4. CONTROL FUNCTIONS

4-1. Room Temperature Control

4-1-1. U-25PZ3E5, U-36PZ3E5, U-50PZ3E5, U-60PZ3E5A, U-71PZ3E5A U-36PZH3E5, U-50PZH3E5, U-60PZH3E5

- The body sensor or remote controller sensor detects temperature in the room. The detected temperature is called the room temperature. The body sensor is the one contained in the indoor unit.

	Body sensor is enabled	Remote controller sensor is enabled
Set temp.	Set temp. in remote controller	Set temp. in remote controller
Detected temp. by sensor	Detected temp. by body sensor	Detected temp. by remote controller sensor
Room temp.	Detected temp. by body sensor - *correction temp.	Detected temp. by remote controller sensor

- The thermostat is turned ON or OFF according to the following ΔT.

ΔT (Cooling)	ΔT = room temp. – set temp. (set temp. in remote controller)
ΔT (Heating)	ΔT = set temp. – room temp.

4

※ Correction temperature (only during heating)

If the indoor unit is installed on the ceiling, temperature near the ceiling is higher than near the floor. When the body sensor is enabled, lower temperature near the floor must be considered. To correct this difference in temperature, the correction temperature is used.

The factory setting for the correction temperature is different depending on the model. See “4-11. Parameter”.

Example: Cooling temperature correction
4-Way Cassette (correction temperature: 0 degrees)
Body sensor is enabled

Set temp. in remote controller	28℃	28℃	28℃
Detected temp. by sensor	30.0℃	26.5℃	26.0℃
Detected temp. by body sensor	30.0℃	26.5℃	26.0℃
Detected temp. by remote controller sensor	30.0℃	26.5℃	26.0℃
Room temp. = temp. detected by body sensor	30.0℃ =30.0	26.5℃ =26.5	26.0℃ =26.0
Δ T	+2.0deg	-1.5deg	-2.0deg
	Thermostat ON	Thermostat ON	Thermostat OFF

Example: Heating temperature correction
4-Way Cassette (correction temperature: 4 degrees)
Body sensor is enabled

Set temp. in remote controller	20℃	20℃	20℃
Detected temp. by sensor	17.0℃	25.5℃	26.0℃
Detected temp. by body sensor	17.0℃	25.5℃	26.0℃
Detected temp. by remote controller sensor	13.0℃	21.5℃	22.0℃
Room temp. = temp. detected by body sensor – 4 deg	13.0℃ =17.0-4 deg	21.5℃ =25.5-4 deg	22.0℃ =26.0-4 deg
Δ T	+7.0deg	-1.5deg	-2.0deg
	Thermostat ON	Thermostat ON	Thermostat OFF

Remote controller sensor is enabled

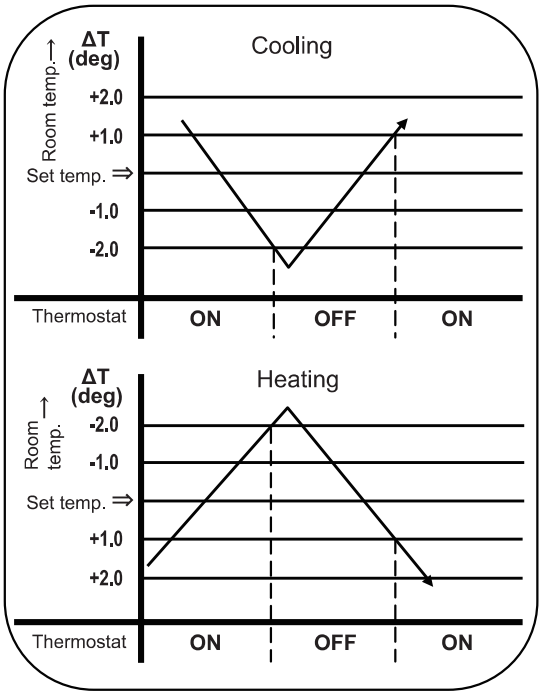
Set temp. in remote controller	28℃	28℃	28℃
Detected temp. by sensor	30.0℃	27.0℃	26.5℃
Detected temp. by body sensor	30.0℃	27.0℃	26.5℃
Detected temp. by remote controller sensor	30.0℃	27.0℃	26.5℃
Room temp. = temp. detected by remote controller sensor	30.0℃ =30.0	27.0℃ =27.0	26.5℃ =26.5
∆ T	+2.0deg	-1.0deg	-1.5deg
	Thermostat ON	Thermostat ON	Thermostat OFF

Remote controller sensor is enabled

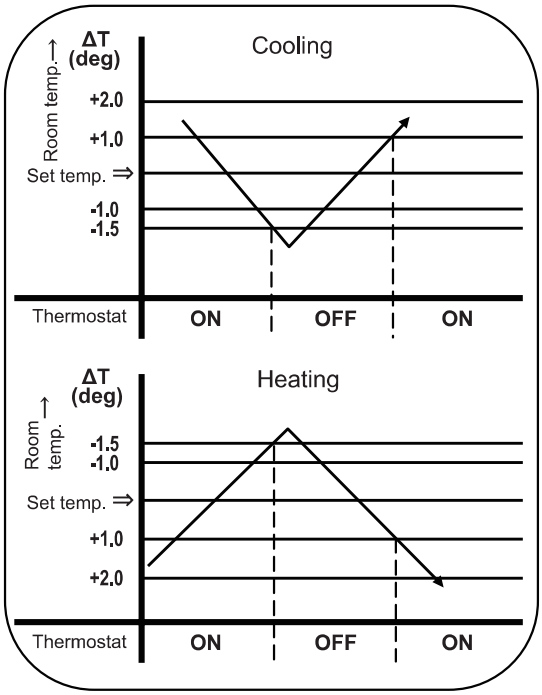
Set temp. in remote controller	20℃	20℃	20℃
Detected temp. by sensor	17.0℃	21.0℃	21.5℃
Detected temp. by body sensor	21.0℃	25.0℃	25.5℃
Detected temp. by remote controller sensor	17.0℃	21.0℃	21.5℃
Room temp. = temp. detected by remote controller sensor	17.0℃ =17.0	21.0℃ =21.0	21.5℃ =21.5
∆ T	+3.0deg	-1.0deg	-1.5deg
	Thermostat ON	Thermostat ON	Thermostat OFF

4

Body sensor is enabled



Remote sensor is enabled



(1) The thermostat does not turn ON 3 minutes after it turns OFF.

(2) The thermostat does not turn OFF for 60 minutes during the test run mode. (Forced thermostat ON)
*However, the thermostat turns OFF if an alarm occurs.

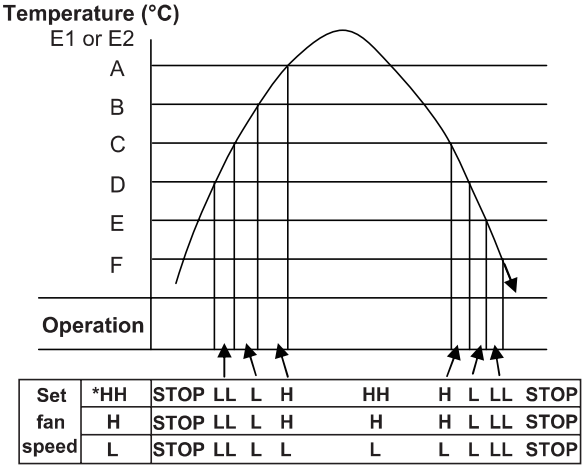
(3) The thermostat turns OFF when ∆T continues in thermostat OFF zone for 3 minutes.

4-2. Heating Standby

- In heating mode, the indoor fan speed decreases to prevent cold air discharge from the indoor unit. During this time, (heating standby) is displayed on the remote controller.
  (1) This condition occurs in the following cases.
  - Thermostat OFF
  - Defrosting operation
  - Indoor heat exchanger liquid temperature (E1 or E2) < X˚C just after heating operation started the fan speed may sometimes increase when this condition continues for 6 minutes.

Indoor unit type	U3	F3	K3	T3	Y3
X (˚C)	20	22	23	22	20

(2) The fan mode increases when the heat exchanger liquid temperature (E1 or E2) or discharge air temperature increases.
* The fan mode is selected based on E1 temperature and E2 temperature as shown in the below figure. If the E1 temperature and E2 temperature are different, the higher temperature is used.



Set fan speed											
	*HH	STOP	LL	L	H	HH	H	L	LL	STOP	
	H	STOP	LL	L	H	H	H	L	LL	STOP	
	L	STOP	LL	L	L	L	L	L	LL	STOP	

Indoor unit type	U3	F3	K3	T3	Y3
A	24	26	27	26	24
B	22	24	25	24	22
C	20	22	23	22	20
D	18	20	21	20	18
E	12	14	15	14	12
F	8	10	11	10	8

* The function of “HH” is identical to the automatic fan speed mode.

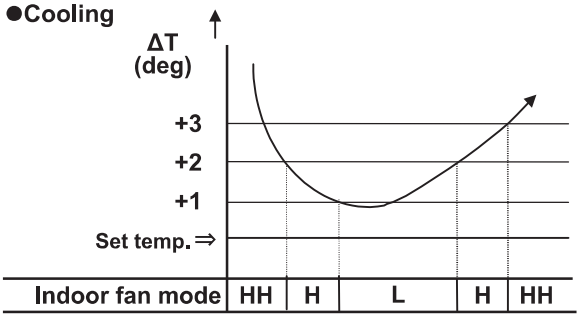
4-3. Automatic Fan Speed Control

(1) The indoor fan mode is controlled as shown below during the automatic fan mode.

