adjustment	Normal control	Refrigerant amount adjustment mode	Anytime after power on (Will be disabled 2 hours after compressor start up except during initial start up mode)	
	5	-	-	-	-	
	6	-	-	-	-	
	7	Forced defrost	Normal control	Forced defrost starts	10 minutes after compressor start-up	Anytime after power on (When switched from OFF to ON)
	8	Defrost timer setting	50 minutes	90 minutes	Anytime after power on (When switched from OFF to ON)	
	9	-	-	-	-	
	10	-	-	-	-	
SW3	1	Test run mode: enabled/disabled	SW3-2 disabled	SW3-2 enabled	Anytime after power on	
	2	Test run mode: ON/OFF	Stops all ICs	Sends a test-run signal to all IC	After power on and when SW3-1 is on.	
	3	Defrost start temperature	-10°C [14°F] (-8 °C [18°F] for 126 model units and above)	-7°C [19°F] (-5 °C [23°F] for 126 model units and above)	Anytime after power on	
	4	Defrost end temperature	10°C [50°F] (7°C [45°F] for 126 model units and above)	15°C [59°F] (12°C [54°F] for 126 model units and above)	Anytime after power on (except during defrost operation)	
	5	-	-	-	-	
	6	Pump down operation	Normal control	Pump down operation	After power on and while compressor is stopped	
	7	Target condensing temperature on the heating mode Tcm	49°C [120°F]	53°C [127°F]	Anytime after power on	
	8	-	-	-	-	
	9	Unit model selection	Refer to the next page		Before power on	
	10	-	-	-	-	

Note: All are set to OFF at factory shipment. Unless otherwise specified, set the switch to OFF where indicated by "-", which may be set to a certain setting for a reason.

Switch	Function	Function according to switch setting		Switch setting timing	
		OFF	ON	OFF	ON
SW4	1	-	-	-	-
	2	-	-	-	-
	3	-	-	-	-
	4	Emergency operation enabled/disabled	Enabled	Disabled	Anytime after power on
	5	-	-	-	-
	6	-	-	-	-
	7	NIGHT MODE/Step DEMAND mode	NIGHT MODE	Step DEMAND	Before power on
	8	-	-	-	-
	9	-	-	-	-
	10	-	-	-	-
SW5	1	Unit model selection	Refer to the next page		Before power on
	2	Heating backup	Disabled	Enabled	Anytime after power on
	3	LED Display	"°C" "kg/cm ² G"	"°F" "psi"	When switching on the power
	4	-	-	-	-
	5	-	-	-	-
	6	-	-	-	-
	7	-	-	-	-
	8	-	-	-	-
	9	-	-	-	-
	10	-	-	-	-

Note: All are set to OFF at factory shipment. Unless otherwise specified, set the switch to OFF where indicated by "-", which may be set to a certain setting for a reason.

DIP SW 3-9	DIP SW 5-1	
	OFF	ON
OFF	Standard specification	Standard specification
ON	High-static pressure (60 Pa [0.240in.WG]) specification	High-static pressure (30 Pa [0.120in.WG]) specification

[PURY]

Switch		Function	Function according to switch setting		Switch setting timing	
			OFF	ON	OFF	ON
SWU	1-2	Unit address setting	Set to 00 or 51-100 with the dial switch		Before power on	
SW1	1-10	For self-diagnosis/operation monitoring	Refer to the LED monitor display on the outdoor unit board.		Anytime after power on	
SW2	1	Centralized control switch	Without connection to the centralized controller	With connection to the centralized controller	Before power on	
	2	Deletion of connection information	Normal control	Deletion	Before power on	
	3	Deletion of error history SW	Storage of IC/OC error history	Deletion of IC/OC error history	Anytime after power on (When switched from OFF to ON)	
	4	Refrigerant amount adjustment	Normal control	Refrigerant amount adjustment mode	Anytime after power on (Will be disabled 2 hours after compressor start up except during initial start up mode)	
	5	-	-	-	-	
	6	-	-	-	-	
	7	Forced defrost	Normal control	Forced defrost starts	10 minutes after compressor start-up	Anytime after power on (When switched from OFF to ON)
	8	Defrost timer setting	50 minutes	90 minutes	Anytime after power on (When switched from OFF to ON)	
	9	-	-	-	-	
	10	-	-	-	-	
SW3	1	Test run mode: enabled/disabled	SW3-2 disabled	SW3-2 enabled	Anytime after power on	
	2	Test run mode: ON/OFF	Stops all ICs	Sends a test-run signal to all IC	After power on and when SW3-1 is on	
	3	Defrost start temperature	-10°C [14°F] (-8°C [18°F] for 126 model units and above)	-7°C [19°F] (-5°C [23°F] for 126 model units and above)	Anytime after power on	
	4	Defrost end temperature	10°C [50°F] (15°C [59°F] for 168 model units and above)	15°C [59°F] (20°C [68°F] for 168 model units and above)	Anytime after power on (except during defrost operation)	
	5	-	-	-	-	
	6	Pump down operation	Normal control	Pump down operation	After power on and while compressor is stopped	
	7	Target condensing temperature on the heating mode Tcm	49°C [120°F]	53°C [127°F]	Anytime after power on	
	8	-	-	-	-	
	9	Unit model selection	Refer to the next page.		Before power on	
	10	-	-	-	-	

Note: All are set to OFF at factory shipment. Unless otherwise specified, set the switch to OFF where indicated by "-", which may be set to a certain setting for a reason.

Switch		Function	Function according to switch setting		Switch setting timing	
			OFF	ON	OFF	ON
SW4	1	-	-	-	-	
	2	-	-	-	-	
	3	-	-	-	-	
	4	Emergency operation enabled/disabled	Enabled	Disabled	Anytime after power on	
	5	-	-	-	-	
	6	-	-	-	-	
	7	NIGHT MODE/Step DEMAND mode	NIGHT MODE	Step DEMAND	Before power on	
	8	-	-	-	-	
	9	-	-	-	-	
	10	-	-	-	-	
SW5	1	Unit model selection	Refer to the next page.		Before power on	
	2	Heating backup	Disabled	Enabled	Anytime after power on	
	3	LED Display	"°C" "kg/cm ² G"	"°F" "psi"	When switching on the power	
	4	-	-	-	-	
	5	-	-	-	-	
	6	-	-	-	-	
	7	-	-	-	-	
	8	-	-	-	-	
	9	-	-	-	-	
	10	-	-	-	-	

Note: All are set to OFF at factory shipment. Unless otherwise specified, set the switch to OFF where indicated by "-", which may be set to a certain setting for a reason.

DIP SW 3-9	DIP SW 5-1	
	OFF	ON
OFF	Standard specification	Standard specification
ON	High-static pressure (60 Pa [0.240in.WG]) specification	High-static pressure (30 Pa [0.120in.WG]) specification

(2) Compressor INV board
[PUHY/PURY]

Switch		Function	Function according to switch setting		Switch setting timing	
			OFF	ON	OFF	ON
SW1	1	Enabling/disabling the following error detection functions; ACCT or DCCT sensor circuit error (530X Detail No. 115, 116) ACCT or DCCT sensor failure (530X Detail No.117,118) IPM open/Disconnected CNCT2 (530X Detail No. 119) Detection of erroneous wiring (530X Detail No.120)	Error detection enabled	Error detection disabled	Anytime after power on	
	2	-	-	-	-	-
	3	-	-	-	-	-
	4	-	-	-	-	-
SW2	1	Inverter address	0	1	Always leave it to ON	
	2	-	-	-	-	-
	3	-	-	-	-	-
	4	-	-	-	-	-

Note1 Except for SW2-1, all are set to OFF at factory shipment. Unless otherwise specified, set the switch to OFF where indicated by "-", which may be set to a certain setting for a reason.

Note2 Leave SW1-1 to OFF during normal operation. If it is set to ON, errors cannot be detected and the unit may be damaged.

(3) FAN INV board
[PUHY/PURY]

Switch		Function	Function according to switch setting		Switch setting timing	
			OFF	ON	OFF	ON
SW2	1	Inverter address	0	5	Always leave it to ON	
	2	-	-	-	-	-
	3	-	-	-	-	-
	4	-	-	-	-	-

Note: Except for SW2-1, all are set to OFF at factory shipment. Unless otherwise specified, set the switch to OFF where indicated by "-", which may be set to a certain setting for a reason.

2. Function of the switch (Indoor unit)

(1) Dipswitches
[SW1,3]

Switch		Function	Function according to switch setting		Switch setting timing		Notes
			OFF	ON	OFF	ON	
SW1	1	Room temperature detection position	Indoor unit inlet	Built-in sensor on the remote controller	While the unit is stopped (Remote controller OFF)		Set to ON (built-in sensor on the remote controller) on All Fresh (PEFY-NMHU-E-F) model units
	2	Clogged filter detection	Not available	Available			
	3	Filter check reminder time setting	100h	2500h			
	4	Outside air intake	Disabled	Enabled			Always set to OFF on PKFY-NAMU model units
	5	Remote display option	Fan output	Thermo-ON signal			
	6	Humidifier control	During heating operation	Always on while in the heating mode			
	7	Fan speed setting for Heating Thermo-OFF	Very Low	Low			
	8	Fan speed setting for Heating Thermo-OFF	According to the SW1-7 setting	Preset speed			
		-	-	-			Applicable to All Fresh model units (PEFY-NMHU-E-F) only
	9	Self-recovery after power failure	Disabled	Valid			
SW3	10	Power source start-stop	Disabled	Enabled			
	1	Unit model selection	Heat pump	Cooling only			
	2	Louver	Not available	Available			
	3	Vane	Not available	Available			
	4	Vane swing function	Not available	Available			Always set to OFF on PKFY-NAMU model units
	5	-	-	-			
	6	Vane angle limit setting for cooling operation	Downblow B,C	Horizontal			Always set to Downblow B or C on PKFY-NAMU model units
		Initial vane position	Enabled	Disabled			PLFY-NLMU model only
	7	-	-	-			
	8	Heating 4-deg up	Enabled	Disabled			Set to OFF on floor-standing (PFFY) type units

Note 1. Settings in the shaded areas are factory settings. Refer to the table below for the factory setting of the switches whose factory settings are not indicated by the shaded cells.

Note 2. On a system with a G-50 connection, set Dip SW 1-9 and 1-10 to ON to control input/output using the PLC for general equipment. With these settings made, the power start/stop function will be disabled. Set Dip SW 1-5 to ON to use the auto-recovery after power failure function.

Model		PLFY	PMFY	PDFY	PEFY			PCFY	PKFY			PFFY
		-NAMU -NLMU	-NBMU	-NMU	-NMLU	-NMHU	-NMHU-F	-NGMU	-NAMU	-NGMU	-NFMU	-NEMU -NRMU
SW1	3	ON	OFF	ON	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
	6	ON	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON
	7	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
SW3	2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	3	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF
	4	ON	ON	OFF	OFF	OFF	OFF	ON	OFF	ON	ON	OFF

Note 3. Setting timing for the DIP SW 1, 2, 3, and 4 is when the unit is stopped (remote controller OFF). It is not necessary to power reset.

Note 4. When both SW1-7 and 1-8 are set to ON, the fan stops while the unit is under the Heating Thermo-OFF conditions.

