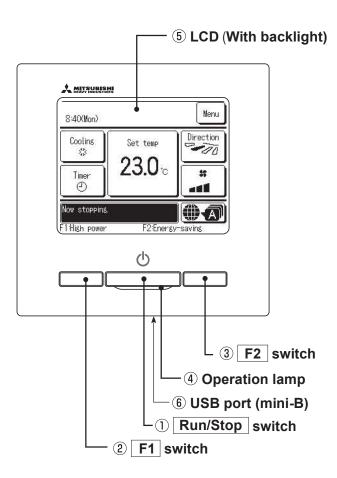
#### 10. OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

#### 10.1 Remote control (Option parts)

(1) Wired remote control Model RC-EX3A



Touch panel system, which is operated by tapping the LCD screen with a finger, is employed for any operations other than the ①Run/Stop, ②F1 and ③F2 switches.

#### 1 Run/Stop switch

One push on the button starts operation and another push stops operation.

#### 2 F1 switch3 F2 switch

This switch starts operation that is set in F1/F2 function change.

#### **4** Operation lamp

This lamp lights in green(yellow-green) during operation. It changes to red(orange) if any error occurs.

Operation lamp luminance can be changed.

#### 5 LCD (With backlight)

A tap on the LCD lights the backlight. The backlight turns off automatically if there is no operation for certain period of time. Lighting period of the backlight lighting can be changed.

If the backlight is ON setting, when the screen is tapped while the backlight is turned off,the backlight only is turned on.(Operations with switches  $\bigcirc$ , $\bigcirc$  and  $\bigcirc$  are excluded.)

#### **6 USB port**

USB connector (mini-B) allows connecting to a personal computer.

For operating methods, refer to the instruction manual attached to the software for personal computer (remote control utility software).

Note(1) When connecting to a personal computer, do not connect simultaneously with other USB devices.

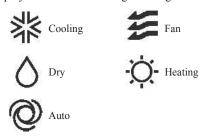
Please be sure to connect to the computer directly, without going through a hub, etc.

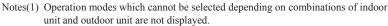
#### 10.2 Operation control function by the wired remote control

#### ●Model RC-EX3A

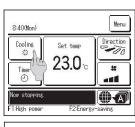
#### (1) Switching sequence of the operation mode switches of remote control

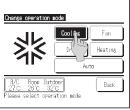
- (a) Tap the change operation mode button on the TOP screen.
- (b) When the change operation mode screen is displayed, tap the button of desired mode.
- (c) When the operation mode is selected, the display returns to the TOP screen. Icons displayed have the following meanings.





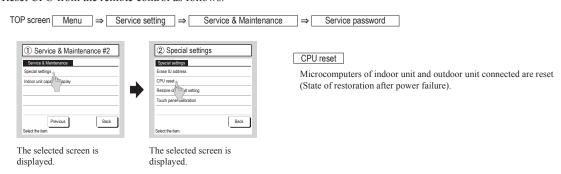
(2) When the Auto is selected, the cooling and heating switching operation is performed automatically according to indoor and outdoor temperatures.





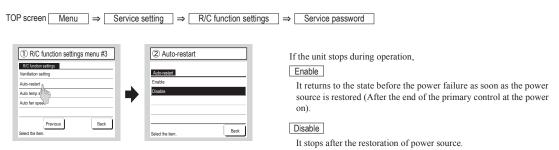
#### (2) CPU reset

Reset CPU from the remote control as follows.



#### (3) Power failure compensation function (Electric power source failure)

Enable the Auto-restart function from the remote control as follows.



- Since the status of remote control is retained in memory always, it restarts operations according to the contents of memory as soon as the power source is restored. Although the timer mode is cancelled, the weekly timer, peak cut timer and silent mode timer operate according to the following contents:
  - When the clock setting is valid: These timer settings are also valid.
- When the clock setting is invalid: These timer settings become "Invalid" since the clock setting is invalid.

  These timer settings have to be changed to "Valid" after the timer setting.

•Content memorized with the power failure compensation are as follows.

Note(1) Items (f) and (g) are memorized regardless whether the power failure compensation is effective or not while the setting of silent mode is cancelled regardless whether the power failure compensation is effective or not.

- (a) At power failure Operating/stopped
  - If it had been operating under the off timer mode, sleep timer mode, the state of stop is memorized.
- (b) Operation mode
- (c) Air flow volume mode
- (d) Room temperature setting
- (e) Louver auto swing/stop
  - However, the stop position (4-position) is cancelled so that it returns to Position (1).
- (f) "Remote control function items" which have been set with the administrator or installation function settings ("Indoor function items" are saved in the memory of indoor unit.)
- (g) Weekly timer, peak-cut timer or silent mode timer settings
- (h) Remote control function setting

#### (4) Alert displays

If the following (a) to (c) appear, check and repair as follows.

(a) Communication check between indoor unit and remote control



● This appears if communications cannot be established between the remote control and the indoor unit.

Check whether the system is correctly connected (indoor unit, outdoor unit, remote control) and whether the power source for the outdoor unit is connected.

(b) Clock setting check



• This appears when the timer settings are done without clock setting. Set the clock setting before the timer settings.

(c) Misconnection



● This appears when something other than the air-conditioner has been connected to the remote control. Check the location to which the remote control is connected.

#### Model RC-E5

#### (1) Switching sequence of the operation mode switches of remote control



#### (2) CPU reset

This functions when "CHECK" and "ESP" buttons on the remote control are pressed simultaneously. Operation is same as that of the power source reset.

#### (3) Power failure compensation function (Electric power source failure)

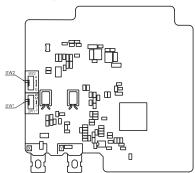
- This becomes effective if "Power failure compensation effective" is selected with the setting of remote control function.
- Since it memorizes always the condition of remote control, it starts operation according to the contents of memory no sooner than normal state is recovered after the power failure. Although the auto swing stop position and the timer mode are cancelled, the weekly timer setting is restored with the holiday setting for all weekdays.

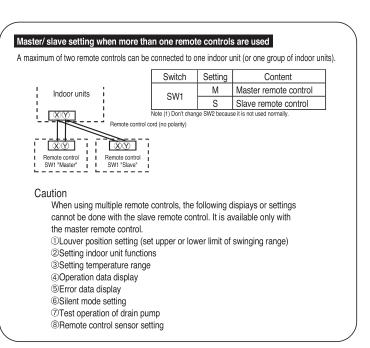
After recovering from the power failure, it readjusts the clock and resets the holiday setting for each weekday so that the setting of weekly timer becomes effective.

- Content memorized with the power failure compensation are as follows.
- Note (1) Items (f), (g) and (h) are memorized regardless whether the power failure compensation is effective or not while the setting of silent mode is cancelled regardless whether the power failure compensation is effective or not.
  - (a) At power failure Operating/stopped

    If it had been operating under the off timer mode, sleep timer mode, the state of stop is memorized. (Although the timer mode is cancelled at the recovery from power failure, the setting of weekly timer is changed to the holiday setting for all weekdays.)
  - (b) Operation mode
  - (c) Air flow volume mode
  - (d) Room temperature setting
  - (e) Louver auto swing/stop
    - However, the stop position (4-position) is cancelled so that it returns to Position (1).
  - (f) "Remote control function items" which have been set with the remote control function setting ("Indoor function items" are saved in the memory of indoor unit.)
  - (g) Upper limit value and lower limit value which have been set with the temperature setting control
  - (h) Sleep timer and weekly timer settings (Other timer settings are not memorized.)

#### [Parts layout on remote control PCB]

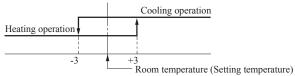




#### 10.3 Operation control function by the indoor control

#### (1) Auto operation (Heat recovery 3-pipe combination systems only)

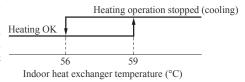
(a) If "Auto" mode is selected by the remote control, the heating and the cooling are automatically switched according to the difference between outdoor air temperature and setting temperature and the difference between setting temperature and return air temperature. (When the switching of cooling mode ↔ heating mode takes place within 3 minutes, the compressor does not operate for 3 minutes by the control of 3-minute timer.) This will facilitate the cooling/heating switching operation in intermediate seasons and the adaptation to unmanned operation at stores, etc (ATM corner of bank).



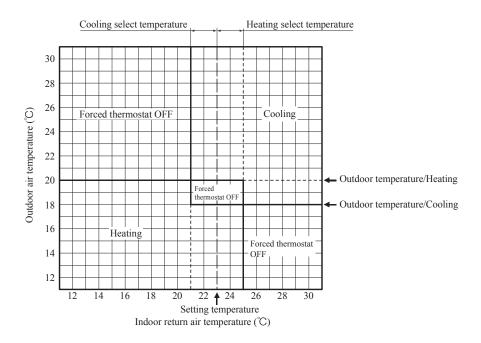
Room temperature (detected with Thi-A) [deg]

Notes (1) Temperature range of switching cooling/heating mode can be changed by RC-EX3A from  $\pm 1.0 - \pm 4.0$ .

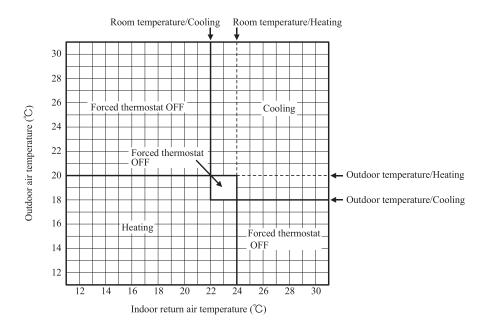
- (2) Room temperature control during auto cooling/auto heating is performed according to the room temperature setting temperature. (DIFF: ±1 deg)
- (3) If the indoor heat exchanger temperature rises to 59°C or higher during heating operation, it is switched automatically to cooling operation. In addition, for 1 hour after this switching, the heating operation is not performed, regardless of the temperature shown at right.



- (b) The following automatic controls are performed other than (a) above.
  - (i) Cooling or heating operation mode is judged according to the conditions of the "Judgment based on Setting temperature + Cooling select temperature and Indoor return air temperature" and the "Judgment based on Outdoor temperature".
    - In "Setting temperature Cooling select temperature < Indoor return air temperature" and "Outdoor temperature/Cooling <
       Outdoor return air temperature" ⇒ Operation mode: Cooling</li>
    - 2) "Setting temperature + Heating select temperature > Indoor return air temperature" and "Outdoor temperature/Heating > Outdoor air temperature" ⇒ Operation mode: Heating
    - 3) The outdoor air temperature of the above judgment conditions is sampled at every 10 minutes.
    - 4) In the range where the above cooling and heating zones are overlapped Forced thermostat OFF



- (ii) Regardless of the setting temperature, the cooling or heating operation mode is judged according to the "Judgment based on Room temperature/Cooling or Heating and Outdoor temperature/Cooling or Heating".
  - 1) In case of "Room temperature/Cooling < Indoor return air temperature" and "Outdoor temperature/Cooling < Outdoor air temperature"  $\Rightarrow$  Operation mode: Cooling
  - 2) In case of "Room temperature/Heating > Indoor return air temperature" and "Outdoor temperature /Heating > Outdoor air tem perature" ⇒ Operation mode: Heating
  - 3) The outdoor air temperature of the above judgment conditions is sampled at every 10 minutes.
  - 4) In the range where the above cooling and heating zones are overlapped  $\Rightarrow$  Forced thermostat OFF



#### (2) Operations of functional items during cooling/heating

Operation	Coo	ling					
Functional item	Thermostat ON	Thermostat OFF	Fan	Thermostat ON	Thermostat OFF	Hot start (Defrost)	Dehumidifying
Compressor	0	×	×	0	×	0	O/×
4-way valve	×	×	×	0	0	○(×)	×
Outdoor unit fan	0	×	×	0	×	○(×)	O/×
Indoor unit fan	0	0	0	O/×	O/×	O/×	O/×
Drain pump <sup>(3)</sup>	0	× <sup>(2)</sup>	× <sup>(2)</sup>		O/× <sup>(2)</sup>		Thermostat ON: O Thermostat OFF: X

Notes (1)  $\bigcirc$ : Operation  $\times$ : Stop  $\bigcirc/\times$ : Turned ON/OFF by the control other than the room temperature control.

- (2) ON during the drain motor delay control.
- (3) Drain pump ON setting may be selected with the indoor unit function setting of the wired remote control.

#### (3) Dehumidifying (DRY) operation

Indoor ambient temperatures and humidity are controlled simultaneously with the relative humidity sensor (HS) and the suction temperature sensor [Thi-A (or the remote control sensor when it is activated)], which are installed at the suction inlet.

- (a) When the operation has been started with cooling, if there is a difference of 2°C or less between the suction and setting temperatures, the tap of indoor fan is lowered by one tap. This tap is retained for 3 minutes after changing the tap.
- (b) After the above condition, when a difference between suction and setting temperature is lower than 3°C, and the relative humidity is high, the tap of indoor unit fan is lowered by one tap.
  When the difference between suction and setting temperature is larger than 3°C, the fan of indoor unit fan is raised by one tap. This tap is retained for 3 minutes after changing the tap.
- (c) When relative humidity becomes lower, the indoor unit fan tap is retained.
- (d) In case of the thermostat OFF, the indoor unit fan tap at the thermostat ON is retained.

#### (4) Timer operation

#### (a) RC-EX3A

#### (i) Sleep timer

Set the time from the start to stop of operation. The time can be selected in the range from 30 to 240 minutes (in the unit of 10-minute).

Note (1) Enable the "Sleep timer" setting from the remote control. If the setting is enabled, the timer operates at every time.

#### (ii) Set OFF timer by hour

Set the time to stop the unit after operation, in the range from 1 to 12 hours (in the unit of hour).

#### (iii) Set ON timer by hour

Set the time to start the unit after the stop of operation, in the range from 1 to 12 hours (in the unit of hour). It is allowed also to set simultaneously the indoor temperature, operation mode, air flow rate and warm-up enabled/disabled.

#### (iv) Set ON timer by clock

Set the time to start operation. The time can be set in the unit of 5-minute. This setting can be activated only once or at every time. It is allowed also to set simultaneously the indoor temperature, operation mode, air low rate and warm-up enabled/disabled.

Note (1) It is necessary to set the clock to use this timer.

#### (v) Set OFF timer by clock

Set the time to stop operation. The time can be set in the unit of 5-minute. This setting can be activated only once or at every time.

Note (1) It is necessary to set the clock to use this timer.

#### (vi) Weekly timer

Set the ON or OFF timer for a week. Up to 8 patterns can be set for a day. The day-off setting is provided for holidays and non-business days.

Note (1) It is necessary to set the clock to use the weekly timer.

#### (vii) Combination of patterns which can be set for the timer operations

	Sleep time	Set OFF timer by hour	Set ON timer by hour	Set OFF timer by clock	Set ON timer by clock	Weekly timer
Sleep time		×	×	0	0	0
Set OFF timer by hour	×		×	×	×	×
Set ON timer by hour	×	×		×	×	×
Set OFF timer by clock	0	×	×		0	×
Set ON timer by clock	0	×	×	0		×
Weekly timer	0	×	×	×	×	

Note (1) ○: Allowed ×: Not

#### (b) RC-E5

#### (i) Sleep timer

Set the duration of time from the present to the time to turn off the air-conditioner.

It can be selected from 10 steps in the range from "OFF 1 hour later" to "OFF 10 hours later". After the sleep timer setting, the remaining time is displayed with progress of time in the unit of hour.

#### (ii) OFF timer

Time to turn OFF the air-conditioner can be set in the unit of 10 minutes.

#### (iii) ON timer

Time to turn ON the air-conditioner can be set. Indoor temperature can be set simultaneously.