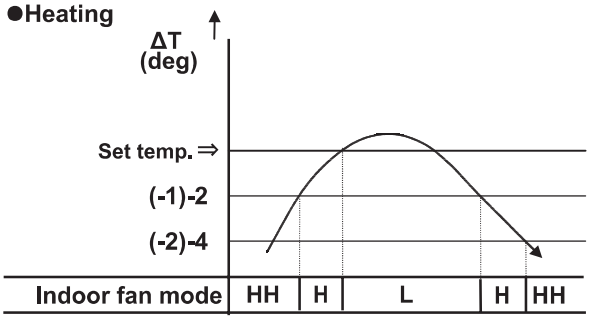
(2) The fan mode does not change for 3 minutes during cooling operation and 1 minute during heating operation once it is changed.

(3) The values in the parenthesis are when the remote controller sensor is enabled.

●Cooling



●Heating



4

4-4. Drain Pump Control

The drain pump operates in the following conditions.

(1) Cooling thermostat ON

(2) The float switch worked.

(3) The drain pump may often operate for a while when the cooling thermostat turns OFF or the indoor unit is stopped.

(4) The drain pump can be turned on when the cooling thermostat is OFF if the setting is made to prevent water collected in the drain pan for a long time. For details, see “7-3. Detailed Settings Function”.

(5) The indoor unit heat exchanger liquid temperature (E1 or E2) is less than 0˚C.

※ The drain pump operates for 20 minutes once it starts operating.

4-5. Automatic Heating/Cooling Control

(1) The operating mode is selected according to the set temperature and room temperature when the operation is started.
Room temperature ≥ set temperature in remote controller – 1˚C → Cooling mode
Room temperature < set temperature in remote controller – 1˚C → Heating mode

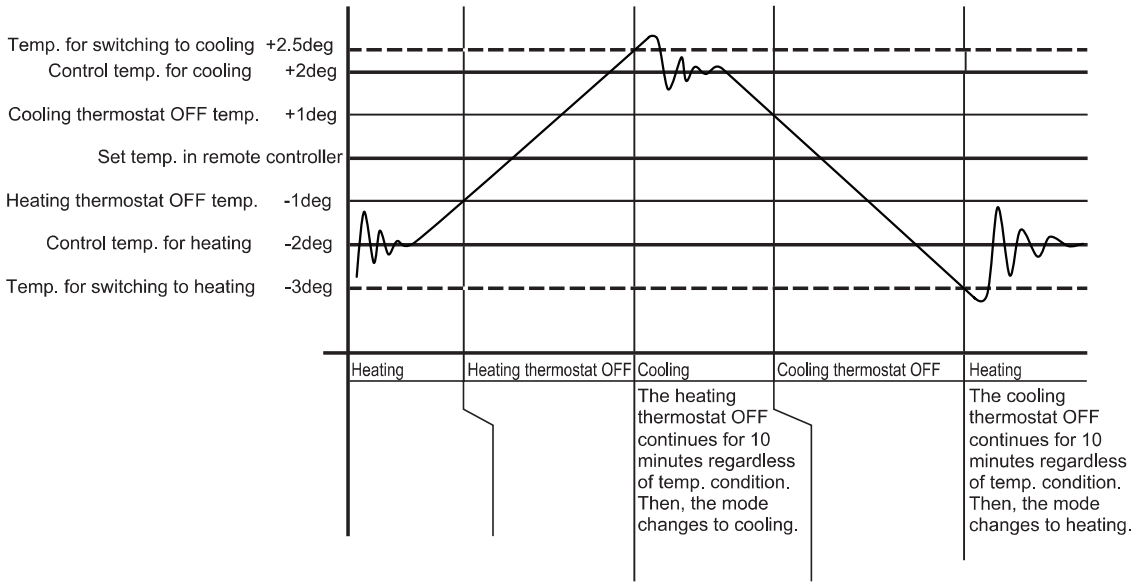
(2) The set temperature is corrected according to the operating mode. The correction temperature is +2 degrees in cooling mode and -2 degrees in heating mode at the time of factory shipment.
※ The correction value is different depending on the model. See "4-11. Parameter" for details.
Corrected cooling temperature – control temperature for cooling
Corrected heating temperature − control temperature for heating

When setting temperature in remote controller is 20˚C in the cooling mode (at shipment) :

Control temp. for cooling	22˚C
Set temp. in remote controller	20˚C
Control temp. for heating	18˚C

(3) Condition for mode change
Heating → Cooling: Room temperature ≥ Control temperature for cooling + 0.5 degree
Cooling → Heating: Room temperature ≤ Control temperature for heating -1.0 degree

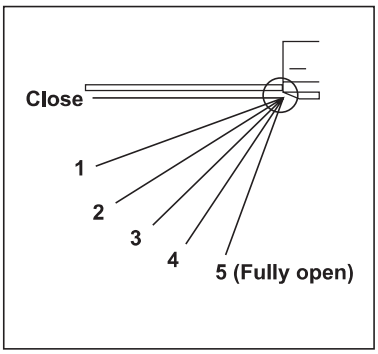
When setting temperature in remote controller is 20˚C in the cooling mode :



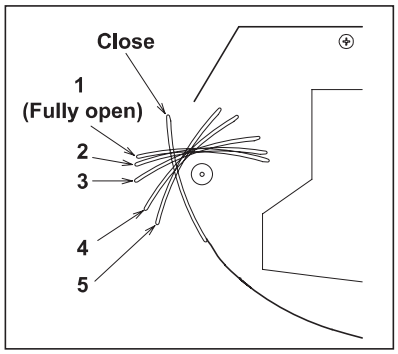
For settings at the time of factory shipment, see "4-11. Parameter".

4-6. Automatic Flap Control

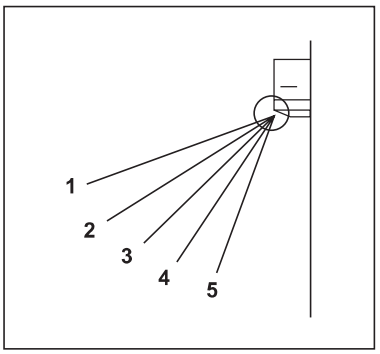
- The flap position can be selected from 5 positions.



4-Way Cassette Type
4-Way Cassette 60 × 60 Type



Ceiling Type



Wall Mounted Type

Operating mode	Flap position
Cooling/Dry	1 • 2 • 3 • 4* • 5*
Fan	1 • 2 • 3 • 4 • 5
Heating	1 • 2 • 3 • 4 • 5

* U3, Y3

(1) The flap will be closed automatically when the indoor unit is stopped.
Close: 4-Way Cassette Type, Wall Mounted Type, Ceiling Type, 4-Way Cassette 60 × 60 Type

(2) For 4-Way cassette type (U3) and 4-Way Cassette 60 × 60 Type (Y3), the flap closes once and moves to the set position when the operating mode is changed.

NOTE

Do not change the flap position manually.
- Only the swing operation can be used.
- The swing operation can be set for the flap.

4-7. Filter Sign

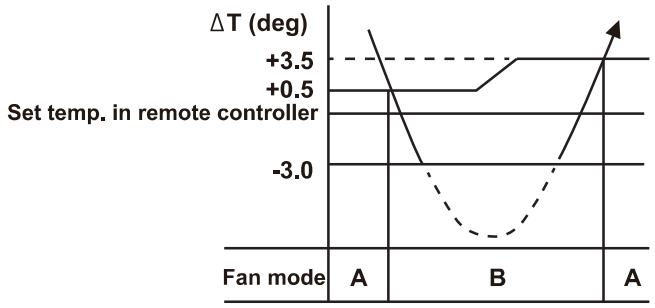
(1) When accumulated operating time of the indoor unit reaches the set time, the filter sign appears on the remote controller. Clean the filter.
See Item code 01~02 under “7-2. List of Simple Setting Items” and “Filter sign ON times for each model” under “7-5. Simple Setting Items”.

(2) After cleaning the filter, press the filter button on the remote controller once. The filter sign turns off.

4-8. Fan Control during Dry Mode

The fan control during dry mode is as follows.