[SW2]

Model	P06	P08	P12	P15	P18	P24
Capacity (model) code	4	5	6	8	10	13
SW2 setting						

Model	P27	P30	P36	P48	P54	P72	P96
Capacity (model) code	14	16	20	25	28	40	50
SW2 setting							

[SW4]

Model		Compatible circuit board Service Parts No.	SW4				
			1	2	3	4	5
PLFY	P06-18NLMU-E	R61 Y70 281	OFF	ON	OFF	ON	OFF
	P12-36NAMU-E	T7W E42 310	OFF	ON	ON	OFF	OFF
PMFY	P06-15NBMU-E	T7W E43 310	ON	OFF	ON	OFF	ON
PDFY	P06-30NMMU-E	R61 Y71 281	ON	OFF	ON	OFF	-
	P36,48NMMU-E	R61 Y70 281	OFF	OFF	ON	OFF	OFF
PEFY	P06-12NMLU-E	R61 Y72 281	OFF	ON	ON	OFF	OFF
	P15-54NMHU-E	R61 Y72 281	OFF	OFF	OFF	OFF	OFF
	P72,96NMHU-E	R61 Y72 281	ON	OFF	OFF	OFF	OFF
	P30-96NMHU-E-F	R61 Y72 281	ON	ON	OFF	OFF	OFF
PCFY	P15-36NGMU-E	T7W E42 310	OFF	ON	OFF	ON	OFF
PKFY	P06,08NAMU-E	T7W E44 310	-	-	-	-	-
	P12,15NGMU-E	T7W E42 310	ON	ON	OFF	ON	OFF
	P18-30NFMU-E	T7W E42 310	ON	OFF	ON	ON	OFF
PFFY	P06-24NEMU-E	R61 Y72 281	OFF	OFF	OFF	OFF	OFF
	P06-24NRMU-E	R61 Y72 281	OFF	OFF	OFF	OFF	OFF

(2) Slide switches

Switch		Function	Function according to switch setting	Switch setting timing																																																																																																	
SWA	1-3	Ceiling height setting	(PCFY-NGMU) 3 2 1 <table><tr><td></td><td>Ceiling height</td></tr><tr><td>3 (High ceiling)</td><td>3.5m [11.45ft]</td></tr><tr><td>2 (Standard-height ceiling)</td><td>2.8m [9.1ft]</td></tr><tr><td>1 (Low ceiling)</td><td>2.3m [7.5ft]</td></tr></table>		Ceiling height	3 (High ceiling)	3.5m [11.45ft]	2 (Standard-height ceiling)	2.8m [9.1ft]	1 (Low ceiling)	2.3m [7.5ft]	Anytime after power on																																																																																									
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SWA	1-3	Ceiling height setting Number of unit setting	(PLFY-NAMU) 3 2 1 2 1 <table><tr><td></td><td colspan="3">P12-24</td><td colspan="3">P30,36</td></tr><tr><td></td><td>1</td><td>2</td><td>3</td><td>1</td><td>2</td><td>3</td></tr><tr><td>2 (2 directions)</td><td>3.3 m [10.8 ft]</td><td>3.5 m [11.5 ft]</td><td>-</td><td>4.0 m [13.1 ft]</td><td>4.2 m [13.8 ft]</td><td>-</td></tr><tr><td>3 (3 directions)</td><td>3.0 m [9.8 ft]</td><td>3.3 m [10.8 ft]</td><td>3.5 m [11.5 ft]</td><td>3.6 m [11.8 ft]</td><td>4.0 m [13.1 ft]</td><td>4.2 m [13.8 ft]</td></tr><tr><td>4 (4 directions)</td><td>2.7 m [8.9 ft]</td><td>3.0 m [9.8 ft]</td><td>3.5 m [11.5 ft]</td><td>3.2 m [10.5 ft]</td><td>3.6 m [11.8 ft]</td><td>4.2 m [13.8 ft]</td></tr></table>		P12-24			P30,36				1	2	3	1	2	3	2 (2 directions)	3.3 m [10.8 ft]	3.5 m [11.5 ft]	-	4.0 m [13.1 ft]	4.2 m [13.8 ft]	-	3 (3 directions)	3.0 m [9.8 ft]	3.3 m [10.8 ft]	3.5 m [11.5 ft]	3.6 m [11.8 ft]	4.0 m [13.1 ft]	4.2 m [13.8 ft]	4 (4 directions)	2.7 m [8.9 ft]	3.0 m [9.8 ft]	3.5 m [11.5 ft]	3.2 m [10.5 ft]	3.6 m [11.8 ft]	4.2 m [13.8 ft]	Anytime after power on																																																														
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SWB	2-4																																																																																																				
SWA	1-3	Static pressure setting Option setting	<table><tr><th>MODELS</th><th colspan="2">P06-12</th></tr><tr><th>VOLT</th><th>208</th><th>230</th></tr><tr><td>SWA 3 2 1 </td><td>0.321in.WG (80Pa)</td><td>0.401in.WG (100Pa)</td></tr><tr><td>SWA 3 2 1 </td><td>0.200in.WG (50Pa)</td><td>0.240in.WG (60Pa)</td></tr><tr><td>SWA 3 2 1 </td><td>0.120in.WG (30Pa)</td><td>0.160in.WG (40Pa)</td></tr><tr><th>MODELS</th><th colspan="2">P15-24</th></tr><tr><th>VOLT</th><th>208</th><th>230</th></tr><tr><td>SWA 3 2 1 </td><td>0.200in.WG (50Pa)</td><td>0.240in.WG (60Pa)</td></tr><tr><td>SWA 3 2 1 </td><td>0.321in.WG (80Pa)</td><td>0.401in.WG (100Pa)</td></tr><tr><td>SWA 3 2 1 </td><td>0.120in.WG (30Pa)</td><td>0.160in.WG (40Pa)</td></tr><tr><th>MODELS</th><th colspan="2">P27</th></tr><tr><th>VOLT</th><th>208</th><th>230</th></tr><tr><td>SWA 3 2 1 </td><td>0.120in.WG (30Pa)</td><td>0.160in.WG (40Pa)</td></tr><tr><td>SWA 3 2 1 </td><td>0.200in.WG / 0.321in.WG (50Pa) / (80Pa)</td><td>0.240in.WG / 0.401in.WG (60Pa) / (100Pa)</td></tr><tr><td>SWA 3 2 1 </td><td>-</td><td>-</td></tr><tr><th>MODELS</th><th colspan="2">P30</th></tr><tr><th>VOLT</th><th>208</th><th>230</th></tr><tr><td>SWA 3 2 1 </td><td>-</td><td>-</td></tr><tr><td>SWA 3 2 1 </td><td>0.200in.WG / 0.401in.WG (50Pa) / (100Pa)</td><td>0.240in.WG / 0.461in.WG (60Pa) / (115Pa)</td></tr><tr><td>SWA 3 2 1 </td><td>0.120in.WG (30Pa)</td><td>0.160in.WG (40Pa)</td></tr><tr><th>MODELS</th><th colspan="2">P06-24</th></tr><tr><th>VOLT</th><th>208</th><th>230</th></tr><tr><td rowspan="3">SWC Option Standard </td><td>0.120in.WG (30Pa)</td><td>0.160in.WG (40Pa)</td></tr><tr><td>0.200in.WG (50Pa)</td><td>0.240in.WG (60Pa)</td></tr><tr><td>0.321in.WG (60Pa)</td><td>0.461in.WG (115Pa)</td></tr><tr><th>MODELS</th><th colspan="2">P27</th><th colspan="2">P30</th></tr><tr><th>VOLT</th><th>208</th><th>230</th><th>208</th><th>230</th></tr><tr><td rowspan="2">SWC Option Standard </td><td>0.120in.WG (30Pa)</td><td>0.160in.WG (40Pa)</td><td>0.120in.WG (30Pa)</td><td>0.160in.WG (40Pa)</td></tr><tr><td>0.200in.WG (50Pa)</td><td>0.240in.WG (60Pa)</td><td>0.200in.WG (50Pa)</td><td>0.240in.WG (60Pa)</td></tr><tr><td>SWC Option Standard </td><td>0.321in.WG (80Pa)</td><td>0.401in.WG (100Pa)</td><td>0.401in.WG (100Pa)</td><td>0.461in.WG (115Pa)</td></tr></table>	MODELS	P06-12		VOLT	208	230	SWA 3 2 1	0.321in.WG (80Pa)	0.401in.WG (100Pa)	SWA 3 2 1	0.200in.WG (50Pa)	0.240in.WG (60Pa)	SWA 3 2 1	0.120in.WG (30Pa)	0.160in.WG (40Pa)	MODELS	P15-24		VOLT	208	230	SWA 3 2 1	0.200in.WG (50Pa)	0.240in.WG (60Pa)	SWA 3 2 1	0.321in.WG (80Pa)	0.401in.WG (100Pa)	SWA 3 2 1	0.120in.WG (30Pa)	0.160in.WG (40Pa)	MODELS	P27		VOLT	208	230	SWA 3 2 1	0.120in.WG (30Pa)	0.160in.WG (40Pa)	SWA 3 2 1	0.200in.WG / 0.321in.WG (50Pa) / (80Pa)	0.240in.WG / 0.401in.WG (60Pa) / (100Pa)	SWA 3 2 1	-	-	MODELS	P30		VOLT	208	230	SWA 3 2 1	-	-	SWA 3 2 1	0.200in.WG / 0.401in.WG (50Pa) / (100Pa)	0.240in.WG / 0.461in.WG (60Pa) / (115Pa)	SWA 3 2 1	0.120in.WG (30Pa)	0.160in.WG (40Pa)	MODELS	P06-24		VOLT	208	230	SWC Option Standard	0.120in.WG (30Pa)	0.160in.WG (40Pa)	0.200in.WG (50Pa)	0.240in.WG (60Pa)	0.321in.WG (60Pa)	0.461in.WG (115Pa)	MODELS	P27		P30		VOLT	208	230	208	230	SWC Option Standard	0.120in.WG (30Pa)	0.160in.WG (40Pa)	0.120in.WG (30Pa)	0.160in.WG (40Pa)	0.200in.WG (50Pa)	0.240in.WG (60Pa)	0.200in.WG (50Pa)	0.240in.WG (60Pa)	SWC Option Standard	0.321in.WG (80Pa)	0.401in.WG (100Pa)	0.401in.WG (100Pa)	0.461in.WG (115Pa)	Anytime after power on
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SWA 3 2 1	0.120in.WG (30Pa)	0.160in.WG (40Pa)																																																																																																			
SWA 3 2 1	0.200in.WG / 0.321in.WG (50Pa) / (80Pa)	0.240in.WG / 0.401in.WG (60Pa) / (100Pa)																																																																																																			
SWA 3 2 1	-	-																																																																																																			
MODELS	P30																																																																																																				
VOLT	208	230																																																																																																			
SWA 3 2 1	-	-																																																																																																			
SWA 3 2 1	0.200in.WG / 0.401in.WG (50Pa) / (100Pa)	0.240in.WG / 0.461in.WG (60Pa) / (115Pa)																																																																																																			
SWA 3 2 1	0.120in.WG (30Pa)	0.160in.WG (40Pa)																																																																																																			
MODELS	P06-24																																																																																																				
VOLT	208	230																																																																																																			
SWC Option Standard	0.120in.WG (30Pa)	0.160in.WG (40Pa)																																																																																																			
	0.200in.WG (50Pa)	0.240in.WG (60Pa)																																																																																																			
	0.321in.WG (60Pa)	0.461in.WG (115Pa)																																																																																																			
MODELS	P27		P30																																																																																																		
VOLT	208	230	208	230																																																																																																	
SWC Option Standard	0.120in.WG (30Pa)	0.160in.WG (40Pa)	0.120in.WG (30Pa)	0.160in.WG (40Pa)																																																																																																	
	0.200in.WG (50Pa)	0.240in.WG (60Pa)	0.200in.WG (50Pa)	0.240in.WG (60Pa)																																																																																																	
SWC Option Standard	0.321in.WG (80Pa)	0.401in.WG (100Pa)	0.401in.WG (100Pa)	0.461in.WG (115Pa)																																																																																																	
SWC	Standard, Option	Optional parts support	(PLFY-NAMU-NLMU) (PCFY-NGMU) Option Standard	*Set this switch to Option to prevent a drop in the air-flow rate when using the optional high-efficiency element.	Anytime after power on																																																																																																

(3) Address switch

Actual indoor unit address setting varies in different systems. Refer to the installation manual for the outdoor unit for details on how to make the address setting.

Each address is set with a combination of the settings for the 10's digit and 1's digit.

(Example)

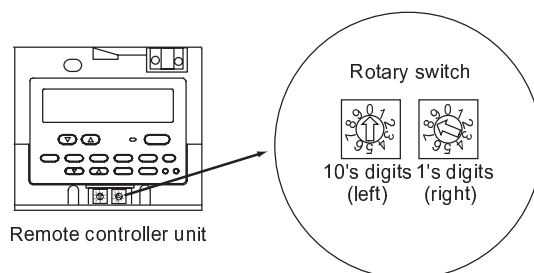
When setting the address to "3", set the 1's digit to 3, and the 10's digit to 0.

When setting the address to "25", set the 1's digit to 5, and the 10's digit to 2.

3. Function of the switch <Remote controller>

ME remote controller (PAR-F27MEA-US)

Set the address of the remote controller with the rotary switch.



Example: In case of address 108

	Address setting range	Setting method
Main remote controller	101-150	Add 100 to the smallest address of all the indoor units in the same group.
Sub remote controller	151-200	Add 150 to the smallest address of all the indoor units in the same group.

Setting of rotary switch	Address No.
01-99 ^{*1}	101-199 with the 100's digit automatically being set to 1 ^{*2}
00	200

*1. At factory shipment, the rotary switch is set to 01.

*2. The address range that can be set with the ME remote controller is between 101 and 200. When the dials are set to a number between 01 and 99, the 100's digit is automatically set to [1]. When the dials are set to 00, the 100's digit is automatically set to [2].

Note: To set addresses, use a precision slotted screw driver [20 mm [0.8 in] (w)], and do not apply than 19.6N.

The use of any other tool or applying too much load may damage the switch.