#### (iv) Weekly timer

Timer operation (ON timer, OFF timer) can be set up to 4 times a day for each weekday.

#### (v) Timer operations which can be set in combination

Item Item	Timer	OFF timer	ON timer	Weekly timer
Timer		×	0	×
OFF timer	×		0	×
ON timer	0	0		×
Weekly timer	×	×	×	

Note (1) ○: Allowed ×: Not

<sup>(2)</sup> Since the ON timer, sleep timer and OFF timer are set in parallel, when the times to turn ON and OFF the air-conditioner are duplicated, the setting of the OFF timer has priority.

#### (5) Hot start (Cold draft prevention at heating)

#### (a) Operating conditions

When either one of following conditions is satisfied, the hot start control is performed.

- (i) From stop to heating operation
- (ii) From cooling to heating operation
- (iii) From heating thermostat OFF to ON
- (iv) After completing the defrost operation (only on units with thermostat ON)

#### (b) Contents of operation

- (i) Indoor fan motor control at hot start
  - Within 7 minutes after starting heating operation, the fan mode is determined depending on the condition of thermostat (fan control with heating thermostat OFF).
    - a) Thermostat OFF
      - i) Operates according to the fan control setting at heating thermostat OFF.
      - ii) Even if it changes from thermostat OFF to ON, the fan continues to operate with the fan control at thermostat OFF till the heat exchanger thermistor (Thi-R1 or R2, whichever higher) detects 35°C or higher.
    - iii) When the heat exchanger thermistor (Thi-R1 or R2, whichever higher) detects 35°C or higher, the fan operates with the set air flow volume.
  - b) Thermostat ON
    - When the heat exchanger thermistor (Thi-R1 or R2, whichever higher) detects 25°C or lower, the fan is turned OFF and does not operate.
    - ii) When the heat exchanger thermistor (Thi-R1 or R2, whichever higher) detects 25°C or higher, the fan operates with the fan control at heating thermostat OFF.
  - iii) When the heat exchanger thermistor (Thi-R1 or R2, whichever higher) detects 35°C or higher, the fan operates with the set air flow volume.
  - c) If the fan control at heating thermostat OFF is set at the "Set air flow volume" (from the remote control), the fan operates with the set air flow volume regardless of the thermostat ON/OFF.
  - Once the fan motor is changed from OFF to ON during the thermostat ON, the indoor fan motor is not turned OFF even if the heat exchanger thermistor detects lower than 25°C.
    - Note (1) When the defrost operation signal is received, it complies with the fan control during defrost operation.
  - Once the hot start is completed, it will not restart even if the temperature on the heat exchanger thermistor drops.
- (ii) During the hot start, the louver is kept at the horizontal position.
- (iii) When the fan motor is turned OFF for 7 minutes continuously after defrost operation, the fan motor is turned ON regardless of the temperatures detected with the indoor heat exchanger thermistors (Thi-R1, R2).

#### (c) Ending condition

- (i) If one of following conditions is satisfied during the hot start control, this control is terminated, and the fan is operated with the set air flow volume.
  - 1) Heat exchanger thermistor (Thi-R1 or R2, whichever higher) detects 35°C or higher.
  - 2) It has elapsed 7 minutes after starting the hot start control.

#### (6) Hot keep

Hot keep control is performed at the start of the defrost operation.

- (a) Control
  - (i) When the indoor heat exchanger temperature (detected with Thi-R1 or R2) drops to less than 35°C the speed of indoor fan follows fan setting at the time of thermostat OFF.
  - (ii) During the hot keep, the louver is kept at the horizontal position.

#### (7) Auto swing control

Note Even if [Auto Swing] is selected, the louver position with anti draft function is fixed to position 1.

#### (a) RC-EX3A

- (i) Louver control
  - To operate the swing louver when the air-conditioner is operating, press the "Direction" button on the TOP screen of remote control. The wind direction select screen will be displayed.
  - 2) To swing the louver, touch the "Auto swing" button. The lover will move up and down. To fix the swing louver at a position, touch one of [1] [4] buttons. The swing lover will stop at the selected position.
  - 3) Louver operation at the power on with a unit having the louver 4-position control function The louver swings one time automatically (without operating the remote control) at the power on. This allows the microcomputer recognizing and inputting the louver motor (LM) position.
- (ii) Automatic louver level setting during heating

At the hot start and the heating thermostat OFF, regardless whether the auto swing switch is operated or not (auto swing or louver stop), the louver takes the level position (in order to prevent blowing of cool wind). The louver position display LCD continues to show the display which has been shown before entering this control.

(iii) Louver free stop control

If you touch the "Menu"  $\rightarrow$  "Service setting"  $\rightarrow$  "R/C function settings" buttons one after another on the TOP screen of remote control, the "Upper/lower flap control" screen is displayed. If the free stop is selected on this screen, the louver motor stops upon receipt of the stop signal from the remote control. If the auto swing signal is received from the remote control, the auto swing will start from the position before the stop.

#### (b) RC-E5

- (i) Louver control
  - 1) Press the "LOUVER" button to operate the swing louver when the air-conditioner is operating.
    - "SWING ---" is displayed for 3 seconds and then the swing louver moves up and down continuously.
  - 2) To fix the swing louver at a position, press one time the "LOUVER" button while the swing louver is moving so that four stop positions are displayed one after another per second.
    - When a desired stop position is displayed, press the "LOUVER" button again. The display stops, changes to show the "STOP 1—" for 5 seconds and then the swing louver stops.
  - 3) Louver operation at the power on with a unit having the louver 4-position control function
    - The louver swings one time automatically (without operating the remote control) at the power on.
    - This allows inputting the louver motor (LM) position, which is necessary for the microcomputer to recognize the louver position.

Note (1) If you press the "LOUVER" button, the swing motion is displayed on the louver position LCD for 10 seconds. The display changes to the "SWING -----" display 3 seconds later.

(ii) Automatic louver level setting during heating

At the hot start with the heating thermostat OFF, regardless whether the auto swing switch is operated or not (auto swing or louver stop), the louver takes the level position (In order to prevent the cold start). The louver position display LCD continues to show the display which has been shown before entering this control.

(iii) Louver-free stop control

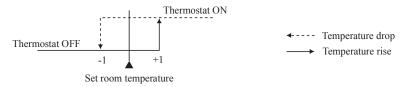
When the louver-free stop has been selected with the indoor function of wired remote control "= POSITION", the louver motor stops when it receives the stop signal from the remote control. If the auto swing signal is received from the remote control, the auto swing will start from the position where it was before the stop.

Note (1) When the indoor function of wired remote control ">¬¬ POSITION" has been switched, switch also the remote control function ">¬¬ POSITION" in the same way.

#### (8) Thermostat operation

#### (a) Cooling

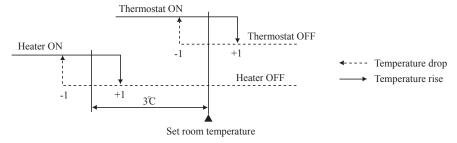
- (i) Thermostat is operated with the room temperature control.
- (ii) Thermostat is turned ON or OFF relative to the set room temperature as shown below.



(iii) Thermostat is turned ON when the room temperature is in the range of -1 < Set temperature < +1 at the start of cooling operation (including from heating to cooling).

#### (b) Heating

- (i) Thermostat is operated with the room temperature control.
- (ii) Thermostat is turned ON or OFF relative to the set room temperature as shown below.



(iii) Thermostat is turned ON when the room temperature is in the range of -1 < Set point < +1 at the start of heating operation (including from cooling to heating).

#### (c) Fan control during heating thermostat OFF

- (i) Following fan controls during the heating thermostat OFF can be selected with the indoor function setting of the wired remote control.
  - 1) Low fan speed (Factory default), 2) Set fan speed, 3) Intermittence, 4) Fan OFF
- (ii) When the "Low fan speed (Factory default)" is selected, the following taps are used for the indoor fans.
  - For DC motor : ULo tap
- (iii) When the "Set fan speed" is selected, it is operated with the set fan speed also in the thermostat OFF condition.
- (iv) If the "Intermittence" is selected, following controls are performed:
  - 1) If the thermostat is turned OFF during the heating operation, the indoor fan stops.
  - 2) Indoor fan OFF is fixed for 5 minutes. After the 5 minutes, the indoor fan is operated at ULo for 2 minutes. In the meantime the louver is controlled at level.
  - 3) After operating at ULo for 2 minutes, the indoor fan moves to the state of 1) above.
  - 4) If the thermostat is turned ON, it moves to the hot start control.
  - 5) When the heating thermostat is turned OFF, the remote control displays the temperature detected at the fan stop and revises the temperature later when the indoor fan changes from ULo to stop.
    - The remote control uses the operation data display function to display temperatures and updates values of temperature even when the indoor fan is turned OFF.
  - 6) When the defrosting starts while the heating thermostat is turned OFF or the thermostat is turned OFF during defrost operation, the indoor fan is turned OFF. (Hot keep or hot start control takes priority.) However, the suction temperature is updated at every 7-minute.
  - 7) When the heating thermostat is turned ON or the operation is changed to another mode (including stop), this control is stopped immediately, and the operating condition is restored.
- (v) When the "Fan OFF" is selected, the fan on the indoor unit of which the thermostat has been turned OFF, is turned OFF. The same occurs also when the remote control sensor is effective.

#### (d) Fan control during cooling thermostat OFF (Except FDTC, FDK)

- (i) Following fan controls during the cooling thermostat OFF can be selected with the indoor function setting of the wired remote control.
  - 1 Low fan speed, 2 Set fan speed (Factory default), 3 Intermittence, 4 Fan OFF
- (ii) When the "Low fan speed" is selected, the following taps are used for the indoor fans. For DC motor: ULo tap
- (iii) When the "Set fan speed" is selected, it is operated with the set fan speed also in the thermostat OFF condition.
- (iv) If the "Intermittence" is selected, following controls are performed:
  - 1) If the thermostat is turned OFF during the cooling operation, the indoor fan stops.
  - 2) Indoor fan OFF is fixed for 5 minutes. After the 5 minutes, the indoor fan is operated at ULo for 2 minutes.
  - 3) After operating at ULo for 2 minutes, the indoor fan moves to the state of 1) above.
  - 4) If the thermostat is turned ON, the fan starts operation at set fan speed.
  - 5) When the cooling thermostat is turned OFF, the remote control displays the temperature detected at the fan stop and revises the temperature later when the indoor fan changes from ULo to stop.
    - By using operation data display function at wireless remote control, the temperature as displayad and the value is updated including the fan stops.
  - 6) When the cooling thermostat is turned ON or the operation is changed to another mode (including stop), this control is stopped immediately, and the operating condition is restored.
- (v) When the "Fan OFF" is selected, the fan on the indoor unit of which the thermostat has been turned OFF, is turned OFF. The same occurs also when the remote control sensor is effective.

#### (9) Filter sign

As the operation time (Total ON time of ON/OFF switch) accumulates to 180 hours (1), "FILTER CLEANING" is displayed on the remote control. (This is displayed when the unit is in trouble and under the central control, regardless of ON/OFF)

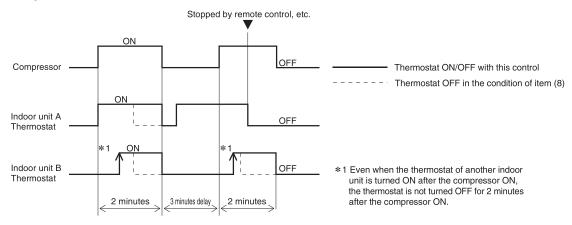
Notes (1) Time setting for the filter sign can be made as shown below using the indoor function of wired remote control "Filter sign". (It is set at Setting 1 at the shipping from factory.)

Filter sign setting	Function		
Setting 1 Setting time: 180 h (Factory default)			
Setting 2	Setting time: 600 h		
Setting 3	Setting time: 1,000 h		
Setting 4	Setting time: 1,000 h (Unit stop) (2)		

(2) After the setting time has elapsed, the "FILTER CLEANING" is displayed and, after operating for 24 hours further (counted also during the stop), the unit

#### (10) Compressor inching prevention control

(a) Once the indoor unit thermostat has been turned ON, the thermostat is not turned OFF for 2 minutes (\*1) after the compressor ON even if the thermostat is turned OFF at the state of item (8).



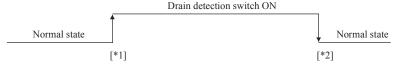
(b) When the oil return control has started while the thermostat is turned ON, the thermostat is not turned OFF even if the thermostat OFF condition is satisfied during the oil return control.

#### (11) Drain pump control (Except FDK)

- This control is operated when the inverter frequency is other than 0 Hz during the cooling operation and automatic cooling and dehumidifying operations.
- Drain pump ON condition continues for 5 (Models FDU224, 280 FDU1800F, 2400F: 20) minutes even when it enters (b) the OFF range according to (i) above after turning the drain pump ON, and then stops. The 5 (Models FDU224, 280 · FDU1800F, 2400F: 20) minutes delay continues also in the event of anomalous stop.
- The drain pump is operated with the 5 (Models FDU224, 280 FDU1800F, 2400F: 20) minutes delay operation when the compressor is changed from ON to OFF.
- (d) Even in conditions other than the above (such as heating, fan, stop, cooling thermostat OFF), the drain pump control is performed by the drain detection.
- (e) Following settings can be made using the indoor function setting of the wired remote control.
  - (i) 🐉 (Standard (in cooling & dry)): Drain pump is run during cooling and dry.
  - (ii) 攀合 AND (Operate in standard & heating): Drain pump is run during cooling, dry and heating.
  - (iii) 攀公AND菜AND☵ [Operate in heating & fan]: Drain pump is run during cooling, dry, heating and fan.
  - (iv) \$\ AND \ [Operate in standard & fan] : Drain pump is run during cooling, dry and fan. Note (1) Values in [ ] are for the RC-EX3A model.

#### (12) Drain pump abnomalities detection (Except FDK)

Drain detection switch is turned ON or OFF with the float switch (FS) and the timer.



[\*1] Drain detection switch is turned "ON" when the float switch "Open" is detected for 3 seconds continuously in the drain detectable space.

[\*2] Drain detection switch is turned "OFF" when the float switch "Close" is detected for 10 seconds continuously.

- It detects always from 30 seconds after turning the power ON.
  - There is no detection of anomalous draining for 10 seconds after turning the drain pump OFF.
  - 2) Turning the drain detection switch "ON" causes to turn ON the drain pump forcibly.
  - Turning the drain detection switch "OFF" releases the forced drain pump ON condition. 3)
- (b) Indoor unit performs the control A or B depending on each operating condition.

Indoor unit operation mode					
	Stop (1) Cooling Dry Fan (2) Heating				
Compressor ON		Control A			
Compressor OFF	Control B				

Note (1) Including the stop from the cooling, dehumidifying, fan and heating, and the anomalous stop (2) Including the "Fan" operation according to the

mismatch of operation mode

#### (i) Control A

- If the float switch detects any anomalous draining condition, the unit stops with the anomalous stop (displays E9) and the drain pump starts. After detecting the anomalous condition, the drain motor continues to be ON.
- 2) It keeps operating while the float switch is detecting the anomalous condition.
- (ii) Control B

If the float switch detects any anomalous drain condition, the drain motor is turned ON for 5 (Models FDU224, 280 • FDU1800F, 2400F: 20) minutes, and at 10 seconds after the drain motor OFF it checks the float switch. If it is normal, the unit is stopped under the normal mode or, if there is any anomalous condition, E9 is displayed and the drain motor is turned ON. (The ON condition is maintained during the drain detection.)