4-8-1. U-25PZ3E5, U-36PZ3E5, U-50PZ3E5, U-60PZ3E5A, U-71PZ3E5A U-36PZH3E5, U-50PZH3E5, U-60PZH3E5



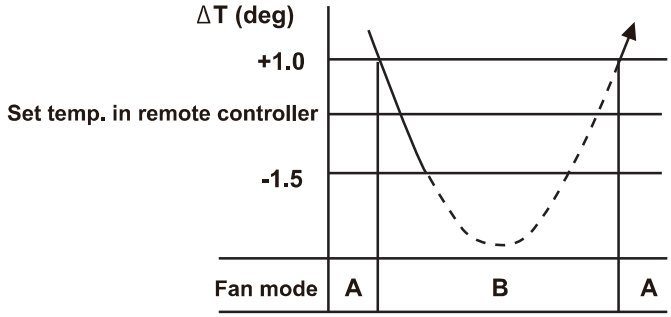
A:Fan mode is set in the remote controller

B:Fan mode is DRY-L during thermostat ON, LL during thermostat OFF

(L ≥ DRY-L ≥ LL)

4

4-8-2. U-100PZ3E5, U-125PZ3E5, U-140PZ3E5 U-100PZ3E8, U-125PZ3E8, U-140PZ3E8

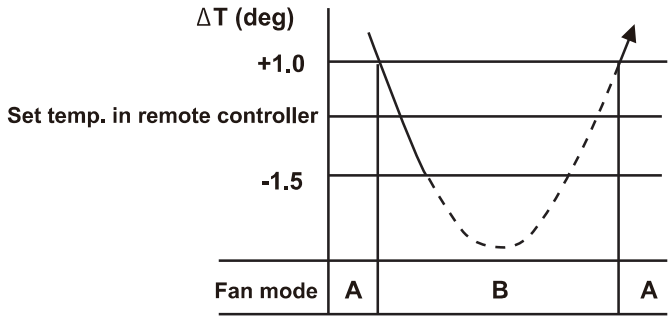


A:Fan mode is set in the remote controller

B:Fan mode is DRY-L during thermostat ON, LL during thermostat OFF

(L ≥ DRY-L ≥ LL)

4-8-3. U-71PZH3E5, U-100PZH3E5, U-125PZH3E5, U-140PZH3E5 U-71PZH3E8, U-100PZH3E8, U-125PZH3E8, U-140PZH3E8



A:Fan mode is set in the remote controller

B:Fan mode is DRY-L during thermostat ON, LL during thermostat OFF

(L ≥ DRY-L ≥ LL)

4-9. Ventilation Fan Output

- The output of ventilation turns ON when the indoor unit turns ON. Also, when the indoor unit turns OFF, the output of the ventilation turns OFF.
- The ventilation fan can also be turned ON and OFF using the ventilation button on the remote controller.

Refer to the operating instructions supplied with the remote controller.

To enable this function, set the indoor EEPROM DN31 to “0001” in advance.

4-10. T10 Terminal

Using the T10 terminal, each indoor unit can be operated or stopped separately. Also, operating condition can be checked.

4-11. Parameter

Type	Model	Indoor item code "06"	Indoor item code "1E"	Indoor item code "86"
		Correction temp. (heating)	Heat/cool switching correction temp. (automatic heat/cool)	Fan speed when cooling thermostat OFF
		Setting at time of factory shipment	Setting at time of factory shipment	Setting at time of factory shipment
U3	4-Way Cassette	4 deg	2 deg	LL
F3	Middle Static Pressure Duct	4 deg	2 deg	LL
K3	Wall Mounted	2 deg	2 deg	LL
T3	Ceiling	4 deg	2 deg	LL
Y3	4-Way Cassette 60 × 60	4 deg	2 deg	LL

The parameter may sometimes increase or decrease in accordance with the outdoor temperature, the use of indoor fan tap and operating mode.

4-12. Control Functions

4-12-1. U-25PZ3E5, U-36PZ3E5, U-50PZ3E5, U-60PZ3E5A, U-71PZ3E5A U-36PZH3E5, U-50PZH3E5, U-60PZH3E5

4-12-1-1. Compressor Frequency Control

The frequency of the compressor's inverter is limited by either of the following controls depending on whether the cooling or heating mode is in operation.

Cooling Mode :

- Indoor air temperature control
- Maximum and minimum frequency control
- Current release control
- Cooling high-load prevention control
- Cooling freeze prevention control
- Discharge temperature control

Heating Mode :

- Indoor air temperature control
- Maximum and minimum frequency control
- Current release control
- Heating high-load prevention control
- Discharge temperature control

1) Maximum and Minimum Frequency Control

The compressor's inverter frequency is controlled in accordance with the model and operation mode.
The maximum and minimum frequencies for each model are shown in the table below.

* There are cases in which frequency is limited with other control functions depending on operational conditions, so operations are not always carried out in accordance with the maximum frequencies listed below.

· Maximum and Minimum Frequency

Type			PZ3					PZH3		
Model name (U-)			25PZ3E5	36PZ3E5	50PZ3E5	60PZ3E5A	71PZ3E5A	36PZH3E5	50PZH3E5	60PZH3E5
Indoor	Maximum Frequency (Hz)	Cooling	65	65	73	97	64	52	88	97
		Heating	80	80	90	110	70	90	102	115
Outdoor	Minimum Frequency (Hz)	Cooling	20	20	15	15	16	15	15	15
		Heating	20	20	15	15	16	15	15	15

* There is a case in which the frequency set at maximum and minimum may sometimes decrease in accordance with ambient temperature and indoor loads.

2) Current Release Control

The inverter frequency is controlled so that the current value for the inverter compressor is less than the figure listed in the table below in order to prevent abnormal increases in the inverter circuit included in the electrical component box of the outdoor unit.

Current release control with primary current : The limited values are modified in accordance with ambient temperature.

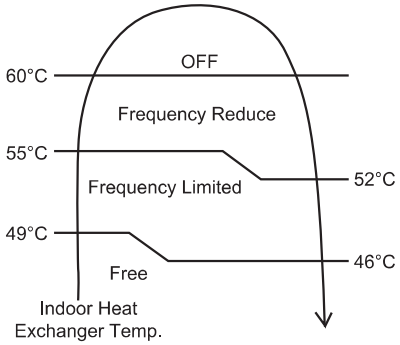
Type			PZ3					PZH3		
Model name (U-)			25PZ3E5	36PZ3E5	50PZ3E5	60PZ3E5A	71PZ3E5A	36PZH3E5	50PZH3E5	60PZH3E5
Outdoor	Is (A)	Cooling	7.86	7.86	8.87	11.22	13.49	5.88	10.05	11.22
		Heating	8.01	8.01	9.59	10.59	11.22	6.97	9.78	10.59

3) Cooling Overload Control

- Detects the outdoor pipe temperature and carry out below restriction/limitation (Limit the compressor operation frequency).
- The compressor stop if outdoor pipe temperature exceeds 60°C.

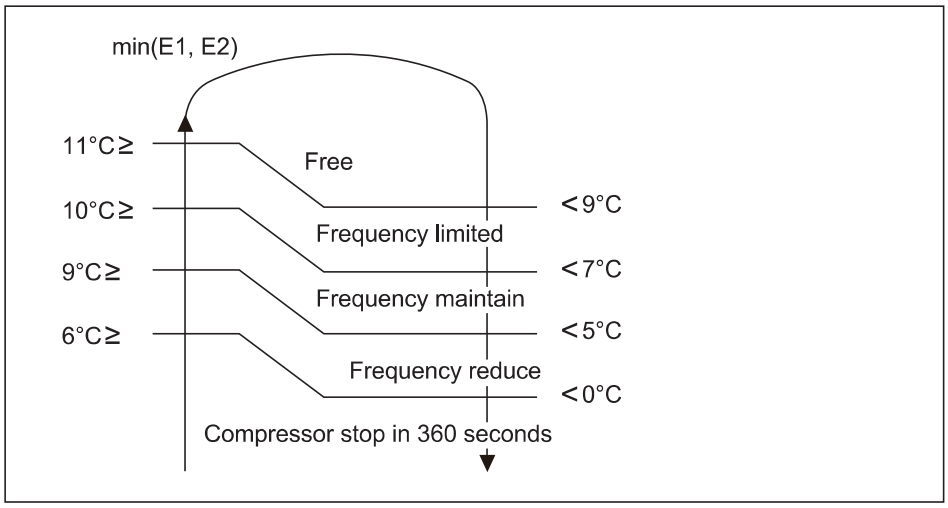
4) Heating Overload Control

- The compressor operating frequency is regulated in accordance to indoor heat exchanger temperature as shown below.
- If the heat exchanger temperature exceeds 60°C, compressor will stop.



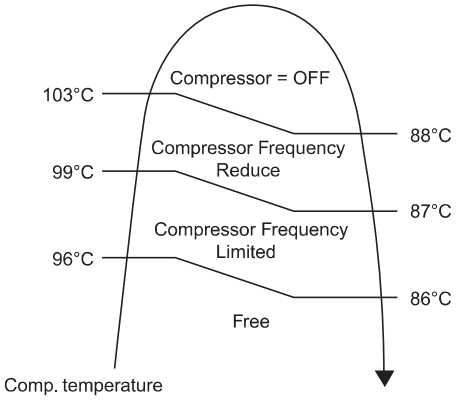
5) Cooling Freeze Prevention Control

The following control is performed during cooling operations (including dry mode operation), in accordance with whichever of the indoor heat exchanger temperatures (E1 or E2) is lower. (See the chart below.)
(a) Frequency will not be decreased less than 5.5 minutes after thermostat ON.
(b) The threshold value is increased in accordance with the indoor load (differences of temperature).



6) Compressor Overheating Prevention Control

- Instructed frequency for compressor operation will be regulated by compressor temperature. The changes of frequency are as below.
- If compressor temperature exceeds 103°C, compressor will be stopped.