4. BC controller (Main board)

Switch		Function	Function according to switch setting		Switch setting timing
			OFF	ON	
SW4	1	Model setting	R410A	-	Always leave it to OFF
	2-8	-	-	-	-
SW5	1-6	-	-	-	-
	7	Model setting	Refer to the table below for details.		Before power on
	8	Model setting	Refer to the table below for details.		Before power on

Model setting

		SW5-8	
		OFF	ON
SW5-7	OFF	G type	
	ON	GA type	GB type

[2] Controlling the Outdoor Unit

-1- Initial Control <PUHY/PURY>

- When the power is turned on, the initial processing of the microcomputer is given top priority.
- During the initial processing, control processing of the operation signal is suspended. The control processing is resumed after the initial processing is completed. Initial processing involves data processing in the microcomputer and initial setting of each of the LEV opening. This process will take up to 2 minutes.
- During the initial processing, the LED monitor on the outdoor unit's main board displays S/W version -> refrigerant type -> heat pump -> cooling only and capacity -> and communication address in turn every second.

-2- Control at Start-up <PUHY/PURY>

- The upper limit of frequency during the first 3 minutes of the operation is 50 Hz.
- When the power is turned on, normal operation will start after the initial start-up mode (to be described later) has been completed (with a restriction on the frequency).

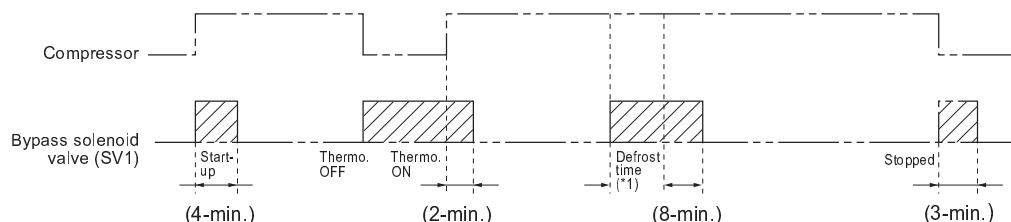
-3- Bypass Control <PUHY>

Bypass solenoid valves (P72-P144,SV1; P168-P234,SV1,SV3), which bypass the high- and low- pressure sides, perform the following functions.

(1) Bypass solenoid valve (SV1) (ON = Open)

Operation	SV1	
	ON	OFF
At No. 1 compressor start-up or at No. 2 compressor start-up (P168-P234 models only)	ON for 4 minutes.	
After the restoration of thermo or 3 minutes after restart	ON for 2 minutes.	
During cooling or heating operation with the compressor stopped	Always ON. Exception: OFF when HPS-LPS is 0.2 MPa [29 psi] or less	
After the operation has stopped	ON for 3 minutes. Exception: OFF when HPS-LPS is 0.2 MPa [29 psi] or less	
During defrost operation (See *1 in the figure below.)	Always ON	
During oil-recovery operation	Always OFF during cooling operation and always ON during heating operation when running an oil-recovery operation after running a continuous operation at low frequency.	
During an operation with the compressor running at 30 Hz (After 3 minutes have passed since start-up)	When low pressure (LPS) drops below 0.23 MPa [33 psi].	When low pressure (LPS) exceeds 0.38 MPa [55 psi].
When high pressure (Pd) rises	When Pd exceeds 3.77 MPa [547 psi]	When Pd is or below 3.43 MPa [497 psi] and 30 seconds have passed

[Example of an SV1 operation]



(2) Bypass valve (SV3, P168-P234 models only) (ON = Open)

The opening of SV3 is controlled by the operating state of No.1 and No.2 compressors.

No.1 Compressor	No.2 Compressor	SV3
Stopped	Stopped	OFF
In operation	Stopped	ON
In operation	In operation	OFF

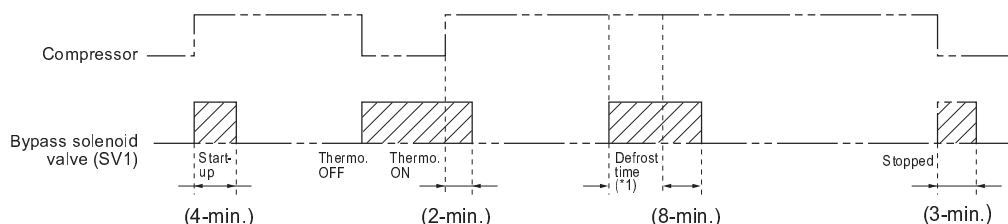
-4- Bypass Control <PURY>

Bypass solenoid valves (P72-P144,SV1, SV2; P168-P234,SV1, SV2, SV3), which bypass the high- and low- pressure sides, perform the following functions.

(1) Bypass solenoid valve (SV1) (ON = Open)

Operation	SV1	
	ON	OFF
At No. 1 compressor start-up or at No. 2 compressor start-up (P168-P234 models only)	ON for 4 minutes.	
After going from Thermo-OFF condition to Thermo-ON condition or after 3-minutes restart prevention	ON for 2 minutes.	
During cooling or heating operation with the compressor stopped	Always ON. Exception: OFF when HPS-LPS is 0.2 MPa [29 psi] or less	
After the operation has stopped	ON for 3 minutes. Exception: OFF when HPS-LPS is 0.2 MPa [29 psi] or less	
During defrost operation (See *1 in the figure below.)	Always ON	
During oil-recovery operation	Always OFF during cooling operation and always ON during heating operation when running an oil-recovery operation after running a continuous operation at low frequency.	
During an operation with the compressor running at 30 Hz (After 3 minutes have passed since start-up)	When low pressure (LPS) drops below 0.23 MPa [33 psi].	When low pressure (LPS) exceeds 0.38 MPa [55 psi].
When high pressure (Pd) rises	When Pd exceeds 3.77 MPa [547 psi]	When Pd is or below 3.43 MPa [497 psi] and 30 seconds have passed

[Example of an SV1 operation]



(2) Bypass solenoid valve (SV2) (ON = Open)

Operation	SV2	
	ON	OFF
When low pressure (LPS) drops in heating-only mode or heating-main mode (after 5 minutes since the compressor start-up)	When low pressure (LPS) drops below 0.25 MPa [36 psi].	When low pressure (LPS) exceeds 0.39 MPa [57 psi].

(3) Bypass valve (SV3, P168-P234 models only) (ON = Open)

The opening of SV3 depends on the operating state of No.1 and No.2 compressors.

No.1 Compressor	No.2 Compressor	SV3
Stopped	Stopped	OFF
In operation	Stopped	ON
In operation	In operation	OFF

-5- Compressor Frequency Control <PUHY>

- Depending on the capacity required, the frequency of the compressor is controlled to keep constant evaporation temperature (0°C [32°F] = 0.71 MPa [103 psi]) during cooling operation, and condensing temperature (49°C [120°F] = 2.88 MPa [418 psi]) during heating operation.
- The capacity of the P72-P144 is controlled solely by the inverter-driven compressor, and the capacity of P168-P234 is controlled by No.1 compressor (inverter) and No.2 compressor (constant capacity).
- The following table shows the frequency change of the inverter compressor during normal operation.

Model	Frequency/cooling	Frequency/heating	Speed
P72 model	20-53 Hz	20-59 Hz	3 Hz/second
P96 model	20-70 Hz	20-85 Hz	3 Hz/second
P108 model	20-77 Hz	20-98 Hz	3 Hz/second
P126 model	20-89 Hz	20-102 Hz	3 Hz/second
P144 model	20-103 Hz	20-103 Hz	3 Hz/second
P168 model	20-65 Hz	20-73 Hz	3 Hz/second
P192 model	20-78 Hz	20-84 Hz	3 Hz/second
P204 model	20-88 Hz	20-93 Hz	3 Hz/second
P216 model	20-98 Hz	20-105 Hz	3 Hz/second
P234 model	20-107 Hz	20-113 Hz	3 Hz/second

The maximum frequency during heating operation is affected by the outdoor air temperature to a certain extent.

(1) No. 2 compressor operation/stop (P168-P234 models only)

- No.2 compressor changeover from stop to in-operation
When No.1 compressor does not meet the capacity requirement, No.2 compressor will start its operation.
- No.2 compressor changeover from stop to in-operation
When an operation of both No.1 and No.2 compressors exceeds the capacity requirement, No.2 compressor will stop its operation.

(2) Pressure limit

The maximum limit of high pressure (Pd) is set for each frequency level. If this limit is exceeded, the frequency will be reduced every 30 seconds.

(3) Discharge temperature limit

The discharge temperature (Td) of the compressor in operation is detected, and if it exceeds the upper limit, the frequency is reduced by 5 Hz.

- Control is performed 30 seconds after compressor start-up and every 30 seconds thereafter.
- Operating temperature is 115°C [239°F] .

(4) Periodic frequency control

Frequency control other than the ones performed at start-up, upon status change, and for protection is called periodic frequency control (convergent control) and is performed in the following manner.

[Periodic control cycle]

Periodic control is performed after the following time has passed

- 30 seconds after either compressor start-up or the completion of defrost operation
- 30 seconds after frequency control based on discharge temperature or pressure limit

[The amount of frequency change]

The amount of frequency change is controlled to approximate the target value based on the evaporation temperature (Te) and condensing temperature (Tc).

-6- Compressor Frequency Control <PURY>

- Depending on the capacity required, the frequency of the compressor is controlled to keep constant evaporation temperature (0°C [32°F] = 0.71 MPa [103 psi]) during cooling operation, and condensing temperature (49°C [120°F] = 2.88 MPa [418 psi]) during heating operation.
- The capacity of the P72-P144 is controlled solely by the inverter-driven compressor, and the capacity of P168-P234 is controlled by No.1 compressor (inverter) and No.2 compressor (constant capacity).
- The following table shows the frequency change of the inverter compressor during normal operation.

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P72 model	20-53Hz	20-59 Hz	3 Hz/second
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P108 model	20-77 Hz	20-98 Hz	3 Hz/second
P126 model	20-89 Hz	20-102 Hz	3 Hz/second
P144 model	20-103 Hz	20-103 Hz	3 Hz/second
P168 model	20-65 Hz	20-73 Hz	3 Hz/second
P192 model	20-78 Hz	20-84 Hz	3 Hz/second
P204 model	20-88 Hz	20-93 Hz	3 Hz/second
P216 model	20-98 Hz	20-105 Hz	3 Hz/second
P234 model	20-107 Hz	20-113 Hz	3 Hz/second

The maximum frequency during heating operation is affected by the outdoor air temperature to a certain extent.

(1) No. 2 compressor operation/stop (P168-P234 models only)

- No.2 compressor changeover from stop to in-operation
When No.1 compressor does not meet the capacity requirement, No.2 compressor will start its operation.
- No.2 compressor changeover from stop to in-operation
When an operation of both No.1 and No.2 compressors exceeds the capacity requirement, No.2 compressor will stop its operation.

(2) Pressure limit

The maximum limit of high pressure (Pd) is set for each frequency level. If this limit is exceeded, the frequency will be reduced every 30 seconds.

(3) Discharge temperature limit

The discharge temperature (Td) of the compressor in operation is detected, and if it exceeds the upper limit, the frequency is reduced by 5 Hz.

- Control is performed 30 seconds after compressor start-up and every 30 seconds thereafter.
- Operating temperature is 115°C [239°F].

(4) Periodic frequency control

Frequency control other than the ones performed at start-up, upon status change, and for protection is called periodic frequency control (convergent control) and is performed in the following manner.

[Periodic control cycle]

Periodic control is performed after the following time has passed

- 30 seconds after either compressor start up or the completion of defrost operation
- 30 seconds after frequency control based on discharge temperature or pressure limit

[The amount of frequency change]

The amount of frequency change is controlled to approximate the target value based on the evaporation temperature (Te) and condensing temperature (Tc).

-7- Defrost Operation Control <PUHY>

(1) Starting the defrost operation

- Defrost operation is started when the pipe temperature (TH5) of -10°C [14°F] or below (-8°C [18°F] or below for P126-type and above) has continuously been detected for 3 minutes after the integrated compressor operation time of 50 minutes have passed (90 minutes when the defrost prohibit timer is set to 90 minutes).
- If 10 minutes have passed since compressor start-up or since the completion of defrost operation, forced defrost operation will start by turning on the forced defrost switch (DIP SW2-7).
- Even if the defrost prohibit timer is set to 90 minutes, the actual defrost prohibit time for the next operation will be 50 minutes if defrosting took 12 minutes.

(2) Defrost operation

Compressor frequency	Model	No.1 Compressor	No.2 Compressor
	P72 model	52	-
	P96 model	53	-
	P108 model	65	-
	P126 model	114	-
	P144 model	114	-
	P168 model (50/60 Hz)	70/60	ON (50/60 Hz)
	P192 model (50/60 Hz)	70/60	ON (50/60 Hz)
	P204 model (50/60 Hz)	110/100	ON (50/60 Hz)
	P216 model (50/60 Hz)	110/100	ON (50/60 Hz)
	P234 model (50/60 Hz)	110/100	ON (50/60 Hz)
Outdoor unit fan	Stopped		
SV1	ON		
SV3 (P168-P234 models only)	ON		
21S4a	OFF		
21S4b (P144-P234 models only)	OFF		
SV5b (P144-P234 models only)	OFF		
LEV1	480 pulses		

(3) Stopping the defrost operation

- Defrost operation will stop when 12 minutes have passed since the beginning of defrost operation (15 minutes when the defrost prohibit timer is set to 90 minutes), or when the piping temperature (TH5) of 10°C [50°F] or above has been continuously detected for 2 minutes (TH5 above 7°C [45°F] for 2 minutes for P126 model and above).
- Defrost operation will not stop its operation for 2 minutes once started unless the piping temperature exceeds 25°C [77°F] within 2 minutes, in which case the operation will stop (Above 20°C [68°F] within 2 minutes for P126 model and above).