#### (13) Operation check/drain pump test run operation mode

- If the power is turned on by the DIP switch (SW7-1) on the indoor unit control PCB when electric power source is supplied, it enters the mode of operation check/drain pump test run. It is ineffective (prohibited) to change the switch after turning power on.
- When the communication with the remote control has been established within 60 seconds after turning power on by the DIP switch (SW7-1) ON, it enters the operation check mode. Unless the remote control communication is established, it enters the drain pump test run mode.
  - Note (1) To select the drain pump test run mode, disconnect the remote control connector (CNB) on the indoor control PCB to shut down the remote control communication.

(c) Operation check mode

There is no communication with the outdoor unit but it allows performing operation in respective modes by operating the remote control.

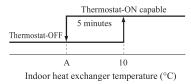
(d) Drain pump test run mode (Except FDK)

As the drain pump test run is established, the drain pump only operates and during the operation protective functions by the microcomputer of indoor unit become ineffective.

#### (14) Cooling, dehumidifying frost protection

- (a) To prevent frosting during cooling mode or dehumidifying mode operation, the thermostat-OFF if the indoor heat exchanger temperature (detected with Thi-R) drops to 1.0 °C or lower at 4 minutes after the thermostat-ON. If the indoor unit heat exchanger temperature is 1.0 °C or lower after 5 minutes, the indoor unit is controlled thermostat-OFF. If it becomes 10°C or higher, the control terminates. When the indoor heat exchanger temperature has become as show, the indoor unit send outdoor unit the "Anti-frost" signal.
  - Frost prevention temperature setting can be selected with the indoor unit function setting of the wired remote control.

Symbol	A
Temperature - Low (Factory default)	1.0
Temperature - High	2.5



#### (b) Selection of indoor fan speed

If it enters the frost prevention control during cooling operation (excluding dehumidifying), the indoor fan speed is switched.

- (i) When the indoor return air detection temperature (detected with Thi-A) is 18°C or higher and the indoor heat exchanger temperature (detected with Thi-R) detects the compressor frequency drop start temperature A°C+1°C, of indoor fan speed is increased by 20min<sup>-1</sup>.
- (ii) If the phenomenon of (i) above is detected again after the acceleration of indoor fan, indoor fan speed is increased further by 20min<sup>-1</sup>.

Note (1) Indoor fan speed can be increased by up to 2 taps.

· Compressor frequency drop start temperature

Hs > 50%

Item Symbol	Low	High
A	1.0	2.5
В	2.5	4.0

 $Hs \leq 50\%$ 

Item Symbol	Low	High
A	-0.5	1.0
В	1.0	2.5

Note (1) Frost prevention temperature setting can be selected with the indoor unit function setting of the wired remote control.

#### (15) Anomalous fan motor

- (a) After starting the fan motor, if the fan motor speed is 200min<sup>-1</sup> or less is detected for 30 seconds continuously and 4 times within 60 minutes, then fan motor stops with the anomalous stop (E16).
- (b) If the fan motor fails to reach at -50 (FDU: -500) min<sup>-1</sup> less than the required speed, it stops with the anomalous stop (E20).

#### (16) Plural unit control – Control of 16 units group by one remote control

#### (a) Function

One remote control can control a group of multiple number of unit (Max. 16 indoor units). "Operation mode" which is set by the remote control can operate or stop all units in the group one after another in the order of unit. No. (1). Thermostat and protective function of each unit function independently.

Note (1) Unit No. is set by SW1, SW2, and SW5-2 on the indoor control PCB.

#### (b) Display to the remote control

- (i) Central or each remote control basis, heating preparation: the smallest unit No. among the operating units in the remote mode (or the center mode unless the remote mode is available) is displayed.
- (ii) Inspection display, filter sign: Any of unit that starts initially is displayed.

#### (c) Confirmation of connected units

(i) In case of RC-EX3A remote control

If you touch the buttons in the order of "Menu" — "Service setting" — "Service & Maintenance" — "Service password" — "IU address" on the TOP screen of remote control, the indoor units which are connected are displayed.

(ii) In case of RC-E5 remote control

Pressing "AIR CON No." button on the remote control displays the indoor unit address. If " $\blacktriangle$ " " $\blacktriangledown$ " button is pressed at the next, it is displayed orderly starting from the unit of smallest No.

(d) In case of anomaly

If any anomaly occurs on a unit in a group (a protective function operates), that unit stops with the anomalous stop but any other normal units continue to run as they are.

(e) Signal wiring procedure

Signal wiring between indoor and outdoor units should be made on each unit same as the normal wiring. For the group control, connect the remote control wiring to each indoor unit via terminal block for the remote control. Connect the remote control wiring separately from the power source cable or wires of other electric devices (AC220V or higher).

#### (17) High ceiling control

When sufficient air flow rate cannot be obtained from the indoor unit which is installed at a room with high ceiling, the air flow rate can be increased by changing the fan tap. To change the fan tap, use the indoor unit function "FAN SPEED SET" on the wired remote control.

Fan tap		Indoor unit air flow setting					
		241 - 241 - 241 - 241	2011 - 2010 - 2000	*## *###	%ail - %ail		
	STANDARD	P-Hi1 - Hi - Me - Lo	Hi - Me - Lo	Hi - Lo	Hi - Me		
FAN SPEED SET	HIGH SPEED1	P-Hi2 - P-Hi1 - Hi - Me	P-Hi1 - Hi - Me	P-Hil - Me	P-Hi1 - Hi		
	HIGH SPEED2	P-Hi2 - Hi - Me - Lo	Hi - Me - Lo	Hi - Lo	Hi - Me		

Notes (1) Factory default is STANDARD.

- (2) At the hot-start and heating thermostat OFF, or other, the indoor fan is operated at the low speed tap of each setting.
- (3) This function is not able to be set with wireless remote controls or simple remote control (RCH-E3)

#### (18) Abnormal temperature thermistor (return air/indoor heat exchanger) broken wire/short-circuit detection

(a) Broken wire detection

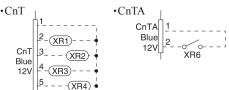
If the return air temperature thermistor detects broken wire for 5 seconds continuously, the compressor stops (E7). If the heat exchanger temperature thermistor detects broken wire for 5 seconds continuously at 2 minutes and 20 seconds after the compressor ON, the compressor stops (E6).

(b) Short-circuit detection

If the heat exchanger temperature thermistor detects short-circuit for 5 seconds continuously at 2 minutes and 20 seconds after the compressor ON during cooling operation, the compressor stops (E6).

#### (19) External input/output control (CnT or CnTA)

External input/output connectors are provided on the indoor unit control PCB, and each input/output is possible to be changed by RC-EX3A. Be sure to connect the wired remote control to the indoor unit. Remote operation with CnT/CnTA only is not possible.



Input/Output	Connector	Factory default setting	RC-EX3A function name
	CnT-2 (XR1)	Operation output	External output 1
Outmut	CnT-3 (XR2)	Heating output	External output 2
Output	CnT-4 (XR3)	Thermostat ON output	External output 3
	CnT-5 (XR4)	Inspection (Error) output	External output 4
Input	CnT-6 (XR5)	Remote operation input	External input 1
(Volt-free contact)	CnTA (XR6)	Remote operation input	External input 2

#### ■ Priority order for combinations of CnT and CnTA input.

	_		CnTA						
		① Operation stop level	② Operation stop pulse	③ Operation permission/prohibition	4 Operation permission/prohibition pulse	⑤ Cooling/heating selection level	Cooling/heating selection pulse	7 Emergency stop	
	① Operation stop level	CnT ①	CnT ①	CnT 1 +CnTA 2	CnT ①	CnT ① /CnTA ⑤	CnT ① /CnTA ⑥	CnT ① <cnta td="" ⑦<=""></cnta>	
	② Operation stop pulse	CnT ②	CnT ②	CnT ② +CnTA ③	CnT ②	CnT ② /CnTA ⑤	CnT ② /CnTA ⑥	CnT ② <cnta td="" ⑦<=""></cnta>	
	③ Operation permission/prohibition level	CnT ③ >CnTA ①	CnT ③ >CnTA ②	CnT ③ +CnTA ③	CnT ③	CnT ③ /CnTA ⑤	CnT ③ /CnTA ⑥	CnT ③ <cnta td="" ⑦<=""></cnta>	
CnT	① Operation permission/prohibition pulse	CnT ④	CnT ④	CnT 4 +CnTA 3 **	CnT ④	CnT 4 /CnTA 5	CnT 4 /CnTA 6	CnT 4 <cnta 7<="" td=""></cnta>	
	(5) Cooling/heating selection level	CnT ⑤ /CnTA ①	CnT (5) /CnTA (2)	CnT ⑤ /CnTA ③	CnT ⑤ /CnTA ④	CnT (5)	CnT (5)	CnT ⑤ /CnTA ⑦	
	6 Cooling/heating selection pulse	CnT 6 /CnTA 1	CnT 6 /CnTA 2	CnT 6 /CnTA 3	CnT 6 /CnTA 4	CnT 6	CnT 6	CnT 6 /CnTA 7	
	7 Emergency stop	CnT 7 >CnTA 1	CnT 7 >CnTA 2	CnT 7 >CnTA 3	CnT ⑦ >CnTA ④	CnT 7 /CnTA 5	CnT ⑦ /CnTA ⑥	CnT 7 +CnTA 7	

Note (1) Following operation commands are accepted when the operation prohibition is set with CnTA as indicated with \*.

Individual operation command from remote control, test run command from outdoor unit and operation command from option device, CnT input.

Reference: Explanation on the codes and the combinations of codes in the table above

- In case of CnT "Number", the CnT "Number" is adopted and CnTA is invalidated.
   In case of CnT "Number", the CnTA "Number" is adopted and CnT is invalidated.
   In case of CnTA "Number", the CnTA "Number" and the CnTA "Number" become independent functions each other.

- In case of CnT "Number" + CnTA "Number", the CnT "Number" and the CnTA "Number" become competing functions each other.
   In case of CnT "Number" > CnTA "Number", the function of CnT "Number" supersedes that of CnTA "Number".
   In case of CnT "Number" < CnTA "Number", the function of CnTA "Number" supersedes that of CnT "Number".</li> (The "Number" above means 1 - 6 in the table.)

#### (a) Output for external control (remote display)

Indoor unit outputs the following signal for operation status monitoring.

	Output name	Condition
1	Operation output	During operation
2	Heating output	During heating operation
3	Thermostat ON output	During compressor operation
4	Inspection (Error) output	When anomalous condition occurs.
5	Cooling output	During cooling operation
6	Fan operation output 1	When indoor unit's fan is operating
7	Fan operation output 2	When indoor unit's fan is operating, and fan speed is higher than Hi speed.
8	Fan operation output 3	When indoor unit's fan is operating, and fan speed is Lower than Me speed.
9	Defrost/oil return output	When indoor unit receive defrost/oil return signal from the outdoor unit.
10	Ventilation output	When "Venti.ON" is selected from remote control
11	Free cooling output	When the ambient temp. is between 10-18 °C in cooling and fan operation
12	Indoor unit overload alrm output	Refer to "IU overload alarm"
13	Heater output	Refer to "(8) Thermostat operation (b) Heating"

#### (b) Input for external control

The external input for the indoor unit can be selected from the following input by the wired remote control.

The input connectors (CnT-6 and CnTA) are equipped on the indoor unit control PCB.

"LEVEL INPUT(Factory default)" or "PULSE INPUT" is selectable from the wired remote control.

	Input name	Content
1	Run/Stop (Factory default)	Refer to [(19) (c) Remote operation input]
2	Permission/Prohibition	Refer to [(20) Operation permission/prohibition]
3	Cooling/Heating	Refer to [(22) Selection of cooling/heating external input function]
4	Emergency stop	Refer to [(23) Emergency stop input]
5	Setting temperature shift	Set temperature is shifted by +2/-2°C in cooling/heating.
6	Forced thermo-OFF	Unit goes thermo off.
7	Temporary stop	Refer to [(21) Temporary stop input]
8 Silent mode Outdoor unit silent mode is activated.		Outdoor unit silent mode is activated.

#### (c) Remote operation input

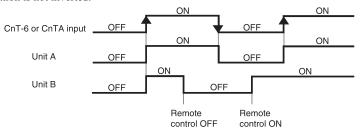
The indoor unit operation can be controlled by external input.

However it is not effective when "Center mode" is selected by central control.

Only the "LEVEL INPUT" is recommended for this input, and operation status is changed as follows.

#### (i) In case of "Level input" setting (Factory default)

Input signal to CnT-6 or CnTA is OFF→ON ...... unit ON Input signal to CnT-6 or CnTA is ON→OFF ...... unit OFF Operation is not inverted.

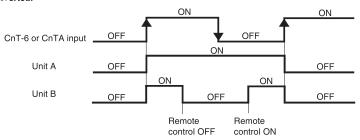


Note: The latest operation has priority

It is available to operate/stop by remote control or central control

#### (ii) In case of "Pulse input" setting (Local setting)

It is effective only when the input signal to CnT-6 or CnTA is changed OFF→ON, and at that time unit operation [ON/OFF] is inverted.



#### (iii) In case of multiple units (Max. 16 indoor units group) are connected to one wired remote control

When the R/C function setting of wired remote control for "External control set" is changed from "Individual (Factory default)" to "For all units", all units connected in one wired remote control system can be controlled by external operation input.

#### (20) Operation permission/prohibition

#### (In case of adopting card key switches or commercially available timers)

When the external input is selected to "Permission/Prohibition", this control becomes effective. However it is not effective when "Center mode" is selected by central control.

			-				
Г	Commontor	Indoor function					
	Connector	RC-EX3A	RC-E5				
	CnT	External input 1 : Permission/Prohibition	Operation permission/Prohibition : Valid				
	CnTA	External input 2 : Permission/Prohibition	No function				

Only the "LEVEL INPUT" is recommended for this input, and operation status is changed as follows.

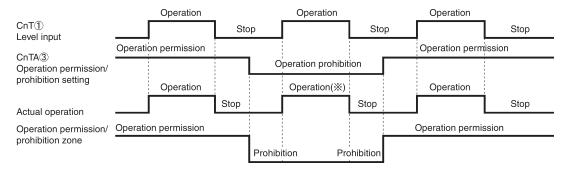
#### (a) In case of "Level input" setting (Factory default)

- (i) When card key switch is ON (CnT-6 or CnTA ON: Operation permission), start/stop operation of the unit from the wired remote control becomes available.
- (ii) When card key switch is OFF (CnT-6 or CnTA OFF: Operation prohibition), the unit stops operation in conjunction with OFF signal, and start/stop operation of the unit from the wired remote control becomes not available.

#### (b) In case of "Pulse input" setting (Local setting)

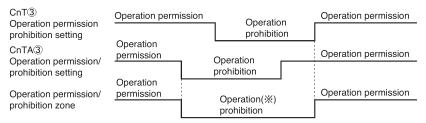
- (i) When card key switch is ON (Operation permission), the unit starts operation in conjunction with ON signal, and also start/stop operation of the unit from the wired remote control becomes available.
- (ii) When card key switch is OFF (Operation prohibition), the unit stops operation in conjunction with OFF signal, and start/ stop operation of the unit from the wired remote control becomes not available.

#### (c) In case of CnT ① operation stop level > CnTA ③ operation permission/prohibition level



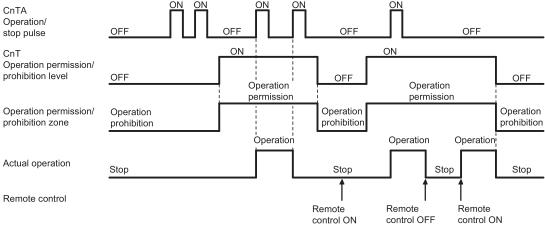
(\*X) CnT level input supersedes CnTA operation prohibition.