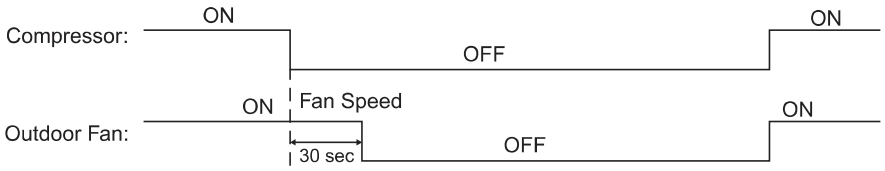


4-12-1-2. Deice Operation

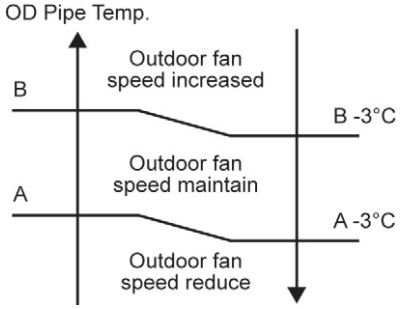
When outdoor pipe temperature and outdoor air temperature is low, deice operation start where indoor fan motor and outdoor fan motor stop.

4-12-1-3. Outdoor Fan Motor Operation

Outdoor fan motor is operated with various fan speeds with compressor RPM. It starts when compressor starts operation and it stops 30 seconds after compressor stops operation.

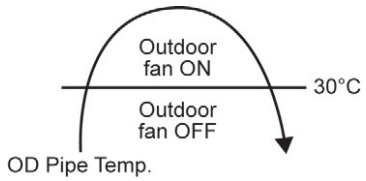


- During cooling operation, and outdoor ambient temperature is below 8°C, outdoor fan speed will be controlled according to outdoor piping temperature as following:



	OD Pipe Temperature
A	26°C
B	33°C

- During above condition, when indoor heat exchanger temperature is below 5°C, the outdoor fan will stop according to outdoor piping temperature as following:



4-13. Indoor Unit Control PCB Switches and Functions

[Indoor unit control PCB]

T10 (CN061): **6P plug (YEL)** / Used for remote control operation. (See the Remote Control Section.)

Control items: (1) Start/stop input (2) Remote controller prohibit input
(3) Start signal output (4) Alarm signal output

EXCT (CN073): **2P plug (RED)** / Can be used for demand control. When input is present, forces the unit to operate with the thermostat OFF.

DISP (CN062): **6P plug (BLK)** 2-5pin / Short-circuiting this pin 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 (CN062): **6P plug (BLK)** 1-4pin / 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 pin can be used for short-term tests.

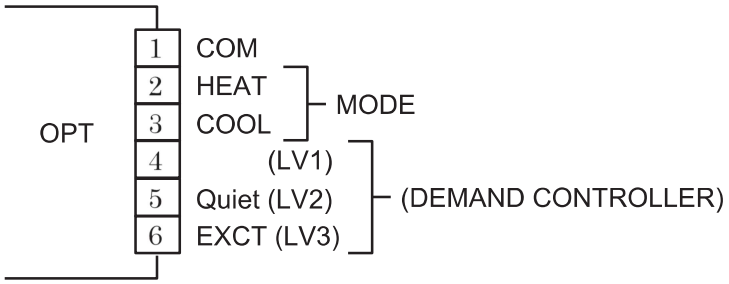
JP1 (JP001): **Jumper wire** / Allows selection of the T10 terminal start/stop signal. (See the Remote Control Section.)
Setting at time of shipment: Pulse signal
Jumper wire cut: Static signal (continuous signal)

FAN DRIVE (CN032): **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. (See the Remote Control Section.)
Use a ventilation fan which can accept the no-voltage contact A signal as the external input signal.

POWER LED: **LED (RED)** / Illuminates when the power is ON. Flashes when there is trouble with the EEPROM (IC010: nonvolatile memory).

EEPROM (IC010): **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, see the servicing technical materials.)

OPT(CN601): **Used for 6P plug (RED)** / MODE, DEMAND control.
1 pin: For COM setting, 2-3 pin: For MODE setting, 4-6 pin: For DEMAND / Quiet, EXCT setting



Indoor unit control PCB

* When using these functions, use the lead wires described below.
Lead wire with 6P socket (Service parts: Parts code / ACPA60C7898)
Check the delivery date in advance because of BTO (build-to- order manufacturing).

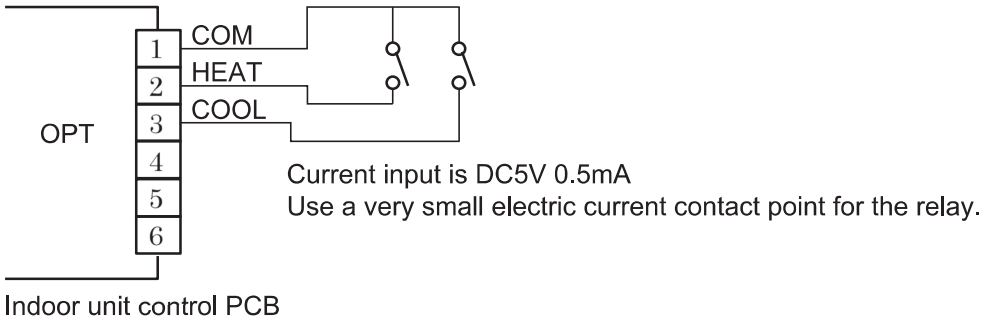
NOTE:

- Wire length between the indoor control PCB and the electrical contact should be less than 2 m.
- Nonuse lead wires should be insulated.

1. MODE / Indoor Unit Cooling and Heating mode select pin
1-2 pin short circuit: Heating mode, 1-3 pin short circuit: Cooling mode

- When the heating side is shorted in cooling mode, it changes to heating mode. When the cooling side is shorted in heating mode, it changes to cooling mode.

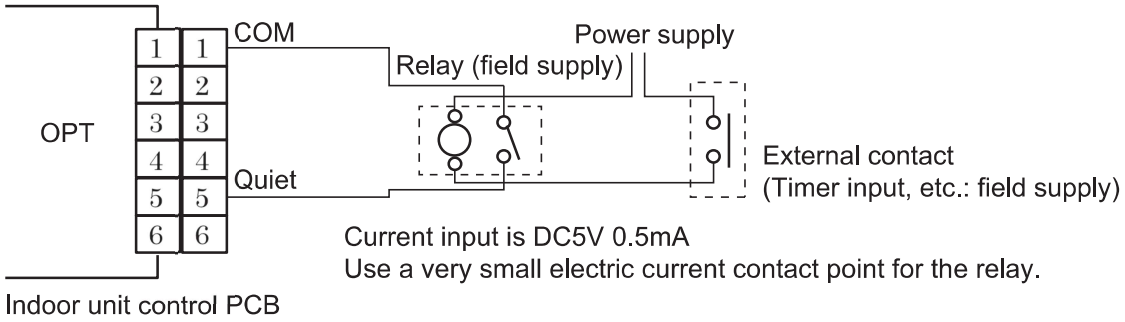
● **Wiring example**



2. Quiet / Low noise mode operation is available.

- Operating with limited outdoor fan and compressor frequencies.
- When the relay is switched ON, low noise operation is performed. (Non-voltage contact “a”)

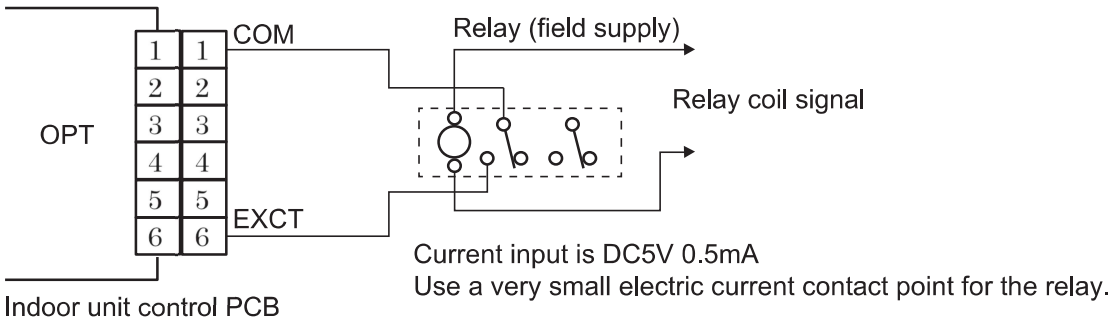
● **Wiring example**



3. EXCT / DEMAND control available

- When input, the thermos is forcibly switched OFF.

● **Wiring example**



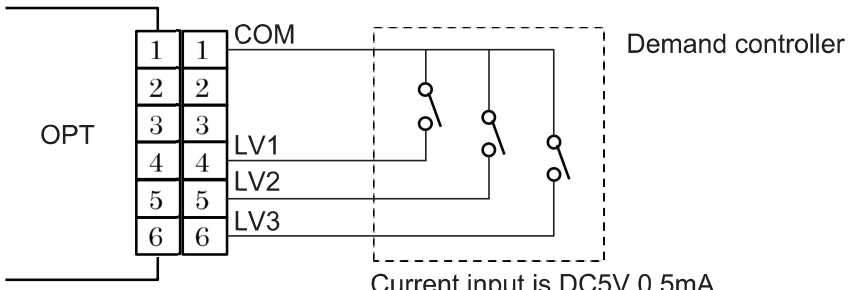
4. LV1, LV2, LV3 / Use this terminal for demand control.