(4) Problems during defrost operation

- If a problem is detected during defrost operation, the operation will be stopped, and the defrost prohibition time based on the integrated compressor operation time will be set to 20 minutes.

(5) Change in the number of operating indoor units during defrost operation

- Even when there is a change in the number of operating indoor units during defrost operation, the operation will continue, and an adjustment will be made after the completion of the defrost operation.
- Defrost operation will be continued, even if the indoor units stop or under the Thermo-OFF conditions until it has run its course.

-8- Defrost Operation Control <PURY>

(1) Starting the defrost operation

- Defrost operation is started when the pipe temperature (TH5) of -10°C [14°F] or below (-8°C [18°F] or below for P126-type and above) has continuously been detected for 3 minutes after the integrated compressor operation time of 50 minutes have passed (90 minutes when the defrost prohibit timer is set to 90 minutes).
- If 10 minutes have passed since compressor start-up or since the completion of defrost operation, forced defrost operation will start by turning on the forced defrost switch (DIP SW2-7).
- Even if the defrost prohibit timer is set to 90 minutes, the actual defrost prohibit time for the next operation will be 50 minutes if defrosting took 12 minutes.

(2) Defrost operation

Compressor frequency	Model	No.1 Compressor	No.2 Compressor
	P72 model	52	-
	P96 model	65	-
	P108 model	65	-
	P126 model	114	-
	P144 model	114	-
	P168 model (50/60 Hz)	110/100	ON (50/60 Hz)
	P192 model (50/60 Hz)	110/100	ON (50/60 Hz)
	P204 model (50/60 Hz)	110/100	ON (50/60 Hz)
	P216 model (50/60 Hz)	110/100	ON (50/60 Hz)
	P234 model (50/60 Hz)	110/100	ON (50/60 Hz)
Outdoor unit fan	Stopped		
SV1	ON		
SV2	ON		
SV3 (P168-P234 models only)	ON		
21S4a	OFF		
21S4b (P144-P234 models only)	OFF		
BC controller LEV12	G type: 4000, GA type: 6000		
BC controller LEV34	G type: 1000, GA type: 2000		
BC controller LEV3a	60 (Fully open)		
BC controller SVM1	ON		
BC controller SVM2	OFF		

(3) Stopping the defrost operation

- Defrost operation will stop when 12 minutes have passed since the beginning of defrost operation or when the piping temperature (TH5 and TH7) of 10°C [50°F] or above has been continuously detected for 2 min (15°C [59°F] or above for 8 minutes for P168 model and later).

(4) Problems during defrost operation

- If a problem is detected during defrost operation, the operation will be stopped, and the defrost prohibition time based on the integrated compressor operation time will be set to 20 minutes.

(5) Change in the number of operating indoor units during defrost operation

- Even when there is a change in the number of operating indoor units during defrost operation, the operation will continue, and an adjustment will be made after the completion of the defrost operation.
- Defrost operation will be continued, even if the indoor units stop or under the Thermo-OFF conditions until it has run its course.

-9- Refrigerant Recovery Control <PUHY>

Recovery of refrigerant is performed during heating operation to prevent the refrigerant from accumulating inside the unit while it is stopped (unit in fan mode), or inside the indoor unit that is in cooling mode or in heating mode with thermo off. It is also performed during cooling operation to prevent an excessive amount of refrigerant from accumulating in the outdoor heat exchanger.

It is also performed during cooling operation to prevent an excessive amount of refrigerant from accumulating in the outdoor heat exchanger.

- (1) During heating operation

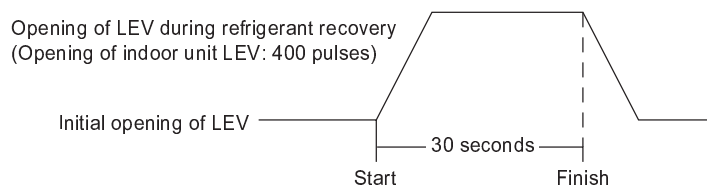
[Starting refrigerant recovery mode]

The refrigerant recovery mode in heating starts when all of the following three conditions are met:

- 15 minutes have passed since the completion of previous refrigerant recovery.
- Td > 115°C [239°F]
- Frequencies below 50 Hz

[Refrigerant recovery]

- 1) Refrigerant is recovered with the LEV on the applicable indoor unit (unit under stopping mode, fan mode, cooling, heating with thermo off) being opened for 30 seconds.



- 2) Periodic capacity control of the outdoor units and periodic LEV control of the indoor units will be suspended during refrigerant recovery operation; they will be performed after the recovery has been completed.
- 3) Defrost operation will be suspended until refrigerant recovery has been completed.

- (2) During cooling operation

[Starting refrigerant recovery mode]

The refrigerant recovery mode starts when all the following conditions are met

- 30 minutes have passed since the completion of previous refrigerant recovery.
- When the unit keeps running for 3 minutes in a row or more with high discharge temperature
- Td > 105°C [221°F] or Pd > 3.43 MPa [497 psi] (35 kg/cm²G) and SC0 > 10 deg°C [18 deg°F]

[Refrigerant recovery]

Increase the opening of LEV1 (Periodic control begins when 30 seconds have elapsed).

-10- Refrigerant Recovery Control <PUY>

Recovery of refrigerant is performed during heating operation to prevent the refrigerant from accumulating inside the unit while it is stopped (unit in fan mode), or inside the indoor unit that is in cooling mode or in heating mode with thermo off. It is also performed during cooling operation to prevent an excessive amount of refrigerant from accumulating in the outdoor heat exchanger.

[Starting refrigerant recovery mode (during cooling only, cooling main, heating only, or heating main operation)]

The refrigerant recovery mode starts when all of the following conditions are met:

- 1) When 15 minutes have past in heating only or heating main mode or 5 minutes have passed in cooling only or cooling main mode since the completion of previous refrigerant recovery
- P72-P144: Td > 105°C [221°F]
 - P168-P234: Td1 > 105°C [221°F] or Td2 > 105°C [221°F]
- 2) When the port is not under 3-minute restart mode

[Refrigerant recovery (during cooling only, cooling main, heating only, or heating main operation)]

- 1) When the port is under any condition other than heating Thermo-ON
SV■C at the branch is turned on for 30 seconds. (■ indicates each port No.)
- 2) The opening of LEV1 and LEV3 is increased.

-11- Capacity Control of Outdoor Fan and Heat Exchanger <PUHY>

(1) Control method

- Depending on the capacity required, the rotation speed of the outdoor unit fan is controlled by the inverter, targeting a constant evaporation temperature of (0°C [32°F]= 0.71 MPa [103 psi]) during cooling operation and constant condensing temperature of (49°C [120°F]= 2.88 MPa [418 psi]) during heating operation.
- The capacity of the heat exchanger on the P126-234 models of outdoors is controlled by the 4-way valve (21S4b) or the solenoid valve (SV5b).

(2) Control

- Outdoor unit fan stops while the compressor is stopped (except in the presence of input from snow sensor).
- The fan operates at full speed for 5 seconds after start-up.
- The outdoor unit fan stops during defrost operation.

(3) Capacity control of outdoor heat exchanger

[P126, P144 models]

Operation mode	Heatexchanger capacity	Inverter control	Notes
Cooling	50%	5-100%	21S4b ON, SV5b ON
	100%	10-100%	21S4b OFF, SV5b OFF
Heating	100%	10-100%	21S4b ON, SV5b OFF
Defrost	100%	0%	21S4b OFF, SV5b OFF

[P168-P234 models]

Operation mode	Heatexchanger capacity	Number of fans	Inverter control	Notes
Cooling	50%	1	5 -100%	21S4b ON SV5b ON
	100%	2	10 -100%	21S4b ON SV5b ON
Heating	100%	2	10 -100%	21S4b OFF SV5b OFF
Defrost	100%	0	0%	21S4b ON SV5b OFF

Notes:

- The unit runs a cooling cycle when 21S4b is not powered and runs a heating cycle when it is powered.
- SV5b is open when it is not powered and is closed when it is powered.
- While the unit is stopped, 21S4b is not powered cooling cycle, and SV5b is open.

-12- Capacity Control of Outdoor Fan and Heat Exchanger <PURY>

(1) Control method

- Depending on the capacity required, the rotation speed of the outdoor unit fan is controlled by the inverter, targeting a constant evaporation temperature of (0°C [32°F]= 0.71 MPa [103 psi]) during cooling operation and constant condensing temperature of (49°C [120°F]= 2.88 MPa [418 psi]) during heating operation.

(2) Control

- Outdoor unit fan stops while the compressor is stopped (except in the presence of input from snow sensor).
- The fan operates at full speed for 5 seconds after start-up.
- The outdoor unit fan stops during defrost operation.

(3) Capacity control of outdoor heat exchanger

Operation mode	Operation pattern	Solenoid valve					
		SV4a	SV4b	SV4c	SV4d	SV5a	SV5b
Cooling only	1	ON	ON	ON	OFF	ON	ON
	2					OFF	OFF
	3	OFF	ON	ON	OFF	OFF	OFF
	4	OFF	ON	OFF	OFF	OFF	OFF
	5	OFF	OFF	ON	OFF	OFF	OFF
	6	OFF	OFF	OFF	OFF	OFF	OFF
Cooling main	1	ON	ON	ON	OFF	ON	ON
	2					OFF	OFF
	3	OFF	ON	ON	OFF	OFF	OFF
	4	OFF	ON	OFF	OFF	OFF	OFF
	5	OFF	OFF	ON	OFF	OFF	OFF
	6	OFF	OFF	OFF	OFF	OFF	OFF
	8	OFF	OFF	OFF	ON	OFF	OFF
Heating only	1	ON	ON	ON	OFF	ON	ON
Heating main	1	ON	ON	ON	OFF	ON	ON
	2	ON	ON	ON	OFF	OFF	OFF
	7	ON	ON	ON	ON	OFF	OFF
Defrost	1	ON	ON	ON	OFF	ON	ON

All solenoid valves are turned off while the unit is stopped.

*SV5a and SV5b are available only on the P168 model and above.

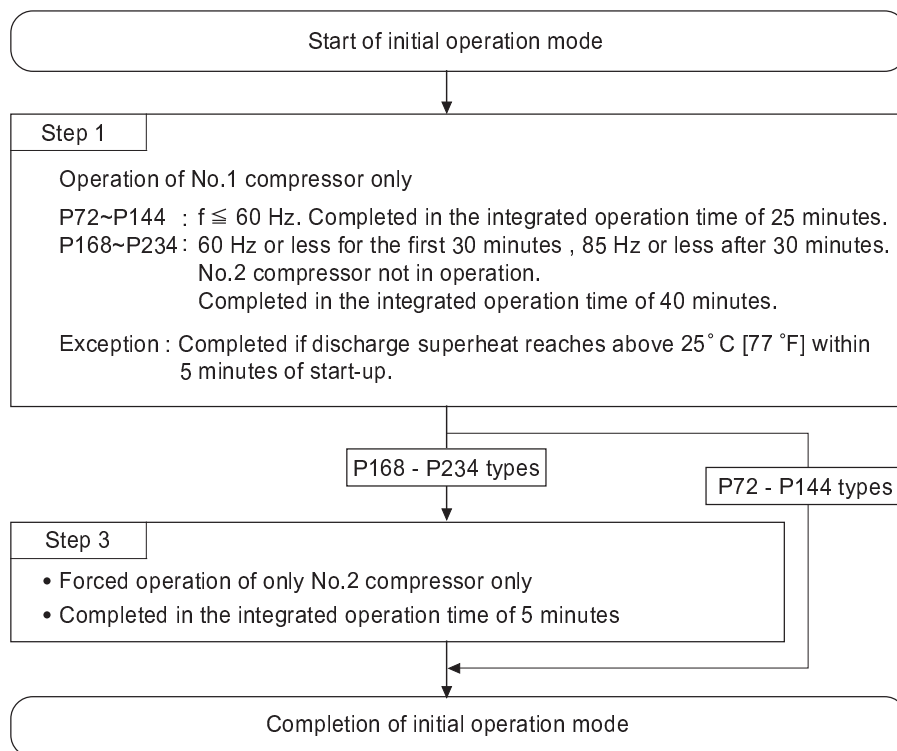
-13- Subcool Coil Control (Linear Expansion Valve <LEV1>) <PUHY>

- The amount of super heat is controlled and kept constant based on the bypass outlet temperature (TH8) of subcool coil every 30 seconds.
- The degree of opening is controlled based on the subcool coil outlet/inlet temperature (TH5, TH7), high pressure (Pd), and discharge temperature. The LEV will be closed (0) during heating operation and when the compressor is stopped, and it will be open during cooling operation with Thermo off.
- The LEV stays open at 480 during defrost operation.