#### (d) In case of CnT ③ operation permission/prohibition level + CnTA ③ operation permission/prohibition level



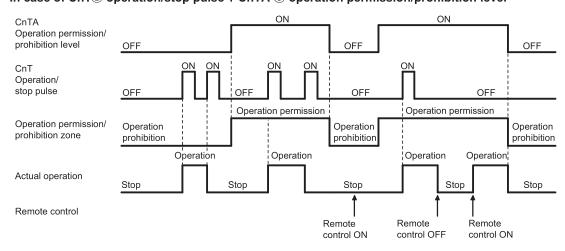
(\*) Operation prohibition zone is determined by the OR judgment between CnT operation prohibition zone and CnTA operation prohibition zone.

#### (e) In case of CnT ③ operation permission/prohibition level > CnTA ② operation/stop pulse



Note (1) If it is prohibited by CnT, all "Operation" and "Stop" commands are not accepted.

#### (f) In case of CnT② operation/stop pulse + CnTA ③ operation permission/prohibition level

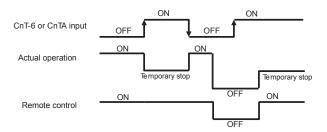


#### (21) Temporary stop input

In case of temporary stop, operation lamp of remote control lights, but indoor unit stop the operation.

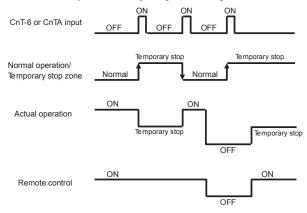
#### (a) In case of "Level input" setting (Factory default)

Input signal to CnT-6 or CnTA is OFF  $\to$  ON : Temporary stop Input signal to CnT-6 or CnTA is OFF  $\to$  ON : Normal operation



#### (b) In case of "Pulse input" setting (Local setting)

It is effective only when the input signal is changed OFF—ON, and "temporary stop/normal operation" is inverted.



#### (22) Selection of cooling/heating external input function

When "External input 1 or 2 setting: Cooling/heating" is set by the indoor unit function from remote control, the cooling or heating is selected with CnT-6 or CnTA.

#### (a) In case of "Level input" setting (Factory default)

- CnT-6 or CnTA: OPEN  $\rightarrow$  Cooling operation mode
- CnT-6 or CnTA: CLOSE  $\rightarrow$  Heating operation mode

#### (b) In case of "Pulse input" setting (Local setting)

If the external input is changed OPEN  $\rightarrow$  CLOSE, operation modes are inverted (Cooling  $\rightarrow$  Heating or Heating  $\rightarrow$  Cooling).

(c) If the cooling/heating selection signal is given by the external input, the operation mode is transmitted to the remote control.

#### ■ Selection of cooling/heating external input function

External input selection	External input method	Operation						
	Level	External input (CnT or CnTA)	ON OFF ON OFF Cooling zone Heating zone Cooling zone Heating zone					
		Cooling/heating	Heating Heating Cooling Cooling					
		Cooling/heating (Competitive)	Cooling Heating Cooling Heating  Auto, cooling, dry mode command  from remote control  Theating auto, heating mode command from remote control					
Cooling/heating selection	Pulse	External input (CnT or CnTA)	ON ON  OFF  Heating zone  1 After setting "Cooling/heating selection", the cooling/heating is selected by the current operation mode  During heating: Set at the heating zone (cooling prohibition zone).  During cooling, dry, auto and fan mode: Set at cooling zone (heating prohibition zone).					
		Cooling/heating	Auto Cooling Cooling					
		Cooling/heating (Competitive)	Auto Cooling Cooling    Set "Cooling   1 Auto, cooling, dry mode command to Auto, heating mode command by remote control   1 Auto, heat					

#### (23) Emergency stop input

When the external input is selected to "Emergency strop", it is possible to stop the outdoor unit operation by the external input to the indoor unit.

#### (a) Function setting

Emergency stop input can be selected by the indoor function of wired remote control.

Commonton	Indoor function						
Connector	RC-EX3A	RC-E5					
CnT	External input 1 : Emergency stop	Emergency stop : Valid					
CnTA	External input 2 : Emergency stop	No function					

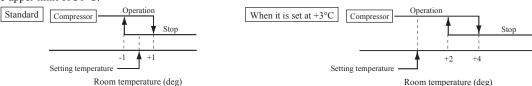
#### (b) Emergency stop control

When the external input is OFF, the indoor and outdoor units stop.

The indoor unit receive the external input stops the operation, and the outdoor unit which the stopped indoor unit are connected stops with [E-63].

#### (24) Room temperature detection temperature compensation during heating

With the standard specification, the compressor is turned ON/OFF with the thermostat setting temperature. When the thermostat is likely to turn OFF earlier because the unit is installed at the ceiling where warm air tends to accumulate, the setting can be changed with the wired remote control indoor unit function "\*\*\$P OFFSET". The compressor and the heater are turned ON/OFF at one of the setting temperature +3, +2 or +1 °C in order to improve the feeling of heating. The setting temperature, however, has the upper limit of 30 °C.



#### (25) Return air temperature compensation

This is the function to compensate the deviation between the detection temperature by the return air temperature sensor and the measured temperature after installing the unit.

(a) It is adjustable in the unit of 0.5°C with the wired remote control indoor unit function "RETURN AIR TEMP".

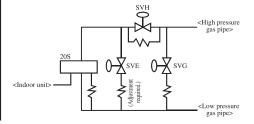
(b) Compensated temperature is transmitted to the remote control and the outdoor unit.

Note (1) The detection temperature compensation is effective on the indoor unit thermistor only.

#### (26) Branching control (Heat recovery 3-pipe combination systems only)

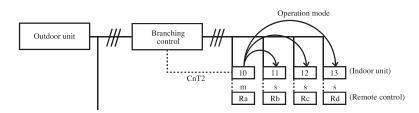
- (a) New control with new branching control (New Superlink control)
  - Control by means of CnT2 (The compressor does not stop at the switching of heating/cooling.)
  - CnT outputs XR2: Heating output, XR3: Compressor ON thermostat output
- (b) Old control with new branching control (Old Superlink control)
  - Control by means of CnT2 (The compressor stops at the switching of heating/cooling.)
- (c) Control of the branching control when the heating/cooling is switched with the CnT2 output
  - ① 20S control (CnT2-2: XB1)
  - ② SVH control (CnT2-3: XB2)
  - ③ SVG control (CnT2-4: XB3)
  - 4 SVE control (CnT2-5: XB4)
  - Combination of XB1 XB4 outputs (The branching control is controlled in the state of operations (I) (V).)

State of operation	XB1	XB2	XB3	XB4
(I) Cooling (Full stop, defrosting)	×	×	×	×
(II) Heating	0	0	×	×
(III) Oil return	×	0	0	×
(IV) Equalizing 1 (Cooling→Heating, etc.)	0	×	×	×
(V) Equalizing 2 (Heating→Cooling)	0	×	×	0



#### (27) Multiple indoor units control (Heat recovery 3-pipe combination systems only)

- (a) The indoor unit that controls the branching control directly is named as the master unit.
  - (i) Other indoor units that are connected to the same branching control are named as the slave unit.
  - (ii) Specify the "Main" or "Sub" for the indoor units from the remote control.
- (b) Change of operation modes from the remote control, option control or other external device can be made for the master unit only. It cannot be made for slave units.
- (c) Operation mode of slave units is always same as that of the master unit.
- (d) Any setting other than the operation mode can be made individually for the main and sub units.



- Set main indoor unit address 10 to sub units 11-13 by "Address setting of main IU" setting of the wired remote controls Rb-Rd.
- (ii) Set the operation mode at cooling for the indoor unit 10 from the remote control Ra.
  - ⇒ The indoor unit 10 commands the cooling for the operation mode of "Sub" indoor units. It commands the cooling in the same way also for the operation mode of "Sub" indoor units which are stopped.
    - When an operation mode change command for the indoor unit 10 is received from the central control device, the command is released to the "Sub" indoor units in the same way.
- (iii) Even if an operation mode change is commanded to the "Sub" indoor units 11, 12 and 13 from the remote control Rb, Rc, Rd or the central control device, the operation mode is not changed.

#### (28) High power operation (RC-EX3A only)

It operates at with the setting temperature fixed at 16°C for cooling, 30°C for heating and maximum indoor fan speed for 15 minutes maximum.

#### (29) Energy-saving operation (RC-EX3A only)

It operates with the setting temperature fixed at 28°C for cooling, 22°C for heating or 25°C for auto. When fan control in cooling/heating thermo-OFF setting is "Set fan speed", fan speed during thermo-OFF is changed to "Low". (Maximum capacity is restricted at 80%.)

#### (30) Warm-up control (RC-EX3A only)

Operation will be started 5 to 60 minutes before use according to the forecast made by the microcomputer which calculates when the operation should be started in order to warm up the indoor temperature near the setting temperature at the setting time of operation start.

#### (31) Home leave mode (RC-EX3A only)

When the unit is not used for a long period of time, the room temperature is maintained at a moderate leval, avoiding extremely hot or cool temperature.

- (a) Cooling or heating is operated according to the outdoor temperature (factory setting 35°C for cooling, 0°C for heating) and the setting temperature. (factory setting 33°C for cooling, 10°C for heating)
- (b) Setting temperature and indoor fan speed can be set by RC-EX3A.

#### (32) Auto temperature setting (RC-EX3A only)

Setting temperature is adjusted automatically at the adequate temperature the center setting temperature is 24°C by correcting the outdoor air temperature.

#### (33) Fan circulator operation (RC-EX3A only)

When the fan is used for circulation, the unit is operated as follows depending on the setting with the remote control.

- (a) If the invalid is selected with the remote control, the fan is operated continuously during the fan operation. (mormal fan mode)
- (b) If the valid is selected with the remote control, the fan is operated or stopped when on the difference of the remote control temperature sensor and the return air temperature sensor becomes bigger than 3°C.

#### (34) The operation judgment is executed every 5 minutes (RC-EX3A only)

Setting temperature Ts is changed according to outdoor temperature.

This control is valid with cooling and heating mode. (Not auto mode)

- (a) Operate 5 minutes forcedly.
- (b) Setting temperature is adjusted every 10 minutes.
  - (i) Cooling mode.
    - Ts = outdoor temperature offset value
  - (ii) Heating mode.
    - Ts = outdoor temperature offset value
- (c) If the return air temperature lower than 18°C in cooling or return air temperature becomes higher than 25°C in heating, unit goes thermostat OFF.

#### (35) Auto fan speed control (RC-EX3A only)

In order to reach the room temperature to the set temperature as quickly as possible, the air flow rate is increased when the set temperature of thermostat differs largely from the return air temperature. According to temperature difference between set temperature and return air temperature, indoor fan tap are controlled automalically.

- Auto 1: Changes the indoor fan tap within the range of  $Hi \leftrightarrow Me \leftrightarrow Lo$ .
- Auto 2: Changes the indoor fan tap within the range of P-Hi  $\leftrightarrow$  Hi  $\leftrightarrow$  Me  $\leftrightarrow$  Lo.

#### (36) Indoor unit overload alarm (RC-EX3A only)

If the following condition is satisfied at 30 minutes after starting operation, RC-EX3A shows maintenance code "M07" and the signal is transmitted to the external output (CnT-2-5).

It is necessary to select "Indoor unit overload alarm output" by the external output setting.

- · Cooling, Dry, Auto(Cooling): Indoor air temperature = Set room temperature by remote control + Alarm temperature difference
- Heating, Auto(Heating) : Indoor air temperature = Set room temperature by remote control Alarm temperature difference

Alarm temperature difference is selectable between 5 to 10°C.

If the following condition is satisfied or unit is stopped, the signal is disappeared.

- Cooling, Dry, Auto(Cooling): Indoor air temperature = Set room temperature + Alarm temperature difference -2°C
- Heating, Auto(Heating) : Indoor air temperature = Set room temperature Alarm temperature difference +2°C

#### (37) Peak-cut timer (RC-EX3A only)

Power consumption can be reduced by restricting the maximum capacity.

Set the [Start time], the [End time] and the capacity limit % (Peak-cut %).

- 4-operation patterns per day can be set at maximum.
- The setting time can be changed by 5-minutes interval.
- The selectable range of capacity limit % (Peak-cut %) is from 0% to 40-80% (20% interval).
- · Holiday setting is available.

#### (38) Motion sensor control (RC-EX3A only)

The sensor determines the presence of people and the amount of activity, and the following controls are done by the motion sensor. Following settings are necessary to activate motion sensor control.

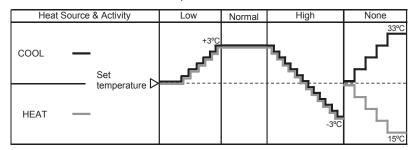
- (a) Infrared (motion) sensor setting: Installation setting of remote control The indoor unit which is set to "Enable" become valid.
- (b) Infrared (motion) sensor control: Energy-saving setting of remote control  $\,$

The function which is set to "Enable" become valid.

(i) Power saving / comfort control

The set temperature is adjusted according to the presence of people and their amount of activity detected by the infrared (motion) sensor.

#### MODE:AUTO/COOL/HEAT mode operation



Low	When the extent of human activity is low
High When the extent of human activity is high	
None	When there is no one in the room

• When the "None" continues for 1 hour, the FAN SPEED is set Lo.

Notes (1) When the following operations are set, power saving control will be canceled.

- ① Energy-saving, Home leave mode, Warm-up control, Cooling operation check.
- ② When the operation mode is changed DRY or FAN.
- (2) Not operable while the air-conditioner is OFF.

#### (ii) Auto-off control

When no activity is detected for 1 hour, unit will go stand-by mode. When stand-by mode continues for 12 hours, unit stops.

% Compressor keeps stopped regardless of the set temperature.

#### 11. SYSTEM TROUBLESHOOTING PROCEDURE

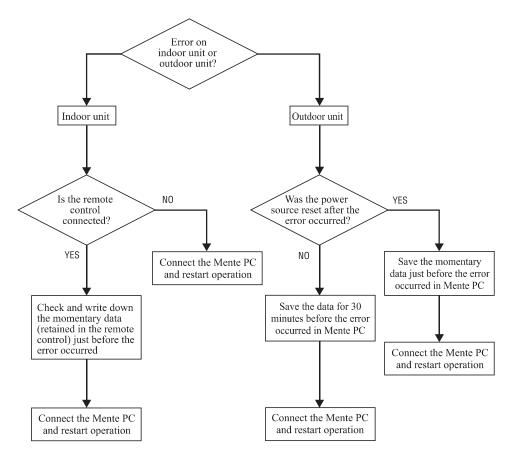
#### 11.1 Basics of troubleshooting

Basic troubleshooting is to check/analyze/save data by connecting the Mente PC.

Whenever arriving at the site, always connect the Mente PC before starting work.

Method of error data analysis (Basic procedure)

- · Identify whether particular error occurred during operation or stopping.
- Is it caused by the installation conditions of outdoor/indoor unit? (Refrigerant quantity, pipe length, short-circuit, clogged filter, etc.)
- Isn't there any beginner's mistake at the installation? (Wrong address, mistake in piping or wiring, etc.)
- Is the failure related to any hardware (parts)? (SV main body, coil, capillary, check valve, sensor, etc.)
- Is it a major component?
   Compressor, inverter PCB and outdoor DC fan motor
- Is it a failure of electrical component



(Refer to outdoor unit service manual.)