- When using the demand function, use the CZ-RTC6 series remote controller for setting.
- The below table shows the operating range.
  Select the operating range. See the following table.

pin no. for demand section	Operating range
LV1	Approx. 75% of rated current
LV2	Approx. 50% of rated current
LV3	Stop

● **Wiring example**

Connect the wires. See the below diagram and above table.



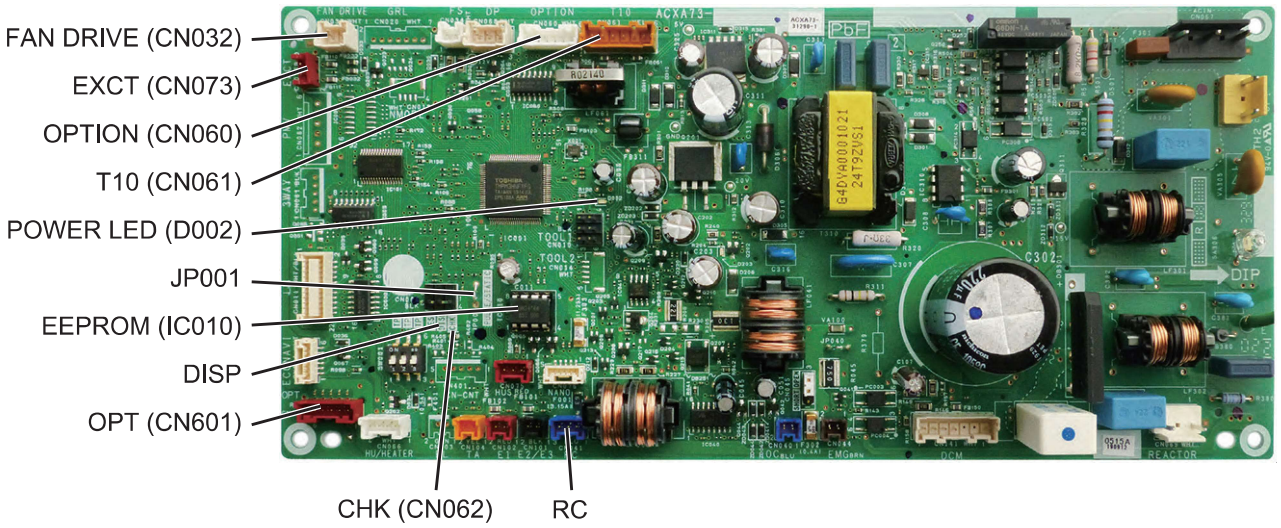
Indoor unit control PCB

Current input is DC5V 0.5mA
Use a very small electric current contact point for the relay.

4

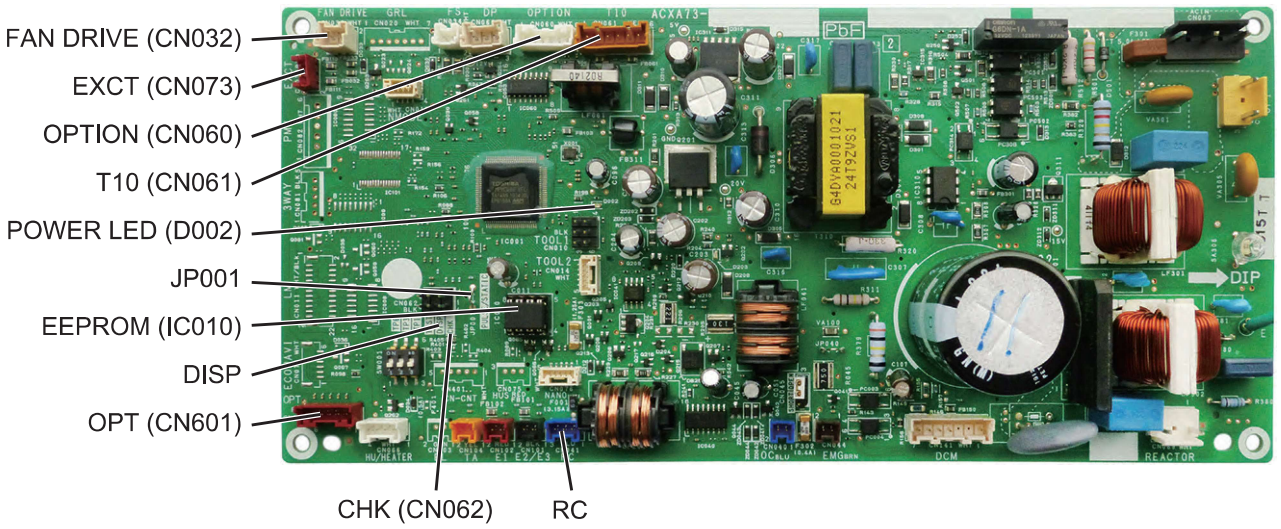
4-Way Cassette Type

■ Indoor Unit Control Board : ACXA73-3129* (S-3650PU3E, S-6071PU3E, S-1014PU3E)



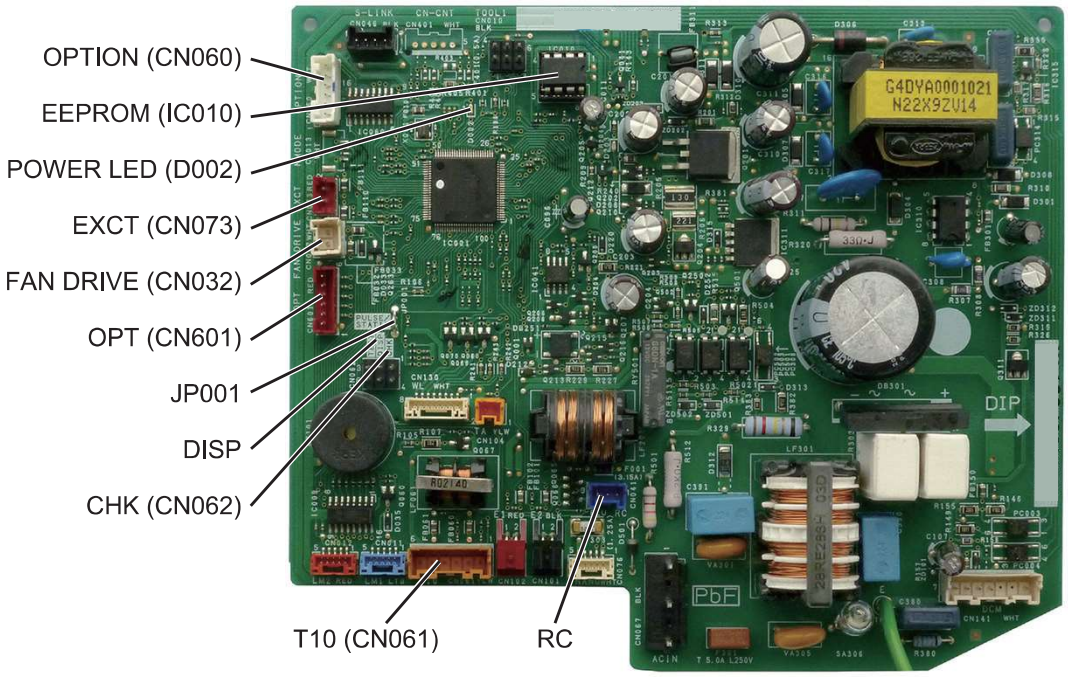
Middle Static Pressure Duct Type

■ Indoor Unit Control Board : ACXA73-3440* (S-3650PF3E, S-6071PF3E, S-1014PF3E)



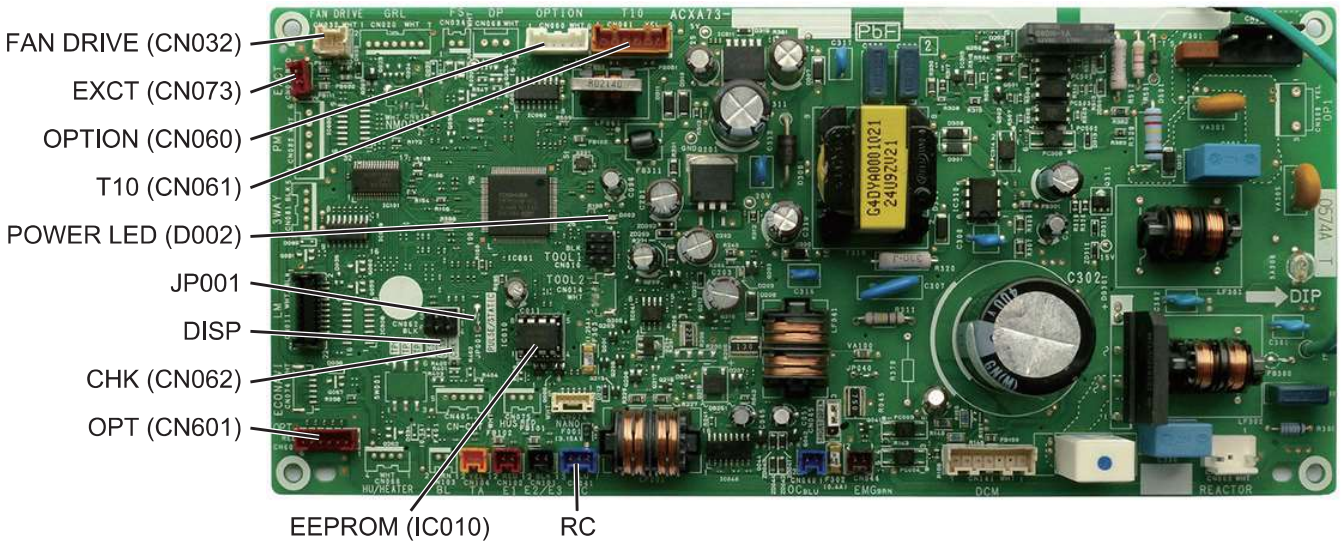
Wall Mounted Type

■ Indoor Unit Control Board : ACXA73-3671* (S-3650PK3E, S-6010PK3E)