-14- Control at Initial Start-up <PUHY>

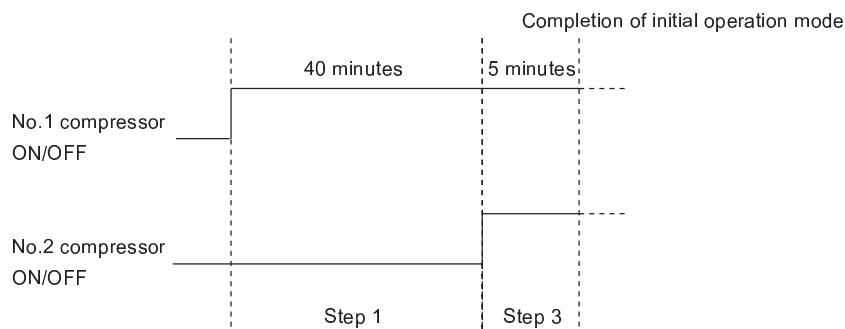
- When the unit is started for the first time, it will run the following course of operation.

(1) Flow chart of initial operation mode



(2) Initial start-up control of P168-P234 models: time chart

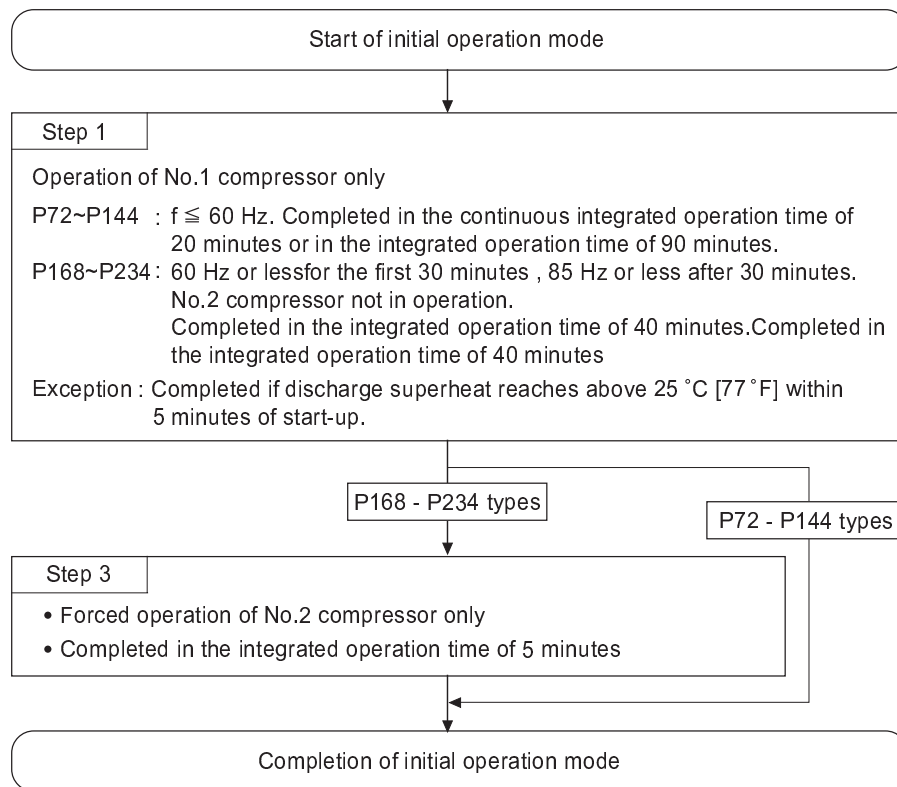
Example



-15- Control at Initial Start-up <PURY>

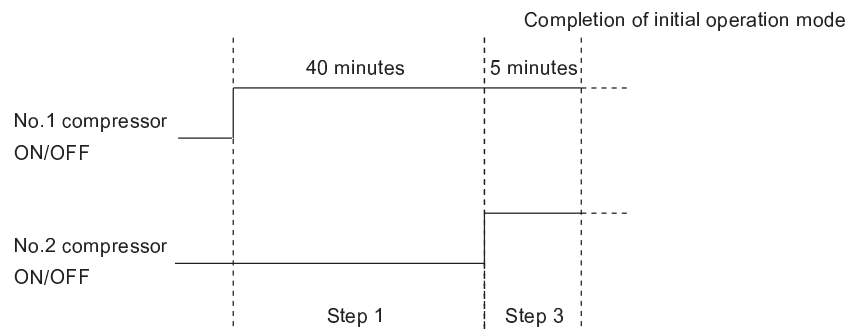
•When the unit is started for the first time, it will run the following course of operation.

(1) Flow chart of initial operation mode



(2) Initial start-up control of P168-P234 models: time chart

Example



[Restrictions for the initial setup mode during heating]

When the compressor discharge SH is small or the discharge pressure is low in heating only, heating main, or cooling main mode, the total capacity of operable outdoor unit will be restricted.(other than when there is only one indoor unit)

[Total capacity of operable indoor unit]

In case of Indoor unit of P72 model: P32 model or less

In case of outdoor unit of P96-P234 models: P52 model or less

-16- Emergency Operation Mode (P168-P234 models only) <PUHY/PURY>

When compressors (No.1 or No.2) fails, the unit goes into the emergency operation mode to respond to the problem. The unit can be put into this mode by performing an error reset on the remote controller.

(1) Starting the emergency operation

- 1) When an error occurs, the error source and the error code will be displayed on the display on the remote controller.
- 2) The error is reset using the remote controller.
- 3) The unit will go into the mode that is appropriate to the error type.

Pattern of emergency operation mode	Error source	Type of error that allows the unit to go into the emergency operation	Type of error that does not allow the unit to go into the emergency operation	Operation
At malfunction of No.1 (INV)	Outdoor unit	Heatsink thermistor 4230 ,<Inverter error> Overcurrent break 4250 Overload protection 4240 Heatsink overheat protection 4230 Cooling fan abnormality Bus voltage drop protection 4260 IDC sensor/circuit error 4220 VDC sensor/circuit error THHS sensor/circuit error 5301 IPM communication error 4200 5110 0403	All errors other than the ones listed on the left	Emergency operation with only No.2 compressor * After a retry operation, emergency operation can be resumed by error reset if the error code that corresponds to the error that is experienced is listed under <Inverter Error> on the left, even if the error code does not match the original error code. 4250 -> reset -> retry -> 4240 -> reset -> emergency operation
At malfunction of No.2		Overcurrent protection 4108		Emergency operation with only No.1 compressor

(2) Ending the emergency operation

1) End conditions

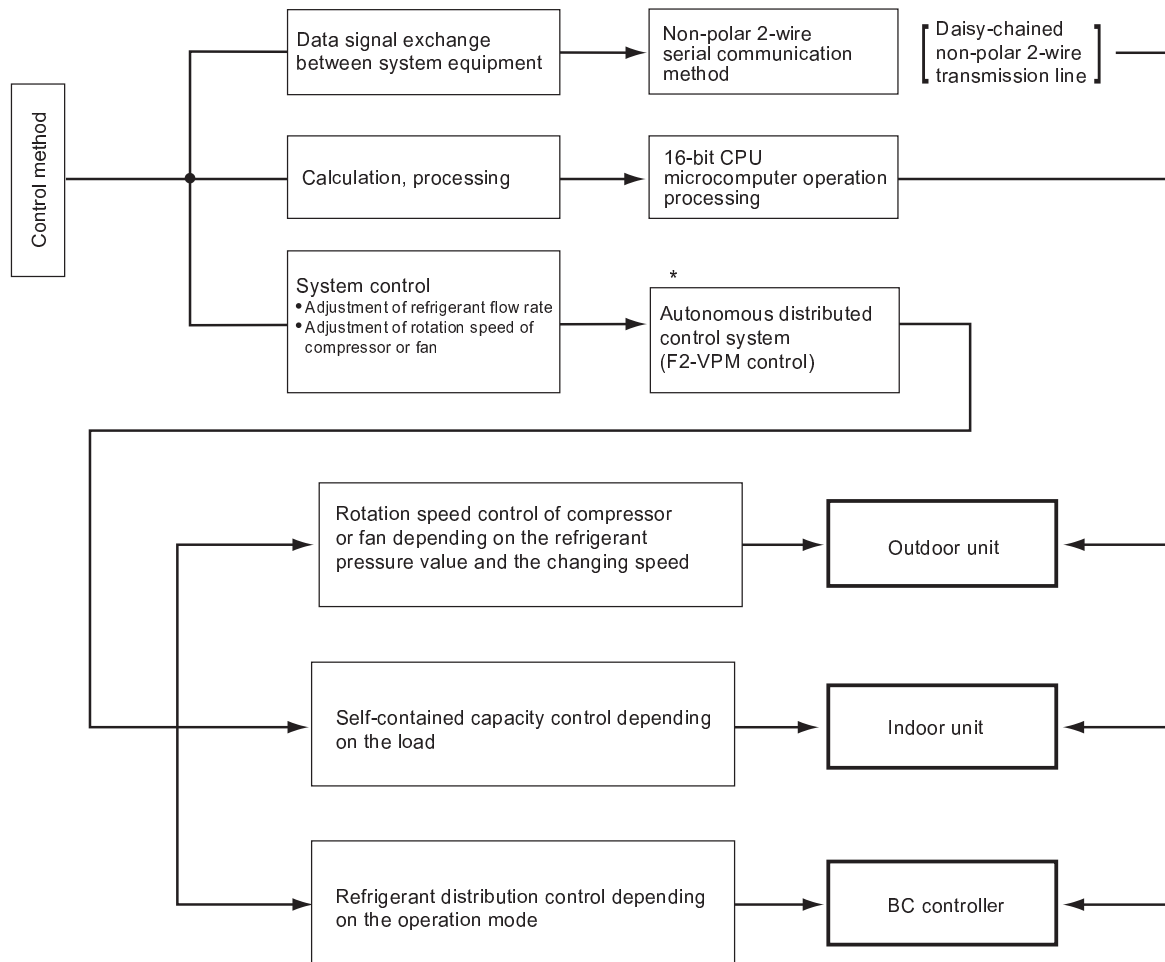
When one of the following conditions is met, emergency operation will end.

- When an integrated operation time of compressor in cooling mode has reached 5 hours.
- When an integrated operation time of compressor in heating mode has reached 5 hours.
- When an error is detected that does not allow the unit to run the emergency operation.

2) Control at the completion of and after the emergency operation

- To end the operation, stop the compressor and bring up the error code on the display on the remote controller.
- If another error reset is performed upon finishing an emergency operation, the unit will repeat the procedures 1) through 3) under section (1) above.
- To finish an emergency operation and to run a current-carrying operation after correcting the error, perform a power reset.

-17- Control Method <PURY>



Autonomous distributed control system : A system that consists of three independent sub control systems, instead of a single centralized control system, that work together to maintain the overall control of the entire system.

-18- Cooling/heating Circuit Control and General Function of System Equipment

Operation status	Schematic diagram of refrigerant circuit (— Gas - - - Two-phase — Liquid)	Schematic diagram of refrigerating cycle
Cooling only		
Cooling main		
Heating only		
Heating main		

-19- Operation Mode <PUHY>**(1) Indoor unit operation mode**

The operation mode can be selected from the following 5 modes using the remote controller.

1	Cooling mode
2	Heating mode
3	Dry mode
4	Fan mode
5	Stopping mode

(2) Outdoor unit operation mode

1	Cooling mode	All indoor units in operation are in cooling mode.
2	Heating mode	All indoor units in operation are in heating mode.
3	Stopping mode	All indoor units are in fan mode or stopping mode.

Note: When the outdoor unit is performing a cooling operation, the operation mode of the connected indoor units that are not in the cooling mode (Stopped, Fan, Thermo-OFF) cannot be changed to heating from the remote controller. If this attempt is made, "Heating" will flash on the remote controller. The opposite is true when the outdoor unit is performing a heating operation. (The first selection has the priority.)

-20- Operation Mode <PURY>

(1) Indoor unit operation mode

The operation mode can be selected from the following 6 modes using the remote controller.