## 11.2 Contents of troubleshooting (1) List of inspection displays (indoor units)

Remote control error code	Name of inspection	Classification	Page
None	Operates but does not cool	System error	280
None	Operates but does not heat	System error	281
None	Excessive noise/vibration	System error	282-284
None	Louver motor failure	System error	285
None	Power source system anomaly (Power source to indoor unit PCB)	System error	286, 287
None	Power source system error (Power source to remote control)	System error	288, 289
⊕WAIT⊕	ŮWAITŮ (1)	System error	290
®WAIT®	ŮWAITŮ (2)	System error	291
®WAIT®	學WAIT學(3)	System error	292
®WAIT®	ŮWAITŮ(4)	System error	293
®WAIT®	®WAIT® (5)	System error	294
<b>⊕</b> WAIT <b>⊕</b>	७WAIT७(6)	System error	295
[No display]	[No display]	System error	296
E1	Remote control communication error	Communication error	297
E2	Duplicated indoor unit address	Address setting error	298
E3	Outdoor unit signal line error	Address pairing setting error	299
E5	Communication error during operation	Communication error	300
E6	Indoor heat exchanger temperature sensor anomaly (Thi-R)	Temperature sensor wire breakage	301
E7	Indoor return air temperature sensor anomaly (Thi-A)	Temperature sensor wire breakage	302
E9	Drain trouble	System error	303
E10	Excessive number of indoor units (more than 17 units) by controlling one remote control	Communication error	304
E11	Address setting error between master and slave indoor units	Address setting error	305
E12	Address setting error by mixed setting method	Address setting error	306
E16	Indoor DC fan motor anomaly	DC fan motor error	307, 308
E18	Address setting error of master and slave indoor units	Address setting error	309
E19	Indoor unit operation check, drain pump motor check mode anomaly	Setting error	310
E20	Indoor DC fan motor rotation speed anomaly	DC fan motor error	311, 312
E21	Defective panel switch operation (FDT)	Panel switch error	313
E28	Remote control temperature sensor anomaly (Thc)	Temperature sensor wire breakage	314
E63	Emergency stop	Site setting error	315

#### (2) Troubleshooting

	. ,				
Ú	Error code	LED	Green	Red	Content
	Remote control: None	Indoor	Keeps flashing	Stays OFF	Operates but does not cool
		Outdoor	Keeps flashing	Stays OFF	operates but does not coor
1					

#### 1. Applicable model

All models

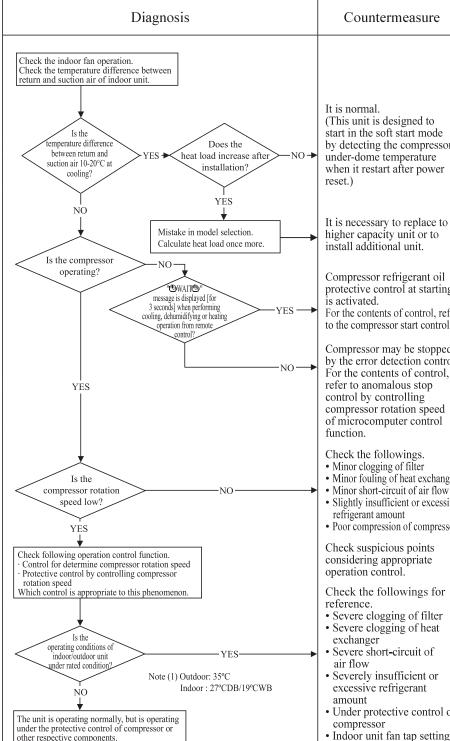
#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Poor compression of compressor
- Expansion valve operation anomaly

### 5. Troubleshooting



(This unit is designed to start in the soft start mode by detecting the compressor under-dome temperature

It is necessary to replace to higher capacity unit or to

Compressor refrigerant oil protective control at starting

For the contents of control, refer to the compressor start control.

Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control

Check the followings.

- Minor clogging of filter
- Minor fouling of heat exchanger
- · Slightly insufficient or excessive refrigerant amount
- Poor compression of compressor

Check suspicious points considering appropriate operation control.

- · Severe clogging of filter
- · Severe clogging of heat
- Severe short-circuit of
- · Severely insufficient or excessive refrigerant
- Under protective control of
- · Indoor unit fan tap setting
- Valid setting of silent mode

					<u> </u>
(	Error code	LED	Green	Red	Content
	Remote control:None	Indoor	Keeps flashing	Stays OFF	Operates but does not heat
		Outdoor	Keeps flashing	Stays OFF	operates but does not near

#### 1. Applicable model

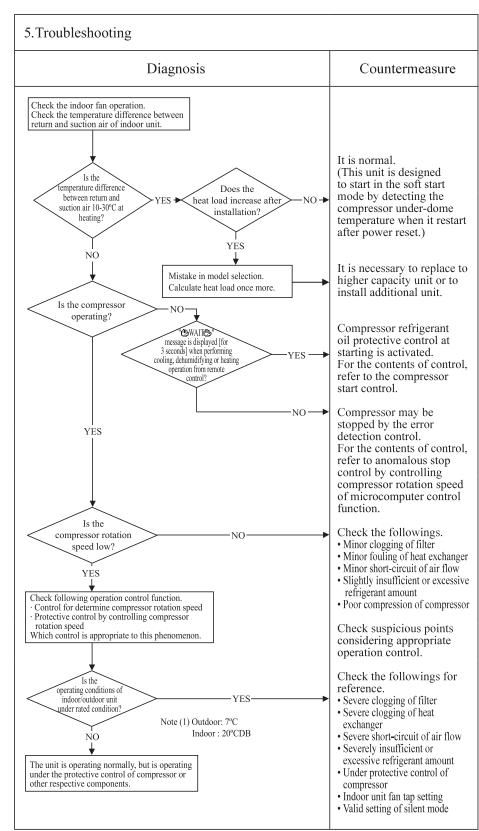
All models

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- 4-way valve anomaly
- Poor compression of compressor
- Expansion valve anomaly operation



				<u> </u>
Error code	LED	Green	Red	Content
Remote control:None	Indoor	_	-	Excessive noise/vibration (1/3)
	Outdoor	_	1	Excessive noise/violation (1/3)

#### 1. Applicable model

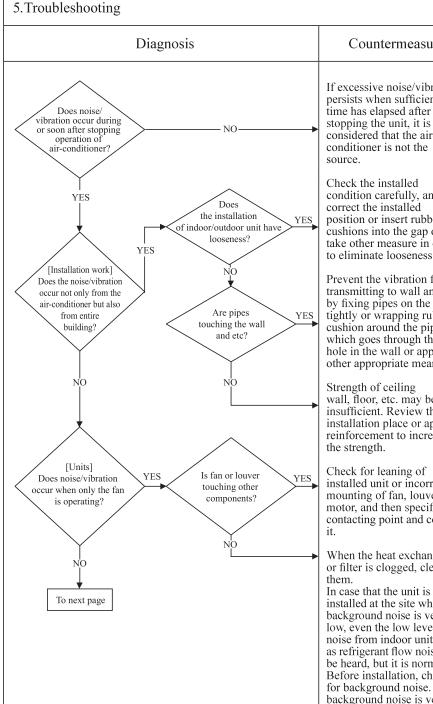
All models

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- ① Improper installation work
  - Improper vibration-proof work at installation
  - · Insufficient strength of mounting surface
- ② Anomaly of product
  - Before/after shipment from factory
- 3 Improper adjustment during commissioning
  - · Excessive/insufficient refrigerant.



Countermeasure

If excessive noise/vibration persists when sufficient time has elapsed after stopping the unit, it is considered that the airconditioner is not the

Check the installed condition carefully, and correct the installed position or insert rubber cushions into the gap or take other measure in order to eliminate looseness

Prevent the vibration from transmitting to wall and etc by fixing pipes on the wall tightly or wrapping rubber cushion around the pipe which goes through the hole in the wall or applying other appropriate means.

Strength of ceiling wall, floor, etc. may be insufficient. Review the installation place or apply reinforcement to increase

Check for leaning of installed unit or incorrect mounting of fan, louver or motor, and then specify the contacting point and correct

When the heat exchanger or filter is clogged, clean

installed at the site where background noise is very low, even the low level noise from indoor unit like as refrigerant flow noise can be heard, but it is normal. Before installation, check for background noise. If background noise is very low, convince client prior to installation.

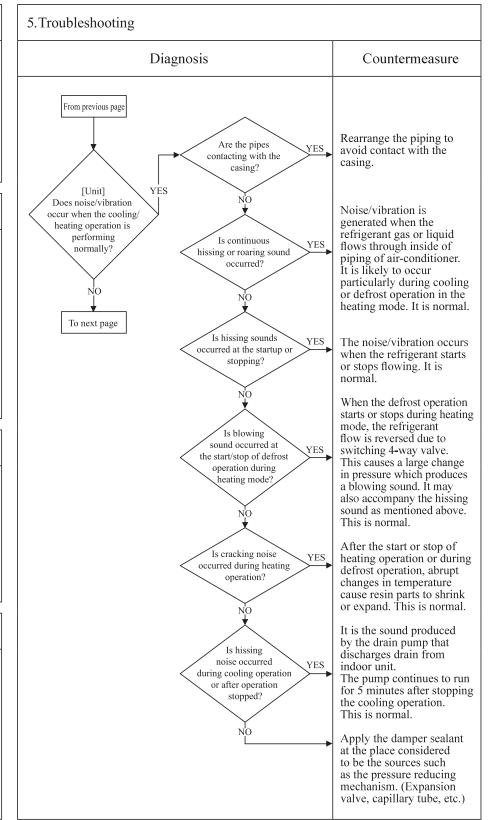
	M
Error code LED Green Red Content	
Remote control: None Indoor Excessive noise/vibration	(2/3)
Outdoor – – LACESSIVE HOISE/VIOLATION	(2/3)

# 1.Applicable model All models

2.Error detection method

3. Condition of error displayed

4. Presumable cause



					9
(1	Error code	LED	Green	Red	Content
	Remote control: None	Indoor	_	_	Excessive noise/vibration (3/3)
		Outdoor	_	_	Lacessive hoise/violation (5/5)
- 1					

#### 1. Applicable model 5. Troubleshooting All models Diagnosis Countermeasure From previous page If insufficient cooling/ Adjustment heating problem happens during commissioning] Does noise/vibration occur when the due to anomalous operating conditions at cooling / heating, followings are cooling/heating operation is performed under anomalous 2. Error detection method condition? suspicious. • Excessive charged amount of refrigerant YES Insufficient charge amount of refrigerant • Intrusion of air, nitrogen, etc. In such case, it is necessary to recover refrigerant, vacuum-dry and recharge refrigerant. \* Since there could be many causes of noise/ vibration, the above may not cover all. In such case, check the 3. Condition of error displayed conditions when, where, how the noise/vibration occurs according to following check points and ask our consultation. • Indoor/outdoor unit · Cooling/heating/fan mode • Startup/stop/during operation Operating condition (Indoor/outdoor temperatures and pressures) 4. Presumable cause • Time it occurred • Operation data retained by remote control or Mente PC such as compressor rotation speed, heat exchanger temperature, EEV opening degree and etc. Tone (If available, record the noise) · Any other anomalies.

						<u> </u>
P	Error code	LED	Green	Red	Content	
	Remote control: None	Indoor	Keeps flashing	Stays OFF		Louver motor failure
		Outdoor	Keeps flashing	Stays OFF		
-						

## 1.Applicable model All models

## 2.Error detection method

3. Condition of error displayed

## Defective LM LM wire breakage Indoor unit PCB anomaly

4. Presumable cause

### 5. Troubleshooting Diagnosis Countermeasure ▲ Check at the indoor unit side. Operate after waiting for more than 1 minute. Does the louver operate at the power Is LM wiring broken? NO Repair wiring. YES Indoor unit PCB anomaly YES Is LM locked? → Replace it. Replace LM. - YES Is the louver operable with the remote YES Normal control? Replace louver motor. (If errors persist even after replacing the louver motor, replace the indoor unit PCB.) LM: louver motor

					ρ
(1	Error code	LED	Green	Red	Content Power source system anomaly
	Remote control: None	Indoor	Stays OFF	Stays OFF	
		Outdoor	Stays OFF	2-time flash	(Power source to indoor unit PCB)

#### 1. Applicable model

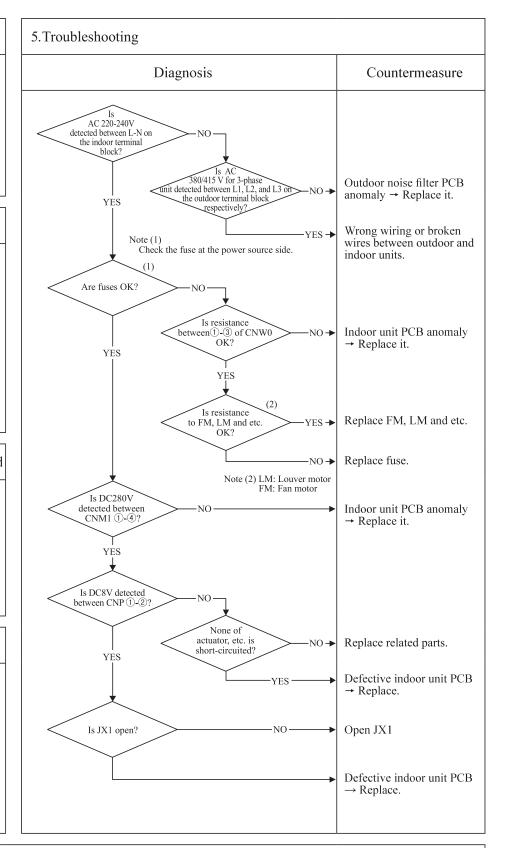
FDT, FDTC, FDK series only

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Wrong connection or breakage of connecting wires
- Blown fuse
- Transformer anomaly
- Indoor unit PCB anomaly
- Broken harness



					<u> </u>
(1	Error code	LED	Green	Red	Content Power source system anomaly
	Remote control: None	Indoor	Stays OFF	Stays OFF	
		Outdoor	Stays OFF	2-time flash	(Power source to indoor unit PCB)

#### 1. Applicable model

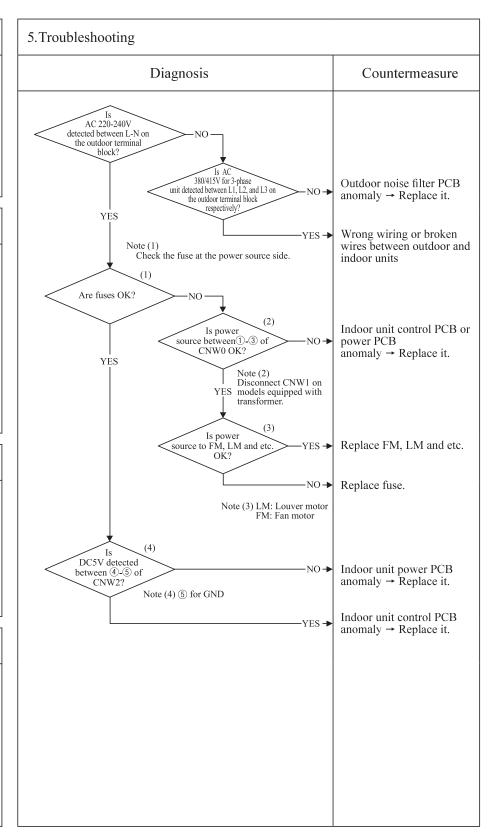
Except FDT, FDTC, FDK series

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Wrong connection or breakage of connecting wires
- Blown fuse
- · Transformer anomaly
- Indoor unit power PCB anomaly
- Broken harness
- Indoor unit control PCB anomaly