Ceiling Type

■ Indoor Unit Control Board : ACXA73-3611* (S-3650PT3E, S-6071PT3E, S-1014PT3E)



4-Way Cassette 60 × 60 Type

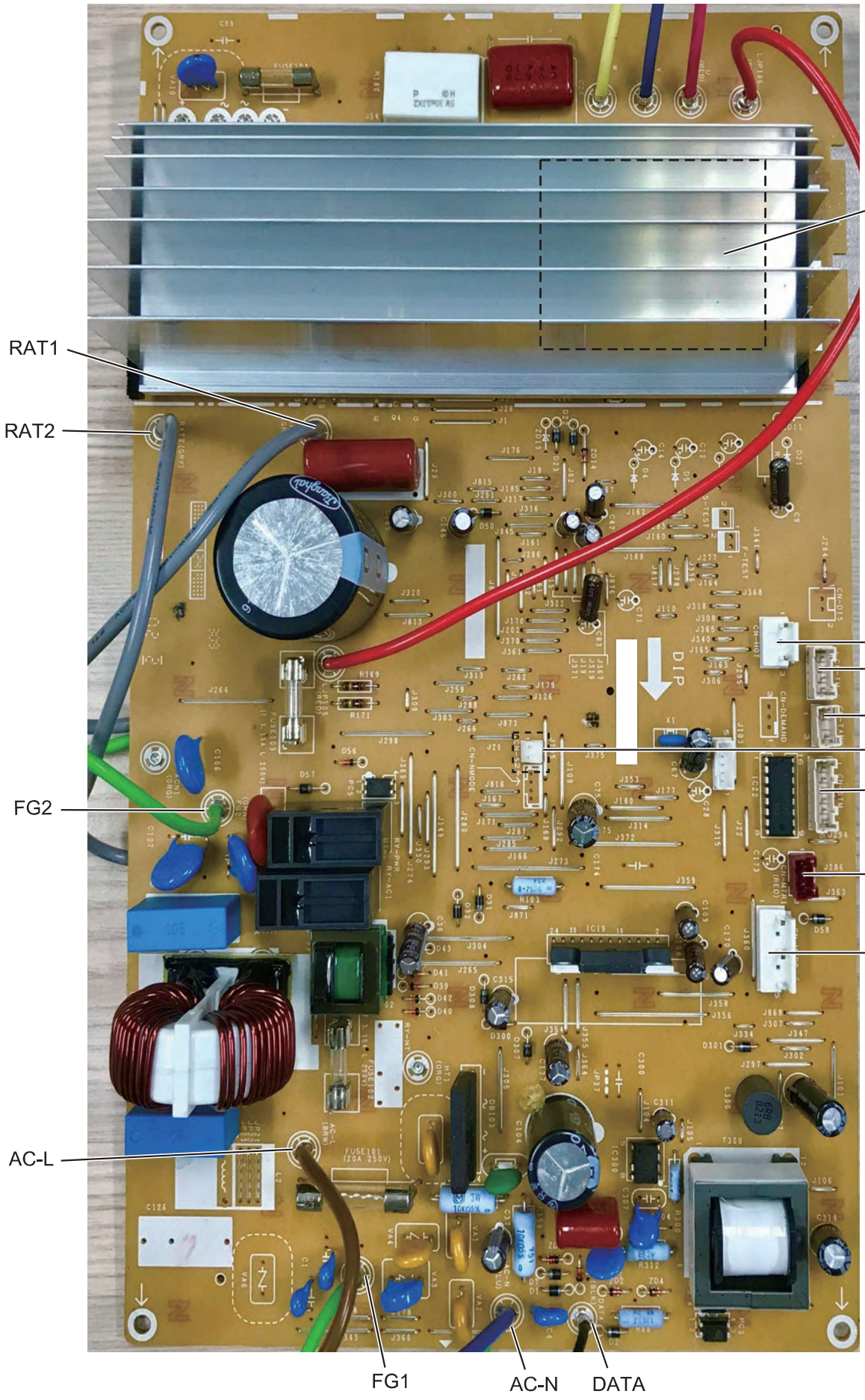
■ Indoor Unit Control Board : ACXA73-3565* (S-25PY3E, S-36PY3E, S-50PY3E, S-60PY3E)

4-14. Outdoor Unit Control PCB

4-14-1. U-25PZ3E5, U-36PZ3E5, U-50PZ3E5, U-60PZ3E5A, U-71PZ3E5A

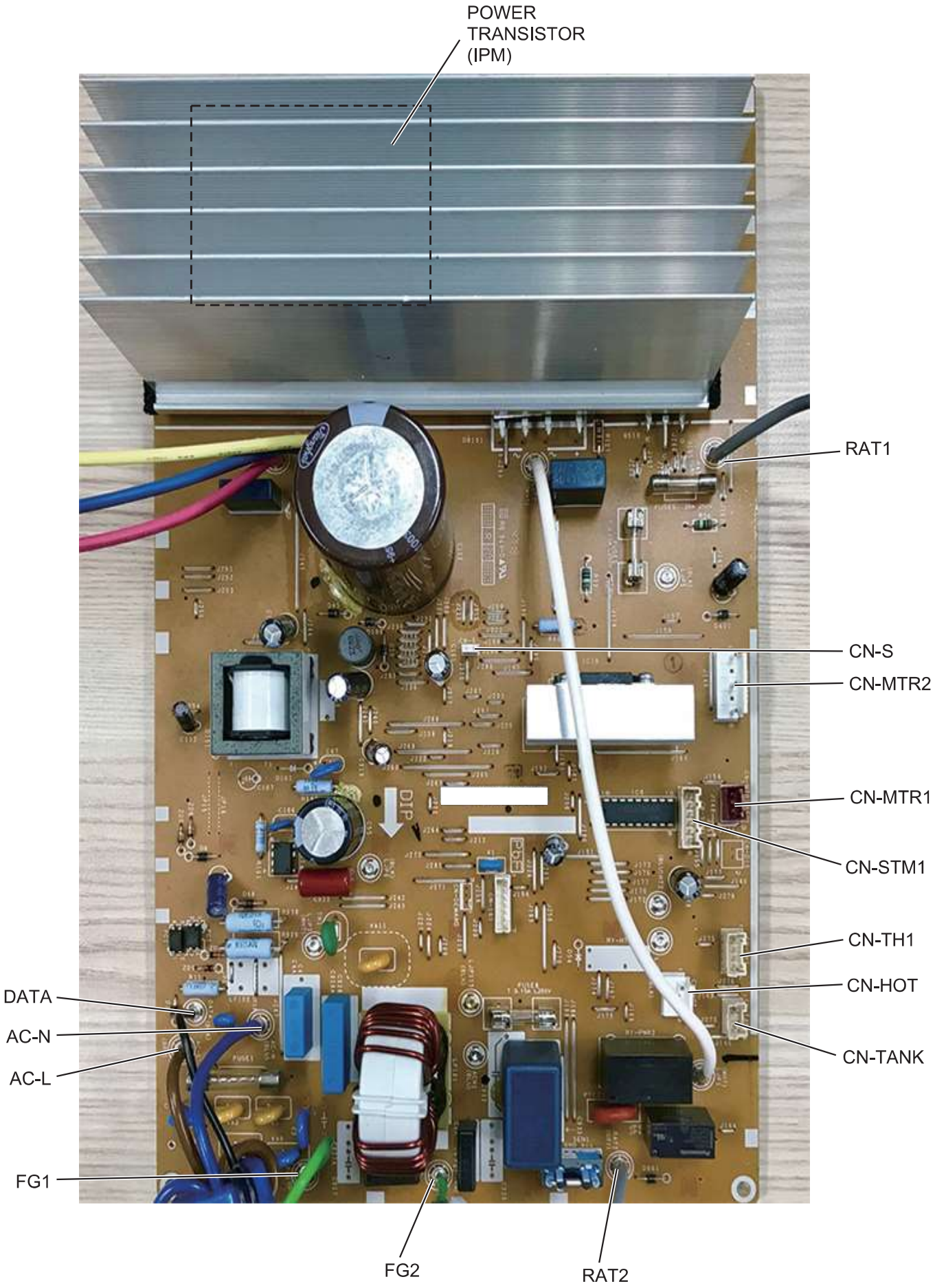
U-25PZ3E5, U-36PZ3E5

■ **CR-PCB : ACXA73-3379***



U-50PZ3E5, U-60PZ3E5A, U-71PZ3E5A

■ **CR-PCB : ACXA73-3380***



4-15. Self-Diagnostics Function Table

4-15-1. U-25PZ3E5, U-36PZ3E5, U-50PZ3E5, U-60PZ3E5A, U-71PZ3E5A U-36PZH3E5, U-50PZH3E5, U-60PZH3E5

• Causes and corrections in instances when auto address setting cannot be started.