1	Cooling mode
2	Heating mode
3	Dry mode
4	Automatic cooling/heating mode
5	Fan mode
6	Stopping mode

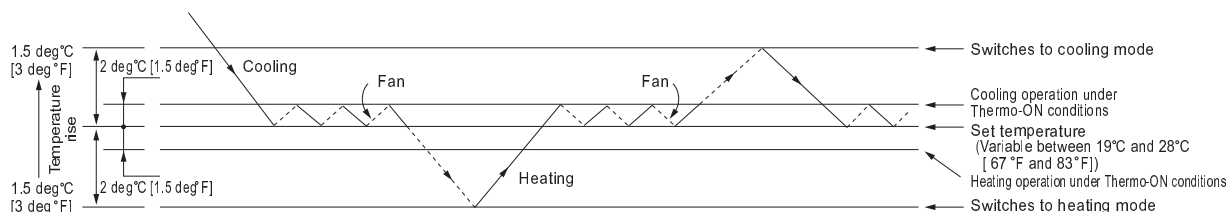
(2) Outdoor unit operation mode

1	Cooling only mode	All indoor units in operation are in cooling mode.
2	Heating only mode	All indoor units in operation are in heating mode.
3	Cooling main mode	Coexistence of units in cooling and heating modes.
4	Heating main mode	Coexistence of units in cooling and heating modes.
5	Stopping mode	All indoor units are in fan mode or stopping mode.

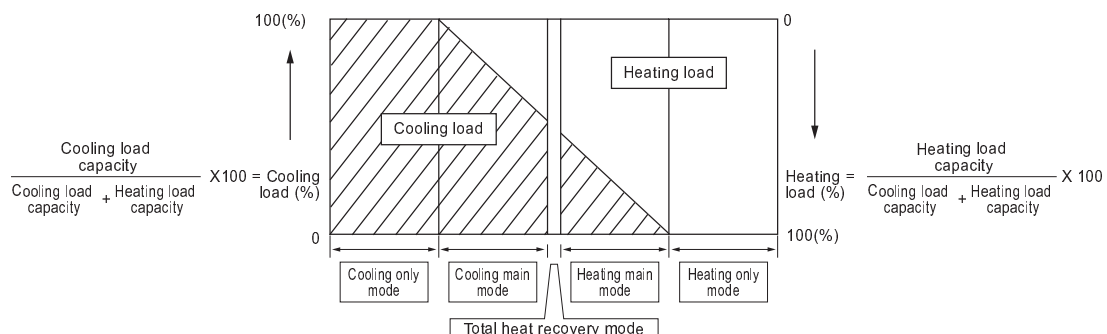
Note: When units in cooling and heating coexist, the operation mode (cooling main mode or heating main mode) will be determined, based on the refrigerant pressure in the R2 refrigerant circuit and speed variation data.

(3) Operation pattern for automatic cooling/heating mode

When the automatic cooling/heating mode is selected from remote controller functions, the indoor temperature will be detected in pattern as shown in the figure below, and the operation mode (cooling or heating) will automatically be selected.



(4) Relationship between the operation mode and the load capacity (kW) (within a system)



-21- DEMAND Control <PUHY/PURY>

Cooling/heating operation can be prohibited (Thermo-OFF) by an external input to the indoor units.

Note: When DIP SW4-7 is set to ON, the 4-step DEMAND control is enabled. While this control is enabled, the NIGHT MODE will be disabled.

Refer to 2 [2] 2.(5) for detailed information on DEMAND control.

[3] Controlling BC Controller

1. Control of SV ■ A, SV ■ B, and SV ■ C

SV ■ A, SV ■ B, and SV ■ C turn on or off depending on the operation mode of the branch.

		Mode			
		Cooling	Heating	Stopped	Defrost
Port	SV ■ A	ON	OFF	OFF	OFF
	SV ■ B	OFF	ON	OFF	OFF
	SV ■ C	ON	OFF	OFF	OFF

2. Control of SVM1

SVM turns on or off depending on the operation mode.

Operation mode	Cooling only	Cooling main	Heating only	Heating main	Defrost	Stopped
SVM1	ON	Pressure differential control*1	OFF	OFF	ON	OFF

*1. Pressure differential control: The detected differential pressure (PS1 and P3) is controlled every minute so as to be within a certain range.

3. Control of LEV ■

LEV ■ opening (sj) is controlled as follows depending on the operation mode.

	Operation mode	Cooling only	Cooling main	Heating only	Heating main	Defrost	Stopped
NU-G, NU-GA model	LEV1	2000	Liquid level control*1 Pressure differential control*2	110	110*3	2000	1200
	LEV2 (only for NU-GA model)			Pressure differential control*2	Pressure differential control*2	NU-G: 1000 NU-GA: 2000	60
	LEV3	Superheat control*4					
NU-GB model	LEV3a	Superheat control*4	Superheat control*4	60	60	60	60

*1. Liquid level control: The liquid level detected by the liquid inlet temperature (TH11 sensor) is controlled so as to be within a certain range.

*2. Pressure differential control: The detected differential pressure (PS1 and P3) is controlled every minute so as to be within a certain range.

*3. Can be 110 or more due to pressure rise on the liquid side (PS1).

*4. Superheat control: The amount of superheat that is calculated on the bypass inlet and outlet temperature (NU-G, NU-GA: TH12, TH15, NU-GB: TH22, TH25) is controlled every minute so as to be within a certain range.

4. Control of SVM2 (only for NU-GA model)

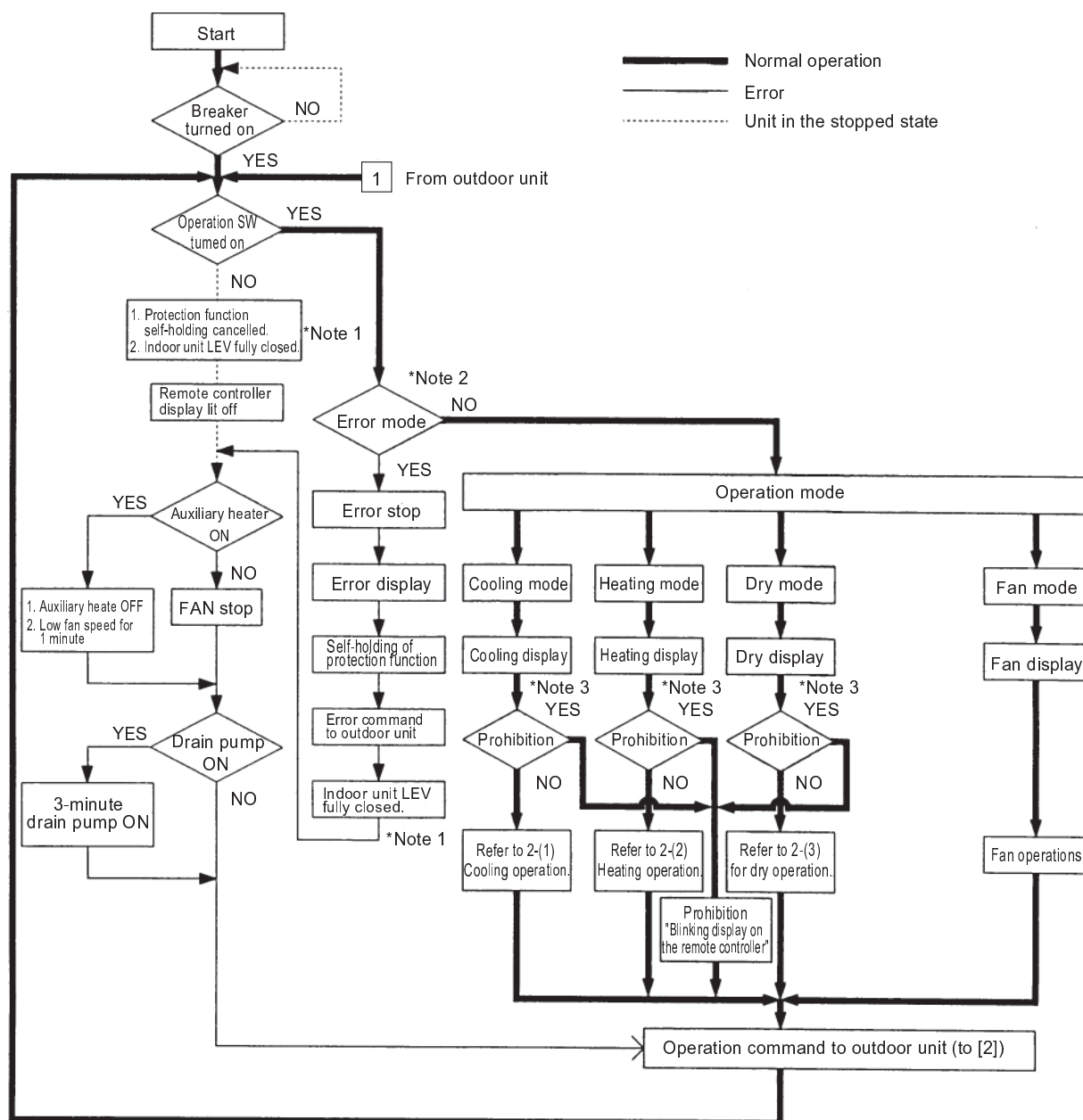
Operation mode	Cooling only	Cooling main	Heating only	Heating main	Defrost	Stopped
SVM2	OFF	OFF	Pressure differential control*1	Pressure differential control*1	OFF	OFF

*1. Pressure differential control: The detected differential pressure (PS1 and P3) is controlled every minute so as to be within a certain range.

[4] Operation Flow Chart

1. Mode determination flowchart <PUHY>

(1) Indoor unit (cooling, heating, dry, fan mode)

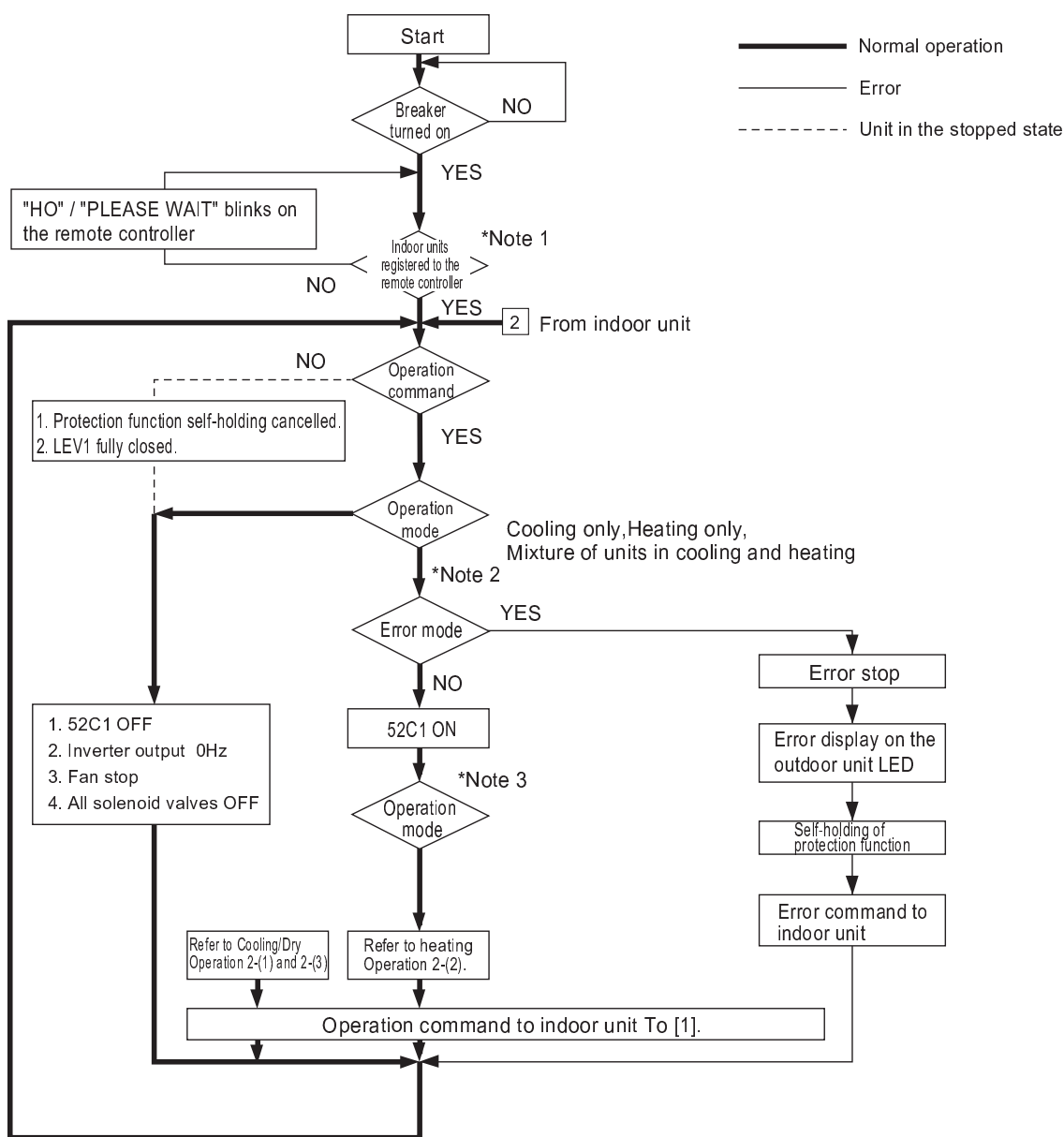


*Note 1. Indoor unit LEV fully closed : Opening 41.