					<u>\</u>
	Error code	LED	Green	Red	Content Doyyon gourge gygtem ennen
	Remote control: None	Indoor	Keeps flashing	Stays OFF	Power source system error (Power source to remote control)
		Outdoor	Keeps flashing	2-time flash	(Fower source to remote control)
l					

### 1.Applicable model

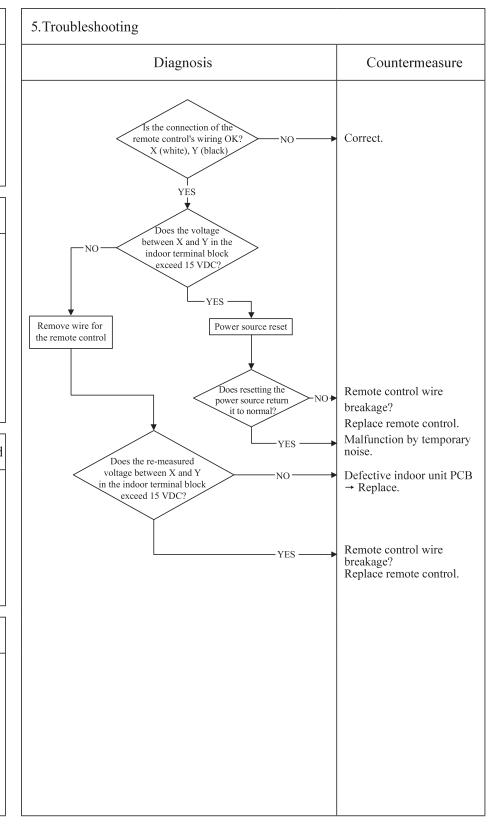
FDT, FDTC, FDK series only

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Remote control wire breakage/short-circuit
- Defective remote control
- Malfunction by noise
- Broken harness
- Faulty indoor unit PCB



_					<u> </u>
(1	Error code	LED	Green	Red	Content Power course system error
	Remote control: None	Indoor	Keeps lighting	Stays OFF	Power source system error (Power source to remote control)
		Outdoor	Keeps lighting	2-time flash	(1 ower source to remote control)
1					

#### 1. Applicable model

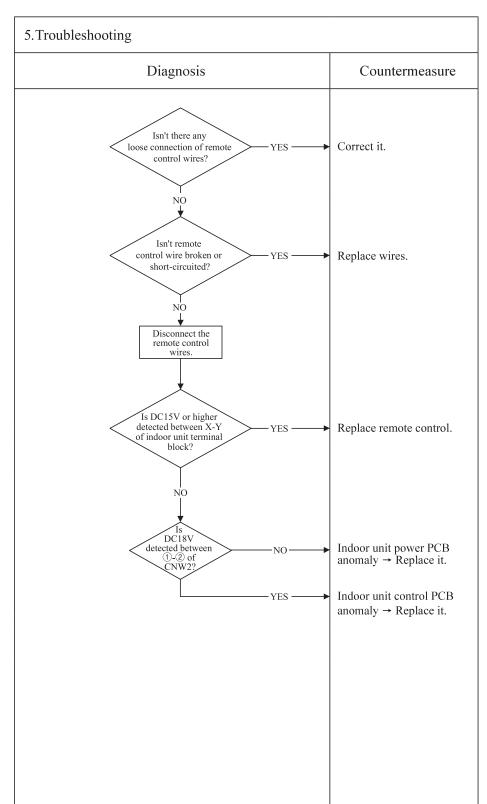
Except FDT, FDTC, FDK series

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Remote control wire
- breakage/short-circuit
- Remote control anomaly
- Malfunction by noise
   Indoor unit power PCB anomaly
- Broken harness
- Indoor unit control PCB anomaly



Correct the connecting wires

between indoor and outdoor

Outdoor unit control PCB

Breakage of connecting wire

Indoor unit PCB anomaly

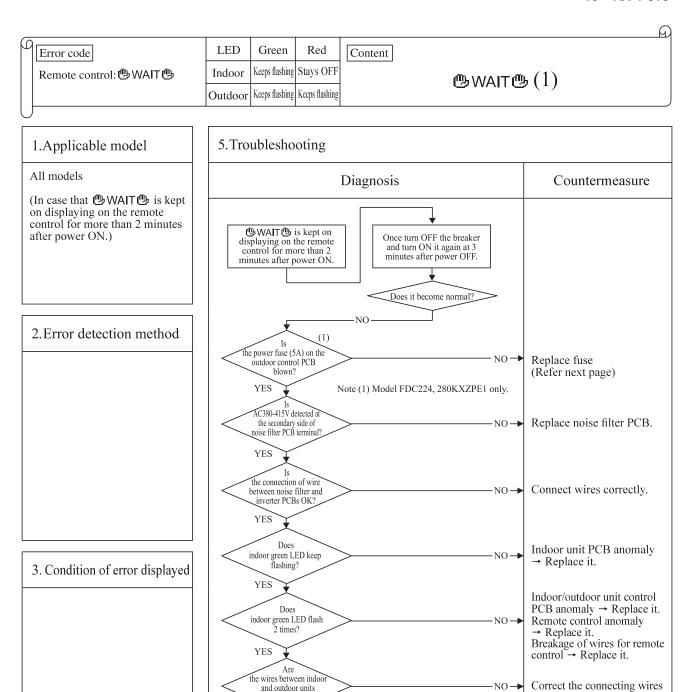
→ Replace it.

anomaly → Replace it.

NO -

NO -

YES:



#### 4. Presumable cause

- Fuse blown
- · Noise filter anomaly
- · Anomalous connection of wire between PCBs
- · Indoor unit PCB anomaly
- Remote control anomaly
- · Breakage of connecting wires of remote control
- · Outdoor unit control PCB

Note: (1) When anomaly occurs during establishing communication between indoor and outdoor unit, error code E5 is displayed (outdoor red LED flash 2-times).

In case of E5, the way of troubleshooting is same as above mentioned (except for checking of connecting wire).

onnected properly

AC380-415V detected between L1-L2, L2-L3, L3-L1

respectively at outdoor terminal block?

AC220-240V detected

between L-N at indoor

terminal block

YES

YES

When reset the power after E5 occurs, if this anomaly recurs, WAIT bis displayed on remote control. If power ON/OFF is repeated in a short period (within 1 minute), **WAIT (b)** may be displayed. In such case, please wait for 3 minutes after the power breaker OFF.

					9
(1	Error code	LED	Green	Red	Content
	Remote control: WAIT U	Indoor	Keeps flashing	Stays OFF	dia vara i = dia (2)
		Outdoor	Keeps flashing	Keeps flashing	●WAIT● (2)

#### 1.Applicable model

All models

(In case of fuse blown, how to check the unit before replacement of fuse.)

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Fuse blown
- Noise filter anomaly
  Anomalous connection of wire between PCBs
  Indoor unit PCB anomaly
  Remote control anomaly
  Breakage of connecting wires

- of remote control

  Outdoor unit control PCB
  anomaly

5. Troubleshooting							
Diagnosis	Countermeasure						
there any short-circuit between phases of noise filter  NO  Replace noise filter  NO  Replace inverter PCB  NO  Replace reactor  NO  Replace reactor	Replace fuse.						

					=
(1	Error code	LED	Green	Red	Content
	Remote control: WAIT U	Indoor	Keeps flashing	Stays OFF	din vara i = din (2)
		Outdoor	Keeps flashing	Keeps flashing	<b>७</b> WAIT <b>७</b> (3)

All models

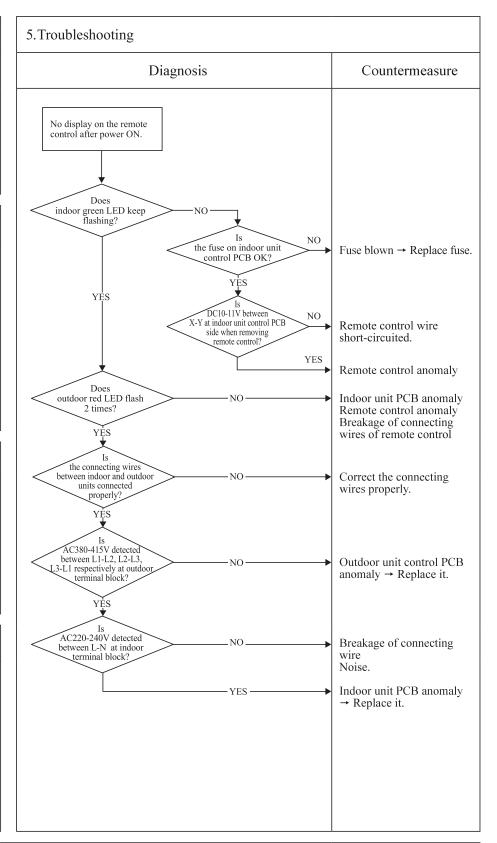
(No display on the remote control after power ON.)

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Fuse blown
- Noise filter anomaly
- Anomalous connection of wire between PCBs
- Indoor unit PCB anomaly
- Remote control anomaly
- Breakage of connecting wires of remote control
- Outdoor unit control PCB anomaly



				<u> </u>
Error code	LED	Green	Red	Content
Remote control: WAIT U	Indoor	Keeps flashing	Stays OFF	dio vara i = dio (4)
	Outdoor	Keeps flashing	Keeps flashing	⊕wait⊕ (4)
		Remote control: WAIT Indoor	Remote control: WAIT Indoor Keeps flashing	Error code

#### All models

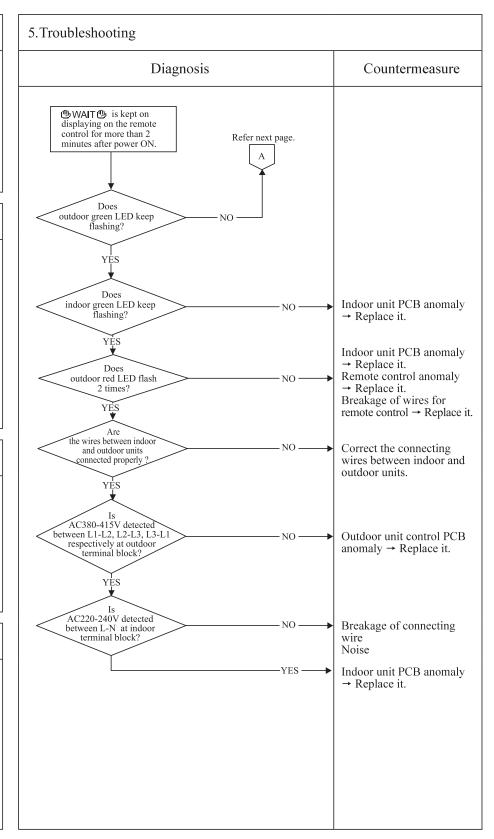
(In case that **⑤WAIT ⑥** is kept on displaying on the remote control for more than 2 minutes after power ON.)

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Fuse blown
- Noise filter anomaly
- Anomalous connection of wire between PCBs
- Indoor unit PCB anomaly
- Remote control anomaly
- Breakage of connecting wires of remote control
- Outdoor unit control PCB anomaly



	<u>(1</u>
LED Green Red Content	
Indoor Stays OFF Stays OFF	
Outdoor Stays OFF Stays OFF Stays OFF	J
Indoor Stays OFF Stays OFF	

All models

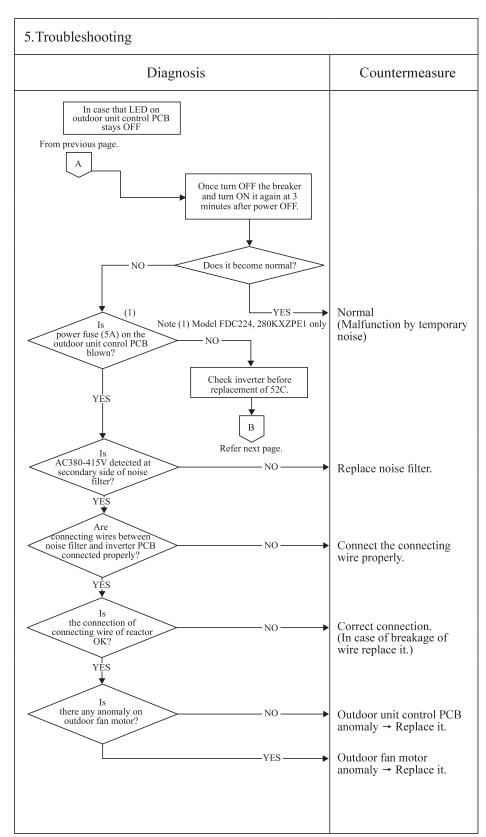
(In case that LED on outdoor unit control PCB stays OFF)

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Fuse blown
- · Noise filter anomaly
- Anomalous connection of wire between PCBs
- Indoor unit PCB anomaly
- Remote control anomaly
- Breakage of connecting wires of remote control
- Outdoor unit control PCB anomaly



				9
Error code	LED	Green	Red	Content
Remote control: WAIT ®	Indoor	Stays OFF	Stays OFF	
	Outdoor	Stays OFF	Stays OFF	<b>७</b> WAIT <b>७</b> (6)
		Remote control: WAIT Indoor	Remote control: WAIT Indoor Stays OFF	Error code

All models

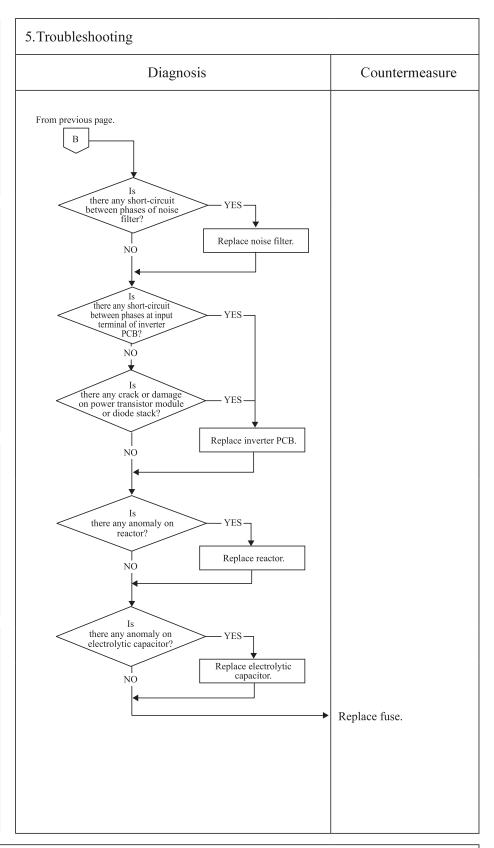
(In case of fuse blown, how to check the unit before replacement of fuse)

#### 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Fuse blown
- · Noise filter anomaly
- Anomalous connection of wire between PCBs
  • Indoor unit PCB anomaly
- · Remote control anomaly
- Breakage of connecting wires of remote control
- Outdoor unit control PCB anomaly



				Θ
Error code	LED	Green	Red	Content
Remote control: [No display]	Indoor	Stays OFF	Stays OFF	[No display]
	Outdoor	Stays OFF	Stays OFF	[No display]

All models

(No display on the remote control after power ON)

## 2. Error detection method

3. Condition of error displayed

#### 4. Presumable cause

- Fuse blown
- Noise filter anomaly
  Anomalous connection of wire between PCBs
  Indoor unit PCB anomaly
  Remote control anomaly
  Breakage of connecting wires

- of remote control

  Outdoor unit control PCB
  anomaly

5. Troubleshooting		
Diagnosis	Countermeasure	
No display on the remote control after power ON  Is DC10V or higher between X-Y detected at remote control terminal?	NO <b>→</b>	Remote control anomaly
VES  VES  VIS DC10V  or higher between X-Y  wires detected when removing remote control?	NO	Remote control anomaly
Are connecting wires between	NO	Correct connecting wire.
Y	TES	Indoor unit PCB anomaly

					<u> </u>
(1	Error code	LED	Green	Red	Content
	Remote control:E1	Indoor	Keeps flashing	Stays OFF	Remote control
		Outdoor	Keeps flashing	Stays OFF	communication error
		•		•	

# 1.Applicable model All models

## 2. Error detection method

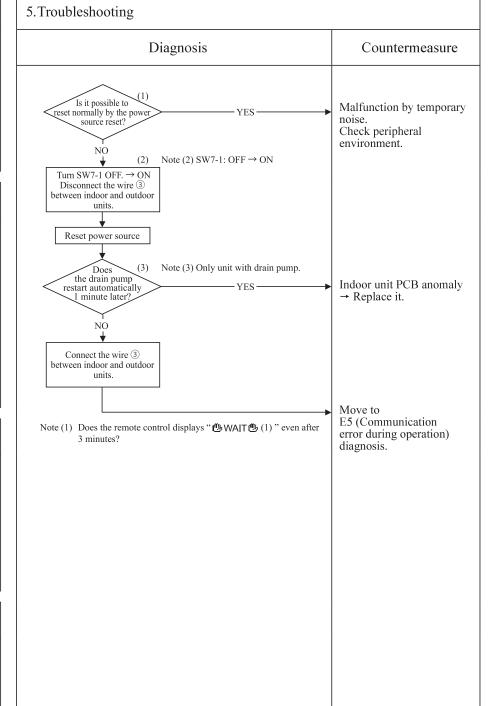
When normal communication between remote control and indoor unit is interrupted for more than 2 minutes (Detectable only with the remote control.)