Trouble	Cause and correction
An alarm appears immediately when auto address setting is started from the remote controller.	Check the "Alarm Displays" table and correct the problem.
Nothing happens when the operator attempts to start auto address setting from the remote controller.	Check that the remote controller wiring and the connection cable between outdoor and indoor unit are connected correctly. Check that the indoor unit power is ON.

• Causes and corrections in instances when auto address setting starts, but cannot be completed successfully.

Trouble	Cause and correction
An alarm appears on the remote controller sometime from several seconds to several minutes after auto address setting is started.	Check the "Alarm Displays" table and correct the problem.

4

• If alarm E15 or E16 appears after auto address setting is started, check the following items.

Alarm display	Alarm description
E15	The total capacity of indoor units is too lower than that of outdoor unit.
E16	The total capacity of indoor units is too higher than that of outdoor unit. The number of indoor units is too many.

Check items	E15	E16
Check that the indoor unit power is turned ON.	○	
Check that the connection cable between outdoor and indoor unit is connected correctly. (Check that there are no open circuits, short circuits, terminal plugs, incorrect wiring to the remote controller terminals, or similar problems.)	○	○
Check that the remote controller wiring is connected correctly. (Check that there are no open circuits, short circuits, incorrect wiring to the connection cable between outdoor and indoor unit terminals, control wiring for group control, or similar problems.)	○	
[U3, F3, K3, T3] Check that there are no indoor units where the item code 11, 12, 13, 14 was already incorrectly set by manual or auto address setting.	○	○

- When auto address setting is started from the remote controller, SETTING (SETTING) appears on the remote controller at units where the connection cable between outdoor and indoor unit and remote controller wiring are connected correctly.
- In the case of indoor unit group control, if there is a mistake in the remote controller connection cable between outdoor and indoor unit for group control, addresses may not be set even if SETTING (SETTING) appears.
- Even if alarm E15 or E16 appears, addresses are set at those indoor units which could be verified. The set addresses can be checked using the remote controller.

4

- If one of the below alarms appears when the remote controller is operated after auto address setting was completed.

Remote controller display	Cause
Nothing is displayed.	The remote controller is not connected correctly (power trouble). The indoor unit power was cut off after auto address setting was completed.
E01	The remote controller is not connected correctly (remote controller receiving trouble). The remote controller of an indoor unit where the indoor unit address is not set is inadvertently operated. (Communications with the outdoor unit are not possible.)
E02	The remote controller is not connected correctly (trouble with sending of the signal from the remote controller to the indoor unit).
P09	The indoor unit ceiling panel connector is not connected correctly.

Alarms for indoor units

Alarm Code	Alarm Meaning
E01	Remote Controller Reception Error
E02	Remote Controller Transmission Error
E03	Error in Indoor Unit Receiving Signal from Remote Controller (central)
E04	Error in Indoor Unit Receiving Signal from the Outdoor Unit
E08	Duplicate Indoor Unit Address Settings Error
E09	More Than One Remote Controller Set to Main Error
E14	Main Unit duplication in Simultaneous-operation Multi Control (detected outdoor unit)
E15	Auto Address Alarm (The total capacity of indoor units is too low.)
E16	Auto Address Alarm (The total capacity of indoor units is too high or the total number of indoor units is too many.)
E18	Faulty Communication in Group Control Wiring

P09	Faulty wiring connections of (ceiling) indoor unit panel
P31	Group Control Error

Alarms for outdoor units

Alarm Code	Alarm Meaning
E04	Error in Indoor Unit Receiving Signal from the Outdoor Unit
F04	Compressor Discharge Temperature Sensor (TD) Trouble
F06	Inlet Temperature Sensor (C1) in Heat Exchanger Trouble
F08	Outdoor Air Temperature Sensor (TO) Trouble
H01	Primary (input) Overcurrent Detected
H02	PAM Trouble
H03	Primary Current CT Sensor (current sensor) Failure
L18	4-Way Valve Operation Failure
P03	Compressor Discharge Temperature Trouble
P04	High Pressure Trouble
P05	AC Power Supply Trouble
P07	HIC (IPM) Temperature Trouble
P13	Alarm Valve Open
P15	Insufficient Gas Level Detected
P16	Compressor Overcurrent Trouble
P22	Outdoor Unit Fan Motor Trouble
P29	Lack of INV compressor wiring, INV compressor actuation failure (including locked), DCCT failure

4-15-2. U-100PZ3E5, U-125PZ3E5, U-140PZ3E5
U-100PZ3E8, U-125PZ3E8, U-140PZ3E8

• Causes and corrections in instances when auto address setting cannot be started.

Trouble	Cause and correction
The power LED on the outdoor unit control PCB does not turn ON.	Check for any errors in the power wiring to the outdoor unit, and check for a missing phase.
LED 1 and 2 on the outdoor unit control PCB do not turn OFF when the outdoor unit power is turned ON, and auto address setting cannot be started.	Check the "Alarm Displays" table and correct the problem.
An alarm appears immediately when auto address setting is started from the remote controller.	
Nothing happens when the operator attempts to start auto address setting from the remote controller.	Check that the remote controller wiring and the connection cable between outdoor and indoor unit are connected correctly. Check that the indoor unit power is ON.

4

• Causes and corrections in instances when auto address setting starts, but cannot be completed successfully.

Trouble	Cause and correction
An alarm appears on the remote controller sometime from several seconds to several minutes after auto address setting is started.	Check the "Alarm Displays" table and correct the problem.
LED 1 and 2 on the outdoor unit control PCB indicate that auto address setting is in progress (the LEDs blink alternately) for several minutes after auto address setting is started (the compressors may also start and stop several times), however, LED 1 and 2 never indicate that auto address setting is completed (turn OFF).	Check the alarm details on the "Outdoor Unit Control PCB LED 1 and 2 Alarms" table, then check the "Alarm Displays" table and correct the problem.

• If alarm E15, E16, or E20 appears after auto address setting is started, check the following items.

Alarm display	Alarm description
E15	The total capacity of indoor units is too lower than that of outdoor unit.
E16	The total capacity of indoor units is too higher than that of outdoor unit. The number of indoor units is too many.
E20	The outdoor unit received no serial signals from indoor units within 90 seconds after auto address setting was started.

Check items	E15	E16	E20
Check that the indoor unit power is turned ON.	○		○
Check that the connection cable between outdoor and indoor unit is connected correctly. (Check that there are no open circuits, short circuits, terminal plugs, incorrect wiring to the remote controller terminals, or similar problems.)	○	○	○
Check that the remote controller wiring is connected correctly. (Check that there are no open circuits, short circuits, incorrect wiring to the connection cable between outdoor and indoor unit terminals, control wiring for group control, or similar problems.)	○		○
[U3, F3, K3, T3] Check that there are no indoor units where the item code 11, 12, 13, 14 was already incorrectly set by manual or auto address setting.	○	○	

- When auto address setting is started from the outdoor unit control PCB or from the remote controller, SETTING (SETTING) appears on the remote controller at units where the connection cable between outdoor and indoor unit and remote controller wiring are connected correctly. LED 1 and 2 on the outdoor unit control PCB blink alternately.
- In the case of indoor unit group control, if there is a mistake in the remote controller connection cable between outdoor and indoor unit for group control, addresses may not be set even if SETTING (SETTING) appears.
- Even if alarm E15 or E16 appears, addresses are set at those indoor units which could be verified. The set addresses can be checked using the remote controller.

4

- If one of the below alarms appears when the remote controller is operated after auto address setting was completed (LED 1 and 2 on the outdoor unit control PCB are turned OFF), follow the instructions in the table below and correct the problem location.

Remote controller display	Cause
Nothing is displayed.	The remote controller is not connected correctly (power trouble). The indoor unit power was cut off after auto address setting was completed.
E01	The remote controller is not connected correctly (remote controller receiving trouble). The remote controller of an indoor unit where the indoor unit address is not set is inadvertently operated. (Communications with the outdoor unit are not possible.)
E02	The remote controller is not connected correctly (trouble with sending of the signal from the remote controller to the indoor unit).
P09	The indoor unit ceiling panel connector is not connected correctly.