*Note 2. The system may go into the error mode on either the indoor unit or the outdoor unit side. If some of the indoor units are experiencing a problem (except water leakage), only those indoor units that are experiencing the problems will stop.
If the outdoor unit is experiencing a problem, all connected indoor units will stop.

*Note 3. The operation will be prohibited when the set cooling/heating mode is different from that of the outdoor unit.

(2) Outdoor unit (cooling and heating modes)



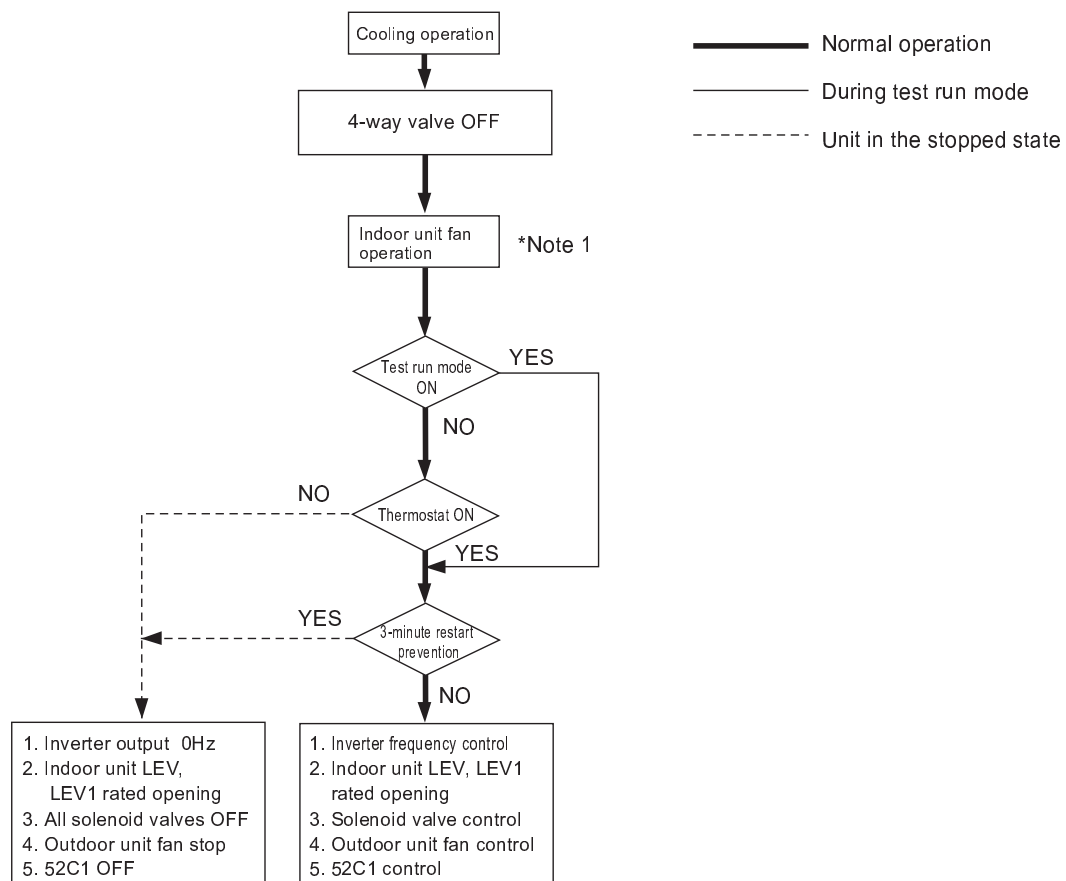
*Note 1. For about 3 minutes after power on, search for the indoor unit address, for the remote controller address, and for the group information will start. During this, "HO" / "PLEASE WAIT" blinks on the display of the remote controller. When the indoor unit to be controlled by the remote controller is missing, "HO" / "PLEASE WAIT" keeps blinking on the display of the remote controller even after 3 or more minutes after power on.

*Note 2. The system may go into the error mode on either the indoor unit or the outdoor unit side. The outdoor stops only when all of the connected indoor units are experiencing problems. The operation of even a single indoor unit will keep the outdoor unit running. The error will be indicated on the LED display.

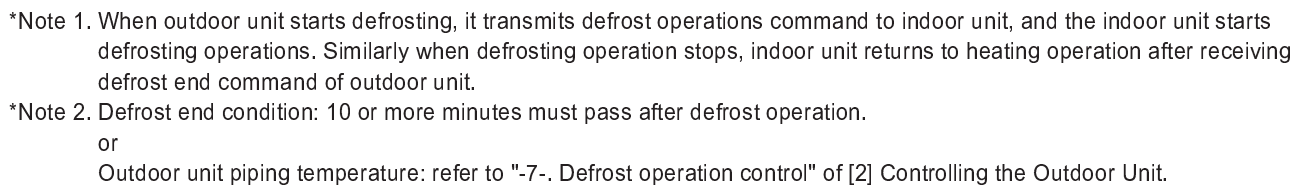
*Note 3. The outdoor unit operates according to the operation mode commanded by the indoor unit. However, when the outdoor unit is running a cooling operation, come of the operating indoor units will stop, or the operation of these indoor units will be prohibited even when the indoor unit mode is switched from fan mode to heating mode. This also applies when the outdoor unit is running a heating operation.

2. Operations in each mode <PUHY>

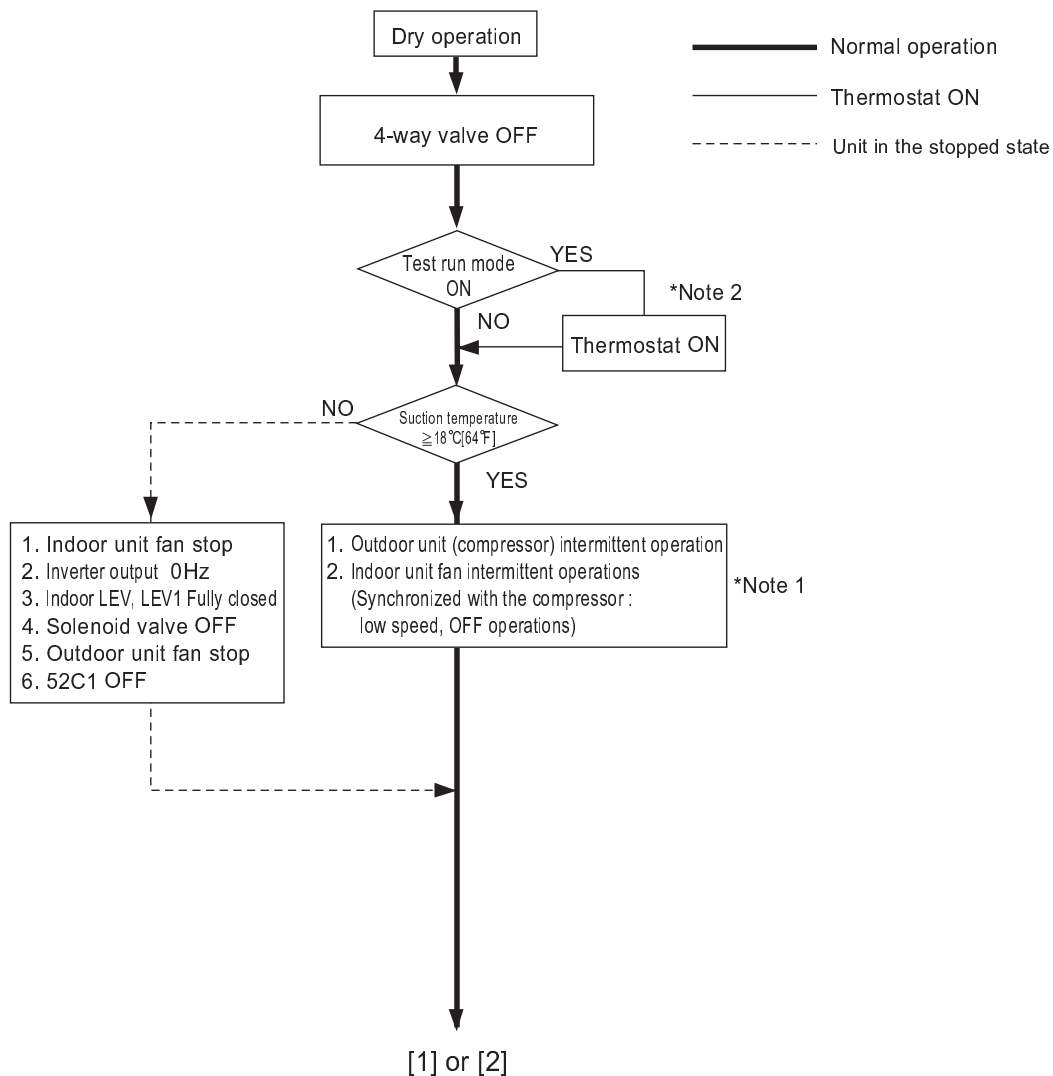
(1) Cooling operation



*Note 1. The indoor fan operates at the set notch under cooling mode regardless of the ON/OFF state of the thermostat.



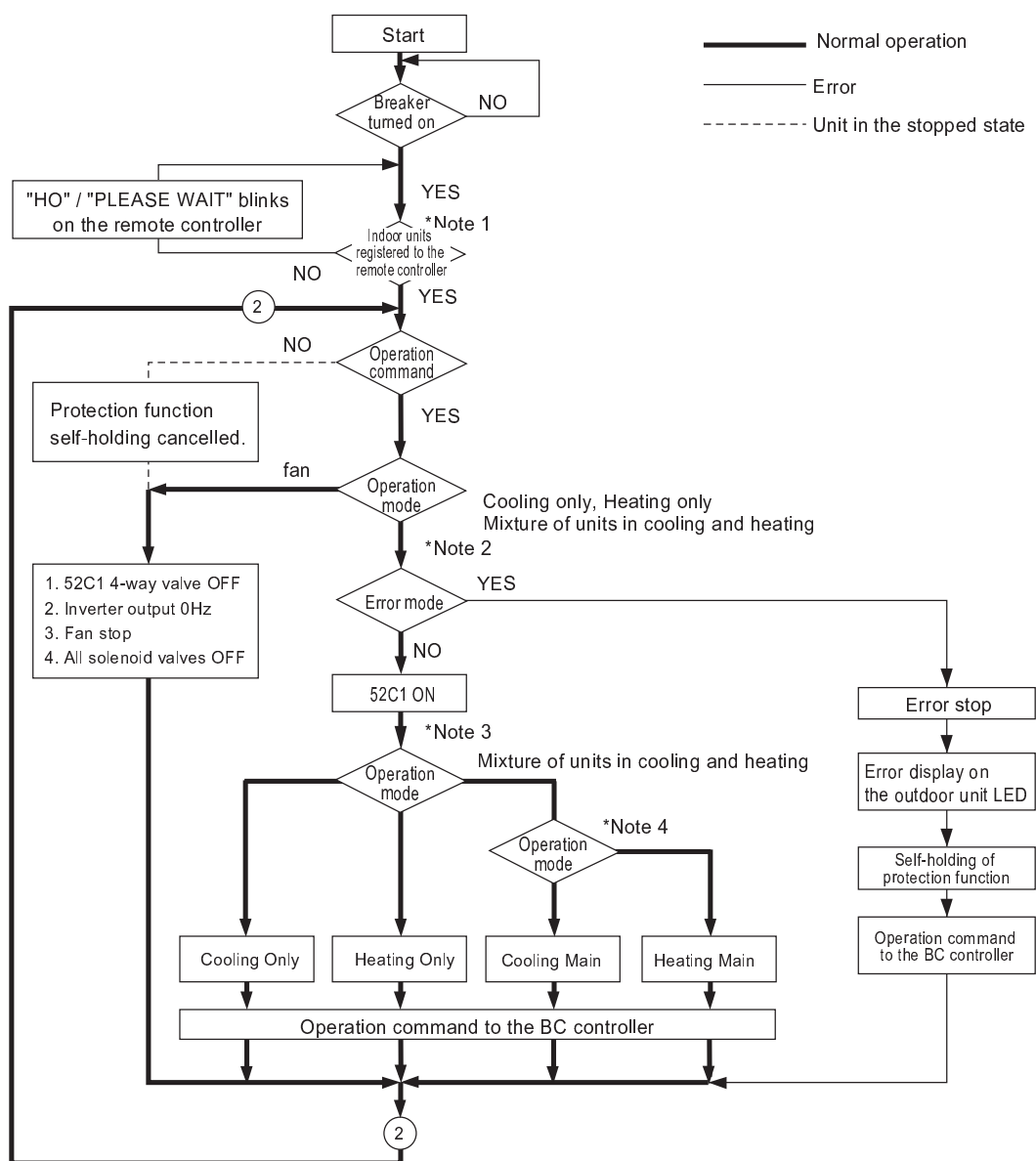
(3) Dry operation



*Note 1. When the indoor unit inlet temperature exceeds 18°C [64°F], the outdoor unit (compressor) and the indoor unit fan start the intermittent operation simultaneously. When the indoor unit inlet temperature becomes 18°C [64°F] or less, the fan always runs (at low speed). The outdoor unit, the indoor unit, and the solenoid valve operate in the same way as they do in the cooling operation when the compressor is turned on.