## 3. Condition of error displayed

Same as above

#### 4. Presumable cause

- Anomalous communication circuit between remote control and indoor unit.
- Noise



Note: If the indoor unit cannot communicate normally with the remote control for 180 seconds, the indoor unit PCB starts to reset automatically.

					<u> </u>
	Error code	LED	Green	Red	Content
	Remote control:E2	Indoor	Keeps flashing	Keeps flashing	Duplicated indoor unit address
		Outdoor	Keeps flashing	Stays OFF	Duplicated indoor drift address
1					

All models

#### 2. Error detection method

More than 129 indoor units are connected in the same Superlink system.

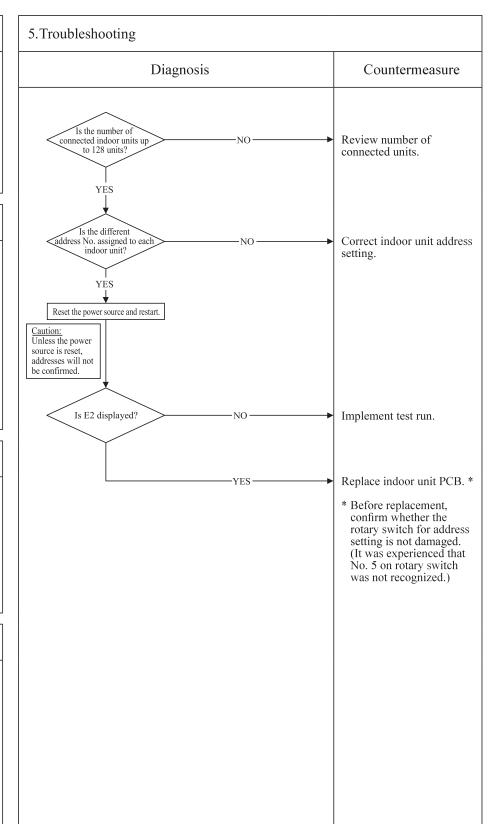
Duplicated indoor unit address

#### 3. Condition of error displayed

Same as above

#### 4. Presumable cause

- Number of connected indoor units exceeds the limitation.
- Duplicated indoor unit address
- Indoor unit PCB anomaly



						<u> </u>
Erro	r code	LED	Green	Red	Content	
Rem	ote control:E3/5	Indoor	Keeps flashing	2-time flash	Outdoor unit signal line error	
		Outdoor	Keeps flashing	Stays OFF	Outdoor unit signar fine error	

All models

#### 2. Error detection method

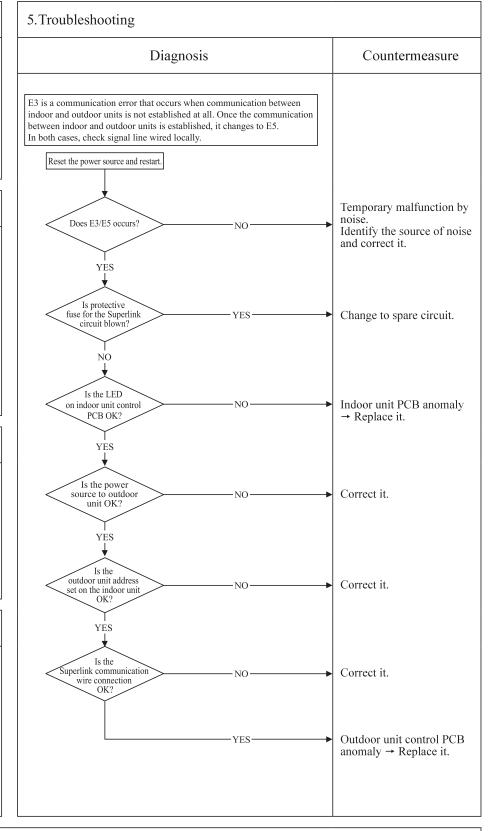
No outdoor unit exists in the same Superlink system.

## 3. Condition of error displayed

Same as above

#### 4. Presumable cause

- Power is not supplied to the outdoor unit
- Unmatch of pairing between indoor and outdoor units Indoor unit PCB anomaly
- Outdoor unit control PCB anomaly
- Missing local wiring



Content   LED   Green   Red   Content					$\mathcal{G}$
Communication error during operation	Error code	LED	Green	Red	Content
Outdoor Keens flashing 2-time flash	Remote control:E5	Indoor	Keeps flashing	*See below	Communication error during operation
Oddoo in the internal in the internal in the internal in the internal internal in the internal interna		Outdoor	Keeps flashing	2-time flash	Communication error during operation

All models

#### 2. Error detection method

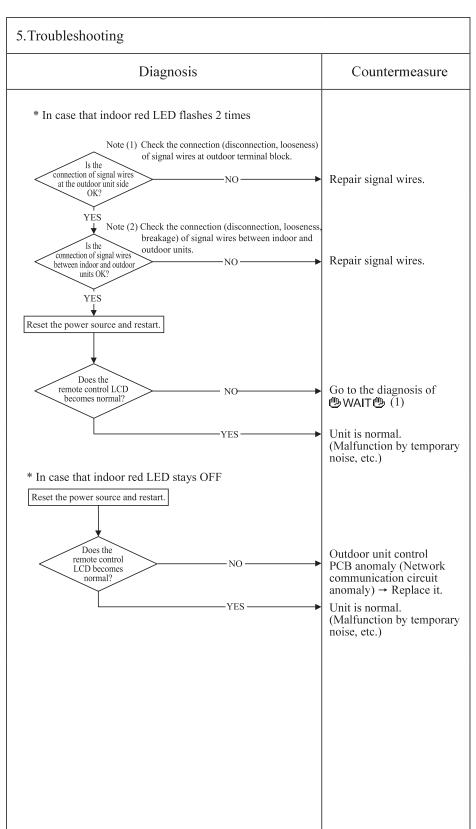
When the communication between indoor and outdoor units is interrupted for more than 2 minutes

#### 3. Condition of error displayed

When this anomaly is detected during operation

#### 4. Presumable cause

- Unit address No. setting error
- Remote control wires broken
- Poor connection/disconnection of remote control wires
- Indoor unit PCB anomaly



Note: When the pump down switch is turned on, communication between indoor and outdoor units is cancelled so that "Communication error E5" will be displayed on the remote control and indoor unit control PCB, but this is normal.

_					<u></u>
U	Error code	LED	Green	Red	[Content] Indoor heat exchanger
	Remote control:E6	Indoor	Keeps flashing	1-time flash	
		Outdoor	Keeps flashing	Stays OFF	temperature sensor anomaly (Thi-R)

All models

#### 2. Error detection method

Detection of anomalously low temperature (resistance) of Thi-R1, R2, R3

#### 3. Condition of error displayed

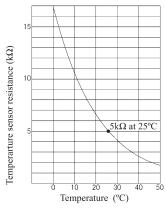
- If -40°C or lower is detected for 5 seconds continuously, compressor stops. After 3 minutes delay, the compressor is restarted automatically, but if this anomaly occurs again within 60 minutes after the initial detection.
- Or if short-circuit is detected for 5 seconds continuously.

#### 4. Presumable cause

- Anomalous connection of indoor heat exchanger temperature sensor
- Indoor heat exchanger temperature sensor anomaly
   Indoor unit PCB anomaly

## 5. Troubleshooting Diagnosis Countermeasure the connector of Insert the connector temperature sensor connected properly securely. YES Regarding the characteristics of the temperature sensor, see the following chart. the characteristics of temperature sensor OK? Replace temperature -NO sensor. (Thi-R) Replace indoor unit PCB. YES \*1 Check several times to prove any poor connection

Temperature-resistance characteristics of indoor heat exchanger temperature sensor (Thi-R1, R2, R3)



					$\mathcal{G}$
(1	Error code	LED	Green	Red	Content Indoor return air
	Remote control:E7	Indoor	Keeps flashing	1-time flash	
		Outdoor	Keeps flashing	Stays OFF	temperature sensor anomaly (Thi-A)
		•			

All models

#### 2. Error detection method

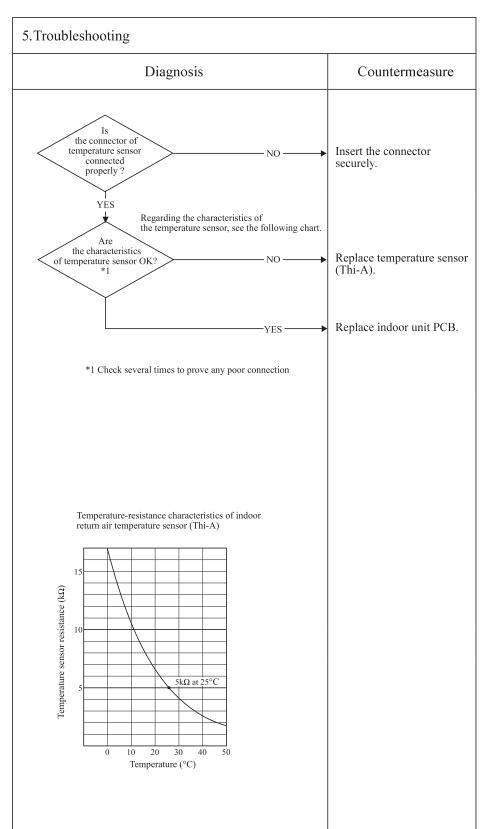
Detection of anomalously low temperature (resistance) of Thi-A.

#### 3. Condition of error displayed

- If -20°C or lower is detected for 5 seconds continuously, compressor stops. After 3 minutes delay the compressor is restarted automatically, but if this anomaly occurs again within 60 minutes after the initial detection.
- Or detected for 5 seconds continuously.

#### 4. Presumable cause

- Anomalous connection of indoor return air temperature sensor
- Indoor return air temperature sensor anomaly
- Indoor unit PCB anomaly



					$\subseteq$
9	Error code	LED	Green	Red	Content
	Remote control:E9	Indoor	Keeps flashing	1-time flash	 Drain trouble
		Outdoor	Keeps flashing	Stays OFF	Diam dodoic
		Outdoor	Keeps hashing	Stays Of F	

Only unit with drain pump

#### 2. Error detection method

Float switch is activated.

#### 3. Condition of error displayed

If the float switch OPEN is detected for 3 seconds continuously or if float switch connector is disconnected or wire broken.

#### 4. Presumable cause

- Indoor unit PCB anomaly
- Mistake in setting of float switch
- Mistake in setting of humidifier drain pump motor interlock
- Mistake in setting of option equipment
- Mistake in drain piping
- Drain pump motor anomaly
- Disconnection/breakage of drain pump motor wires

### 5. Troubleshooting Diagnosis Countermeasure Check the error data in the remote control. Is there any overflow? Is DC 12V detected at CNI connector? Check float switch. NO YES: Is the CNI connected firmly Check the connection of YĖS CNI. If it is loose, connect it YES securely. Is there any anomaly on the option Replace indoor unit PCB. equipment's Is the humidifier connected? Check option equipment YES NO YES Is the humidifier drain pump motor interlocked by the indoor unit Correct setting to function setting of remote "Humidifier drain pump control? motor interlock". YES Drain pump motor ON from the remote control. Is AC220/240V or DC12V detected at Does the drain pump motor operate? Indoor unit PCB anomaly →Replace it. Check the wiring of drain YES pump motor. Is the drain piping unclogged? Is the drain pipe slop OK? Correct it. Check drain pump motor.

Note: When this anomaly occurs at power ON, disconnection of connector or breakage of wire of float switch is suspected. Check and correct it (or replace it, if necessary).

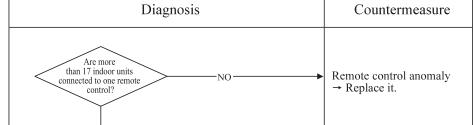
Reduce to 16 or less units.

					<u> </u>
a	Error code	LED	Green	Red	Content
	Remote control: E10	Indoor	Keeps flashing	Stays OFF	Excessive number of indoor units (more than 17 units)
		Outdoor	Keeps flashing	Stays OFF	by controlling one remote control

## 1.Applicable model

All models

## 5. Troubleshooting



-YES-

#### 2. Error detection method

When it detects more than 17 of indoor units connected to one remote control.

#### 3. Condition of error displayed

Same as above

#### 4. Presumable cause

3	Condition	of error	displayed

• Excessive number of indoor units connected.
• Remote control anomaly

Note:			

_					9
C	Error code	LED	Green	Red	Content A 1.1
	Remote control:E11	Indoor	Keeps flashing	Stays OFF	
		Outdoor	Keeps flashing	Stays OFF	master and slave indoor units

# 1. Applicable model 5. Troubleshooting All models Diagnosis Countermeasure E11 occurs Is "Master IU address set" function of remote control used? 2. Error detection method IU address has been set using the "Master IU address set" function of remote control. • In cases of RC-EX3A YES-Menu → Service setting → IU settings → Service password → IU Select • In cases of RC-E5 Return address No. to "IU ···" using [ ▲ ] or [ ▼ ] button. In case the wiring is below and "Master IU address set" is used, E11 is appeared. IU① IU② IU③ ····· 3. Condition of error displayed Same as above 4. Presumable cause Same as above

					Θ
	Error code	LED	Green	Red	Content
	Remote control:E12	Indoor	Keeps flashing	Keeps flashing	
		Outdoor	Keeps flashing	Stays OFF	by mixed setting method
-					

All models

#### 2. Error detection method

Automatic address setting and manual address setting are mixed when setting address of indoor units.

## 3. Condition of error displayed

Same as above

#### 4. Presumable cause

Mistake in address setting for indoor unit.

5. Troubleshooting	
Diagnosis	Countermeasure
Is the automatic setting and manual setting mixed in the address setting method for indoor units?	Review address setting.  Replace indoor unit PCB.