Alarms for indoor units

Alarm Code	Alarm Meaning
E01	Remote Controller Reception Error
E02	Remote Controller Transmission Error
E03	Error in Indoor Unit Receiving Signal from Remote Controller (central)
E04	Error in Indoor Unit Receiving Signal from the Outdoor Unit
E08	Duplicate Indoor Unit Address Settings Error
E09	More Than One Remote Controller Set to Main Error
E14	Main Unit duplication in Simultaneous-operation Multi Control (detected outdoor unit)
E15	Auto Address Alarm (The total capacity of indoor units is too low.)
E16	Auto Address Alarm (The total capacity of indoor units is too high or the total number of indoor units is too many.)
E18	Faulty Communication in Group Control Wiring

P09	Faulty wiring connections of (ceiling) indoor unit panel
P31	Group Control Error

Alarms for outdoor units

Alarm Code	Alarm Meaning
E04	Error in Indoor Unit Receiving Signal from the Outdoor Unit
E06	Outdoor Unit Failed to Receive Serial Communication Signals from Indoor Unit
E15	Auto Address Alarm (The total capacity of indoor units is too low.)
E16	Auto Address Alarm (The total capacity of indoor units is too high or the total number of indoor units is too many.)
E20	Connection Problem of Indoor / Outdoor Units

F04	Compressor Discharge Temperature Sensor (TD) Trouble
F06	Inlet Temperature Sensor (C1) in Heat Exchanger Trouble
F07	Intermediate Temperature Sensor (C2) in Heat Exchanger Trouble
F08	Outdoor Air Temperature Sensor (TO) Trouble
F12	Compressor Inlet Suction Temperature Sensor (TS) Trouble
F31	Outdoor Unit Nonvolatile Memory (EEPROM) Trouble

H01	Primary (input) Overcurrent Detected
H02	PAM Trouble
H03	Primary Current CT Sensor (current sensor) Failure
H31	HIC Trouble

L10	Outdoor Unit Capacity not Set or Invalid
L13	Indoor Unit Type Setting Error
L18	4-Way Valve Operation Failure

P03	Compressor Discharge Temperature Trouble
P04	High Pressure Trouble
P05	AC Power Supply Trouble
P13	Alarm Valve Open
P15	Insufficient Gas Level Detected
P16	Compressor Overcurrent Trouble
P22	Outdoor Unit Fan Motor Trouble
P29	Lack of INV compressor wiring, INV compressor actuation failure (including locked), DCCT failure
P31	Group Control Error

- The number of times that LED 1 and 2 blink on the outdoor unit control PCB can be used to check the alarm display. (See "Checking the LED 1 and 2 Alarm Display on the Outdoor Unit Control PCB".)

Contents of LED Display on the Outdoor Unit Control PCB (CR)

		LED1	LED2	Remark
Normal operation				
Pre-trip (High pressure protection)		○		LED1 Blinking : 0.8sec-ON / 0.3sec-OFF
Pre-trip (other)		○		LED1 Blinking : 0.5sec-ON / 0.5sec-OFF
Alternate blinking of outdoor unit LED during alarms	LED1 blinks M times, and then LED2 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 Example: LED1 blinks 4 times, then LED2 blinks 6 times. The cycle then repeats. Alarm is “E06”			
Refrigerant recovery mode		○	●	

○ : Blinking ● : ON

4-15-3. U-71PZH3E5, U-100PZH3E5, U-125PZH3E5, U-140PZH3E5
U-71PZH3E8, U-100PZH3E8, U-125PZH3E8, U-140PZH3E8

• Causes and corrections in instances when auto address setting cannot be started.

Trouble	Cause and correction
The power LED on the outdoor unit control PCB does not turn ON.	Check for any errors in the power wiring to the outdoor unit, and check for a missing phase.
LED 1 and 2 on the outdoor unit control PCB do not turn OFF when the outdoor unit power is turned ON, and auto address setting cannot be started.	Check the "Alarm Displays" table and correct the problem.
An alarm appears immediately when auto address setting is started from the remote controller.	
Nothing happens when the operator attempts to start auto address setting from the remote controller.	Check that the remote controller wiring and the connection cable between outdoor and indoor unit are connected correctly. Check that the indoor unit power is ON.

4

• Causes and corrections in instances when auto address setting starts, but cannot be completed successfully.

Trouble	Cause and correction
An alarm appears on the remote controller sometime from several seconds to several minutes after auto address setting is started.	Check the "Alarm Displays" table and correct the problem.
LED 1 and 2 on the outdoor unit control PCB indicate that auto address setting is in progress (the LEDs blink alternately) for several minutes after auto address setting is started (the compressors may also start and stop several times), however, LED 1 and 2 never indicate that auto address setting is completed (turn OFF).	Check the alarm details on the "Outdoor Unit Control PCB LED 1 and 2 Alarms" table, then check the "Alarm Displays" table and correct the problem.

• If alarm E15, E16, or E20 appears after auto address setting is started, check the following items.

Alarm display	Alarm description
E15	The total capacity of indoor units is too lower than that of outdoor unit.
E16	The total capacity of indoor units is too higher than that of outdoor unit. The number of indoor units is too many.
E20	The outdoor unit received no serial signals from indoor units within 90 seconds after auto address setting was started.

Check items	E15	E16	E20
Check that the indoor unit power is turned ON.	○		○
Check that the connection cable between outdoor and indoor unit is connected correctly. (Check that there are no open circuits, short circuits, terminal plugs, incorrect wiring to the remote controller terminals, or similar problems.)	○	○	○
Check that the remote controller wiring is connected correctly. (Check that there are no open circuits, short circuits, incorrect wiring to the connection cable between outdoor and indoor unit terminals, control wiring for group control, or similar problems.)	○		○
[U3, F3, K3, T3] Check that there are no indoor units where the item code 11, 12, 13, 14 was already incorrectly set by manual or auto address setting.	○	○	

- When auto address setting is started from the outdoor unit control PCB or from the remote controller, SETTING (SETTING) appears on the remote controller at units where the connection cable between outdoor and indoor unit and remote controller wiring are connected correctly. LED 1 and 2 on the outdoor unit control PCB blink alternately.
- In the case of indoor unit group control, if there is a mistake in the remote controller connection cable between outdoor and indoor unit for group control, addresses may not be set even if SETTING (SETTING) appears.
- Even if alarm E15 or E16 appears, addresses are set at those indoor units which could be verified. The set addresses can be checked using the remote controller.

4

- If one of the below alarms appears when the remote controller is operated after auto address setting was completed (LED 1 and 2 on the outdoor unit control PCB are turned OFF), follow the instructions in the table below and correct the problem location.

Remote controller display	Cause
Nothing is displayed.	The remote controller is not connected correctly (power trouble). The indoor unit power was cut off after auto address setting was completed.
E01	The remote controller is not connected correctly (remote controller receiving trouble). The remote controller of an indoor unit where the indoor unit address is not set is inadvertently operated. (Communications with the outdoor unit are not possible.)
E02	The remote controller is not connected correctly (trouble with sending of the signal from the remote controller to the indoor unit).
P09	The indoor unit ceiling panel connector is not connected correctly.

Alarms for indoor units

Alarm Code	Alarm Meaning
E01	Remote Controller Reception Error
E02	Remote Controller Transmission Error
E03	Error in Indoor Unit Receiving Signal from Remote Controller (central)
E04	Error in Indoor Unit Receiving Signal from the Outdoor Unit
E08	Duplicate Indoor Unit Address Settings Error
E09	More Than One Remote Controller Set to Main Error
E14	Main Unit duplication in Simultaneous-operation Multi Control (detected outdoor unit)
E15	Auto Address Alarm (The total capacity of indoor units is too low.)
E16	Auto Address Alarm (The total capacity of indoor units is too high or the total number of indoor units is too many.)
E18	Faulty Communication in Group Control Wiring
P09	Faulty wiring connections of (ceiling) indoor unit panel
P31	Group Control Error

Alarms for outdoor units

Alarm Code	Alarm Meaning
E04	Error in Indoor Unit Receiving Signal from the Outdoor Unit
E06	Outdoor Unit Failed to Receive Serial Communication Signals from Indoor Unit
E15	Auto Address Alarm (The total capacity of indoor units is too low.)
E16	Auto Address Alarm (The total capacity of indoor units is too high or the total number of indoor units is too many.)
E20	Connection Problem of Indoor / Outdoor Units

F04	Compressor Discharge Temperature Sensor (TD) Trouble
F06	Inlet Temperature Sensor (C1) in Heat Exchanger Trouble
F07	Intermediate Temperature Sensor (C2) in Heat Exchanger Trouble
F08	Outdoor Air Temperature Sensor (TO) Trouble
F12	Compressor Inlet Suction Temperature Sensor (TS) Trouble
F31	Outdoor Unit Nonvolatile Memory (EEPROM) Trouble

H01	Primary (input) Overcurrent Detected
H02	PAM Trouble
H03	Primary Current CT Sensor (current sensor) Failure
H31	HIC Trouble

L10	Outdoor Unit Capacity not Set or Invalid
L13	Indoor Unit Type Setting Error
L18	4-Way Valve Operation Failure

P03	Compressor Discharge Temperature Trouble
P04	High Pressure Trouble
P05	AC Power Supply Trouble
P13	Alarm Valve Open
P15	Insufficient Gas Level Detected
P16	Compressor Overcurrent Trouble
P22	Outdoor Unit Fan Motor Trouble
P29	Lack of INV compressor wiring, INV compressor actuation failure (including locked), DCCT failure
P31	Group Control Error

- The number of times that LED 1 and 2 blink on the outdoor unit control PCB can be used to check the alarm display. (See "Checking the LED 1 and 2 Alarm Display on the Outdoor Unit Control PCB".)

Contents of LED Display on the Outdoor Unit Control PCB (CR)

		LED1	LED2	Remark
Normal operation				
Pre-trip (High pressure protection)		○		LED1 Blinking : 0.8sec-ON / 0.3sec-OFF
Pre-trip (other)		○		LED1 Blinking : 0.5sec-ON / 0.5sec-OFF
Alternate blinking of outdoor unit LED during alarms	LED1 blinks M times, and then LED2 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 Example: LED1 blinks 4 times, then LED2 blinks 6 times. The cycle then repeats. Alarm is “E06”			
Refrigerant recovery mode		○	●	

○ : Blinking ● : ON

– MEMO –