*Note 2. Thermostat is always kept on during test run mode, and indoor and outdoor unit intermittent operation (ON) time is a little longer than that of normal operation.

(2) Outdoor unit (cooling only, heating only, cooling main and heating main modes)



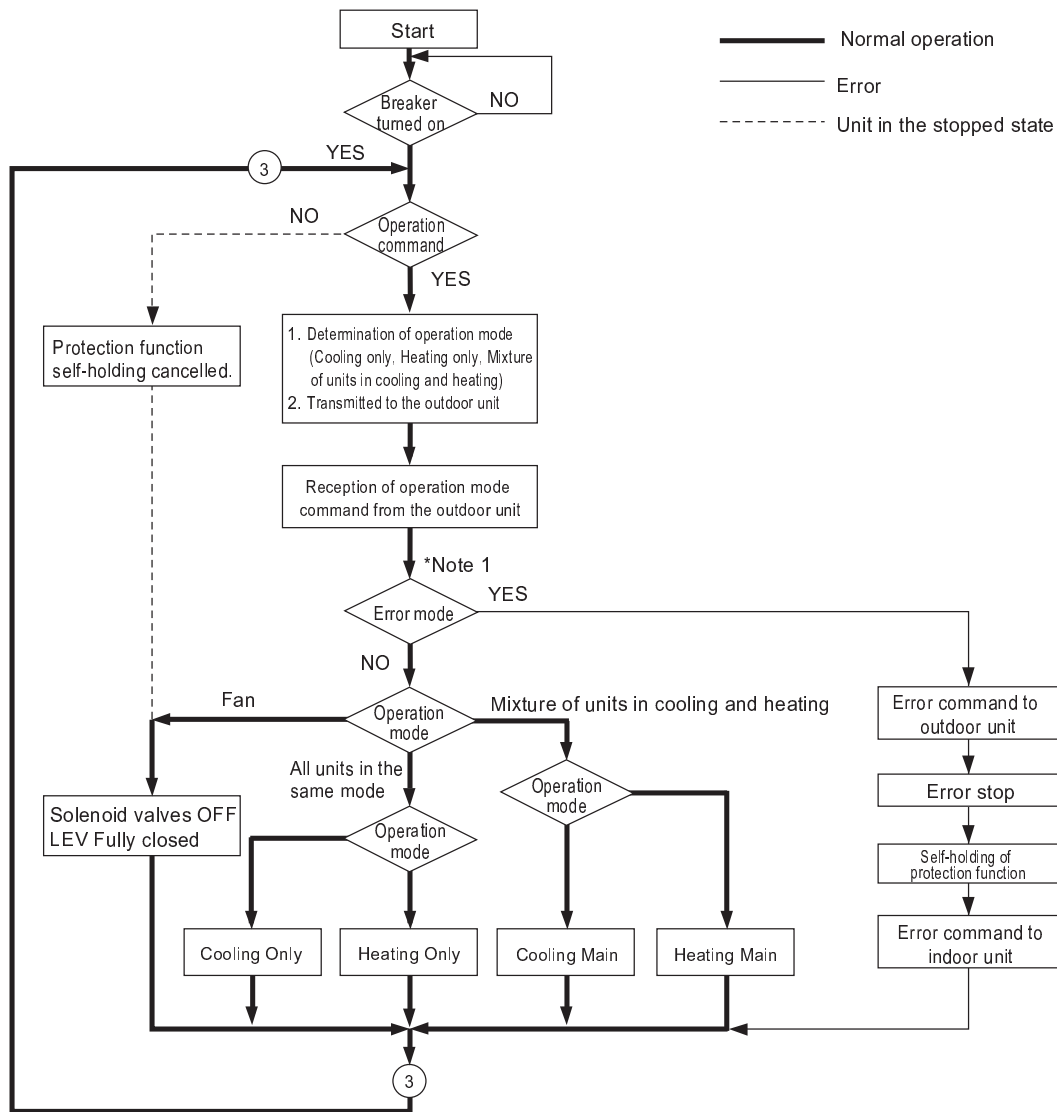
*Note 1. For about 3 minutes after power on, search for the indoor unit address, for the remote controller address, and for the group information will start. During this, "HO"/ "PLEASE WAIT" blinks on the display of the remote controller. When the indoor unit to be controlled by the remote controller is missing, "HO"/ "PLEASE WAIT" keeps blinking on the display of the remote controller even after 3 or more minutes after power on.

*Note 2. The system may go into the error mode on either the indoor unit or the outdoor unit side. The outdoor stops only when all of the connected indoor units are experiencing problems. The operation of even a single indoor unit will keep the outdoor unit running. The error will be indicated on the LED display.

*Note 3. The units will follow the operation mode commands from the BC controller

*Note 4. When the operation mode commands from the BC controllers are mixed (both cooling and heating), the actual operation mode is determined by the outdoor unit.

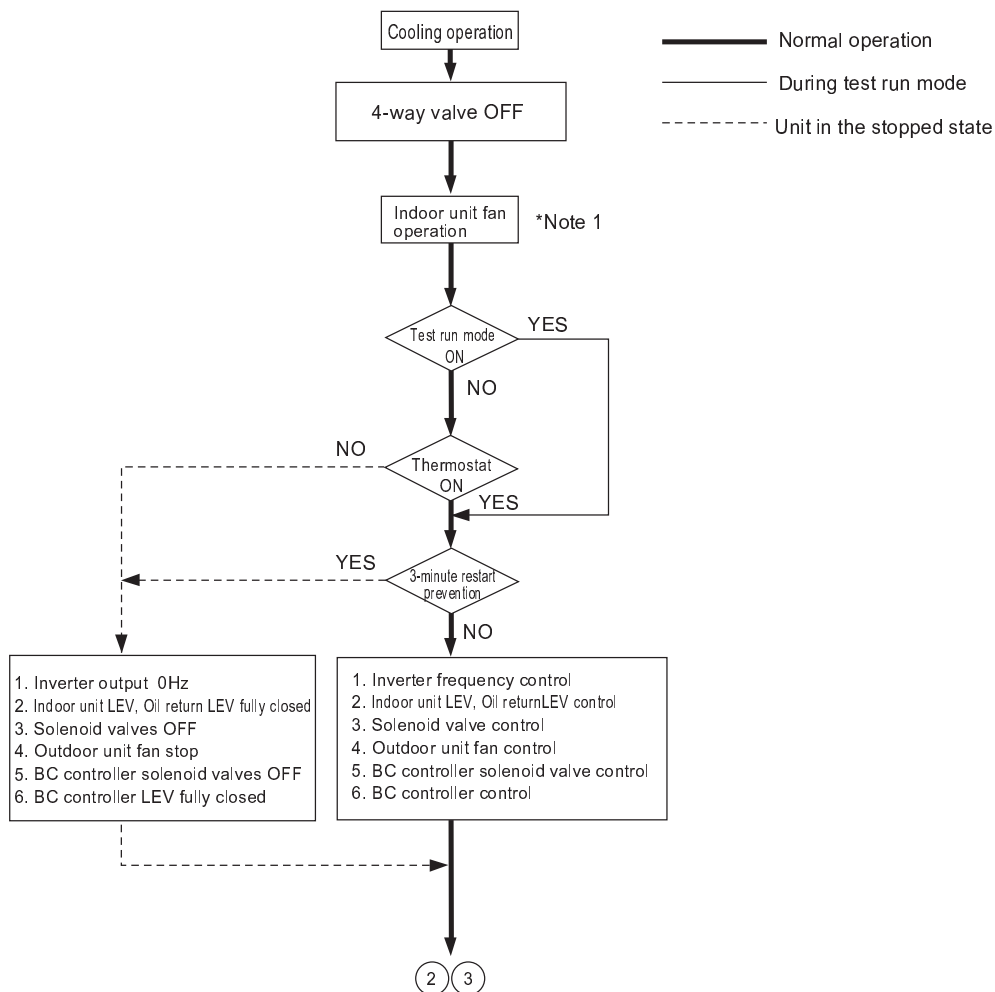
(3) BC controller (cooling only, heating only, cooling main and heating main modes)



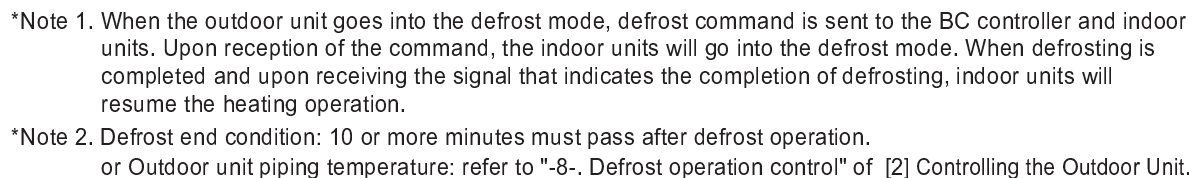
Note 1. The system may go into the error mode on either the indoor unit side or the BC controller or outdoor unit side. If some of the indoor units are experiencing a problem, only those indoor units that are experiencing the problem will stop. If the BC controller or the outdoor unit is experiencing a problem, all the connected units will stop.

4. Operations in each mode <PURY>

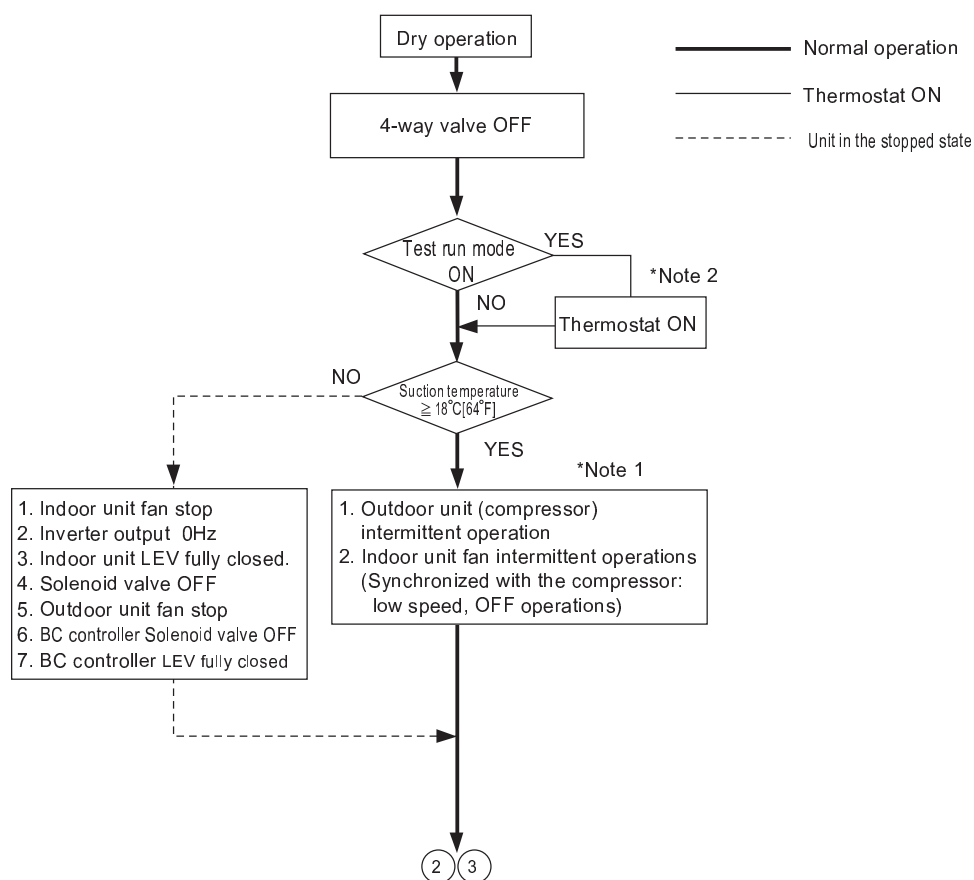
(1) Cooling operation



*Note 1. The indoor fan operates at the set notch under cooling mode regardless of the ON/OFF state of the thermostat.



(3) Dry operation



*Note 1. When the indoor unit inlet temperature exceeds 18°C [64°F], the outdoor unit (compressor) and the indoor unit fan start the intermittent operation simultaneously. When the indoor unit inlet temperature becomes 18°C [64°F], or less, the fan always runs (at low speed). The outdoor unit, the indoor unit, and the solenoid valve operate in the same way as they do in the cooling operation when the compressor is turned on.

*Note 2. Thermostat is always kept on during test run mode, and indoor and outdoor unit intermittent operation (ON) time is a little longer than that of normal operation.