		Models fo	r new Superlir	ık protocol	Models for previous Superlink protocol			
	Indoor unit a	ddress setting	Outdoor unit address setting	Indoor unit address setting		Outdoor unit address setting		
	Indoor unit No. SW	Outdoor unit No. SW	Outdoor unit No. SW	Indoor unit No. SW	Outdoor unit No. SW	Outdoor unit No. SW		
Manual address setting	(New SL)	000-127	00-31	00-31	00-47	00-47	00-47	
Manual address setting	(Previous SL)	[00-47]	[00-47]	[00-47]	00-47	00-47	00-47	
Automatic address setting for	(New SL)	000	49	49	49	49	49	
single refrigerant system	(Previous SL)		49	49	49	49	49	
Automatic address setting for	(New SL)	000	49	00-31		N		
multiple refrigerant systems	(Previous SL)		Not available		Not available			

Address setting method list (Figures in [ ] are for previous Superlink models)

Note:	

					(A
Error code	LED	Green	Red	Content	
Remote control: E16	Indoor	Keeps flashing	1-time flash	Indoor DC fan motor anomaly	
	Outdoor	Keeps flashing	Stays OFF		
	Outdoor	Keeps Hashing	Stays OFF		

FDT, FDTC, FDK series only

#### 2. Error detection method

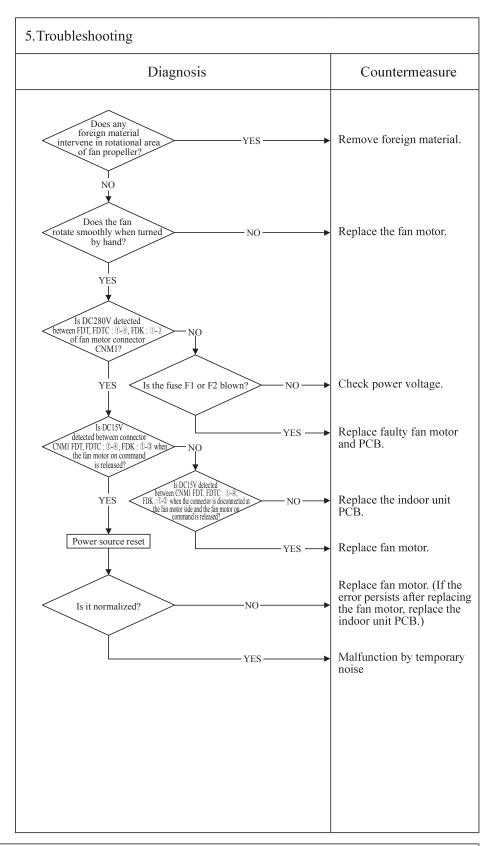
Detected by rotation speed of indoor fan motor

## 3. Condition of error displayed

- When actual rotation speed of indoor fan motor drops to lower than 200min<sup>-1</sup> for 30 seconds continuously, the compressor and the indoor fan motor stop.
- After 2 seconds, it starts again automatically, but if this error occurs 4 times within 60 minutes after the initial detection.

#### 4. Presumable cause

- Defective indoor unit PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on PCB
- Blown fuse
- External noise, surge



	Error code	LED	Green	Red	Content
	Remote control: E16	Indoor	Keeps flashing	1-time flash	Indoor DC fan motor anomaly
		Outdoor	Keeps flashing	Stays OFF	
1					

Except FDT, FDTC, FDK series

#### 2. Error detection method

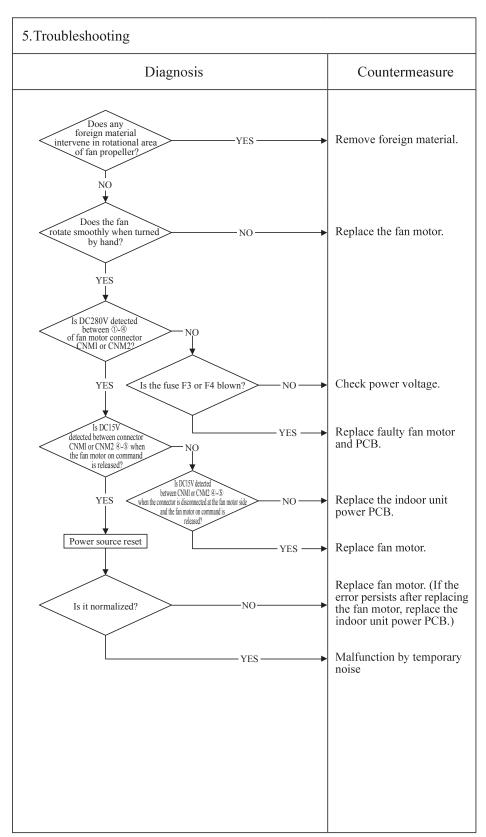
Detected by rotation speed of indoor fan motor

#### 3. Condition of error displayed

- When actual rotation speed of indoor fan motor drops to lower than 200min<sup>-1</sup> for 30 seconds continuously, the compressor and the indoor fan motor stop.
- After 2 seconds, it starts again automatically, but if this error occurs 4 times within 60 minutes after the initial detection.

#### 4. Presumable cause

- Defective indoor unit power PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on PCB
- Blown fuse
- External noise, surge



_					9
(1	Error code	LED	Green	Red	Content
	Remote control: E18	Indoor	Keeps flashing	1-ime flash	Address setting error of
		Outdoor	Keeps flashing	Stays OFF	master and slave indoor units
1					

All models

#### 2. Error detection method

- (1) When the address setting for the master indoor unit is not existing in the same Superlink system
- (2) When the address setting for the slave indoor unit is set for the master indoor unit redundantly

## 3. Condition of error displayed

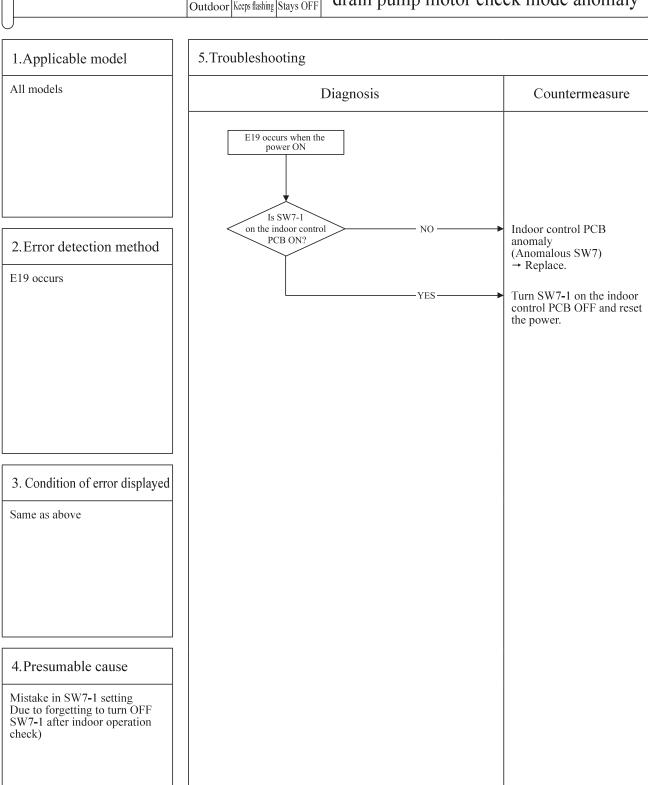
Same as above

#### 4. Presumable cause

- Address setting error of the master indoor unit
- No power source to the master indoor unit
- No connection of Superlink signal wires between master and slave indoor unit

5. Troubleshooting	
Diagnosis	Countermeasure
Diagnosis	Countermeasure
Is the address	
setting for the master indoor unit correct?	Correct the address setting of the master indoor unit.
YES	
Is the power source to the master indoor unit?	Power source to the master indoor unit
YES	
Are the Superlink signal wires connected between master and slave	Connect the Superlink signal
indoor units?	wires correctly.
VEC	Indoor unit PCB anomaly
YES—	→ Indoor unit PCB anomaly → Replace it. (Firstly replace PCB on the slave indoor unit. If it is not recovered, replace PCB on the master indoor unit as well

LED   Green   Red   Content   Indoor unit operation check,   Outdoor   Keeps flashing   I-time flash   Outdoor   Keeps flashing   Stays OFF   Content   Indoor unit operation check,   drain pump motor check mode anomaly					<u> </u>
Remote control: E19	Error code	LED	Green	Red	Content
Outdoor Keeps flashing Stavs OFF drain pump motor check mode anomaly	Remote control:E19	Indoor	Keeps flashing		1
		Outdoor	Keeps flashing	Stays OFF	drain pump motor check mode anomaly



Note: Indoor operation check/drain pump motor check mode

If the power is ON after SW7-1ON, indoor operation check/drain pump motor check mode can be established.

1) When the communication between remote control and indoor PCB is established 15 seconds after power ON, it goes to indoor operation check.

<sup>2)</sup> When the communication between remote control and indoor PCB is not established, it goes to drain pump motor check. (CnB connector should be open before power ON.)

C	Error code	LED	Green	Red	Content	
	Remote control: E20	Indoor	Keeps flashing	1-time flash	mador be fair motor rotation	
		Outdoor	Keeps flashing	Stays OFF	speed anomaly	

FDT, FDTC, FDK series only

#### 2. Error detection method

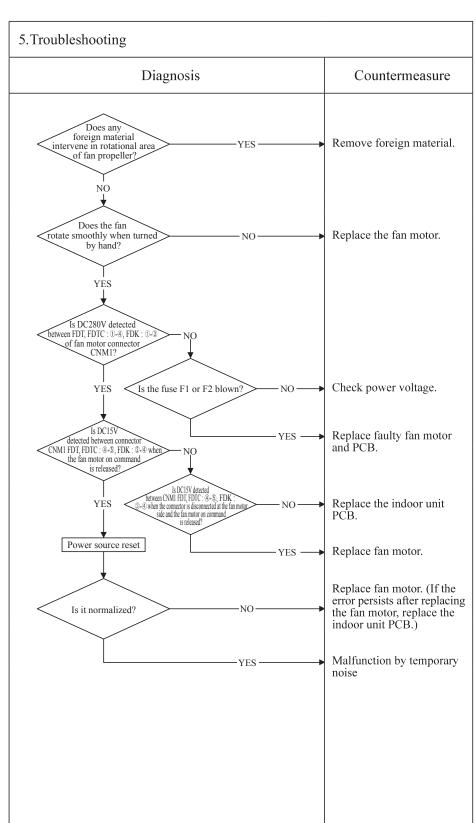
Detected by rotation speed of indoor fan motor

#### 3. Condition of error displayed

When the actual fan rotation speed does not reach to the speed of [required speed -50 min<sup>1</sup>] after 2 minutes have been elapsed since the fan motor rotation speed command was output, the unit stops by detecting indoor fan motor anomaly.

#### 4. Presumable cause

- Defective indoor unit PCB
- Foreign material at rotational area of fan propeller
- Defective fan motor
- Dust on PCB
- Blown fuse
- External noise, surge



					<u> </u>
1	Error code	LED	Green	Red	Content
	Remote control: E20	Indoor	Keeps flashing	1(2)-time flash	Indoor DC fan motor rotation
		Outdoor	Keeps flashing	Stays OFF	speed anomaly
ı			•		

Note (1) Value in ( ) is for the FM2 only.

#### 1. Applicable model

Except FDT, FDTC, FDK series

#### 2. Error detection method

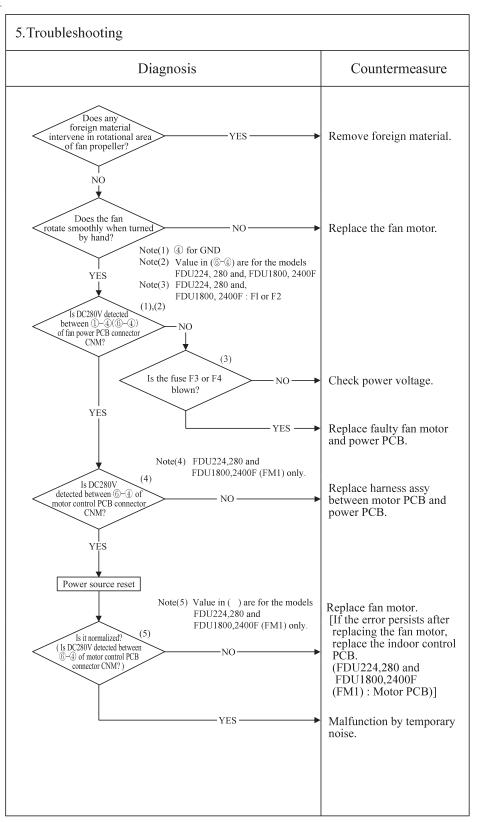
Detected by rotation speed of indoor fan motor

#### 3. Condition of Error displayed

When the actual fan rotation speed does not reach to the speed of [required speed -50 (FDU: -500) min<sup>-1</sup>] after 2 minutes have been elapsed since the fan motor rotation speed command was output, the unit stops by detecting indoor fan motor anomaly.

#### 4. Presumable cause

- •Defective indoor power (motor) PCB
- •Defective indoor control PCB
- •Foreign material at rotational area of fan propeller
- Defective fan motor
- •Dust on control PCB
- •Blown fuse
- •External noise, surge



							IJ.
Ψ	Error code	LED	Green	Red	Content	Defective nenel assistab	
	Remote control: E21	Indoor	Keeps flashing	1-time flash		Defective panel switch	
		Outdoor	Keeps flashing	Stays OFF		operation (FDT)	J

FDT series only

#### 2. Error detection method

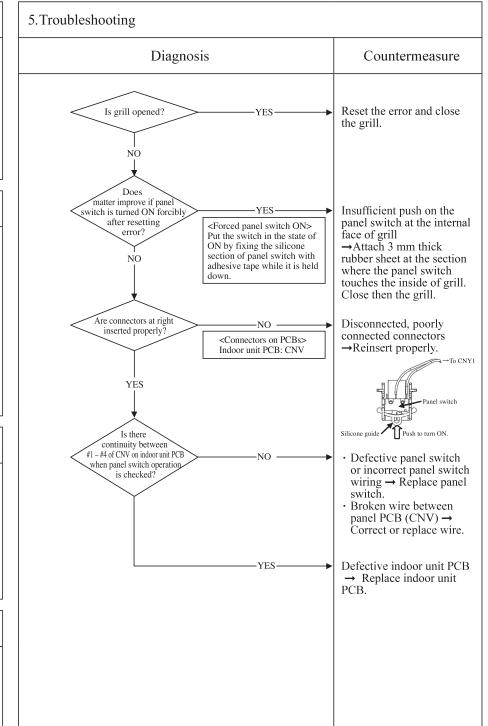
Panel switch (PS) has detected open for more than 1 second.

#### 3. Condition of Error displayed

Same as above

#### 4. Presumable cause

- Defective panel switch
- Disconnection of wiring
- Defective indoor unit PCB



					9
C	Error code	LED	Green	Red	Content
	Remote control: E28	Indoor	Keeps flashing	Stays OFF	Remote control
		Outdoor	Keeps flashing	Stays OFF	temperature sensor anomaly (Thc)

All models

#### 2. Error detection method

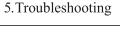
Detection of anomalously low temperature (resistance) of Thc.

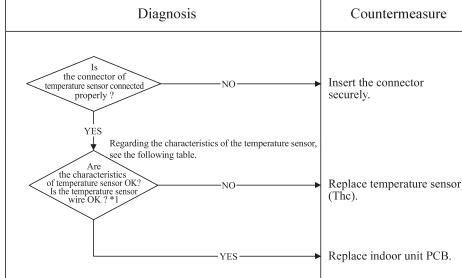
## 3. Condition of error displayed

• If -50°C or lower is detected for 5 seconds continuously, compressor stops. After 3-minute delay, the compressor is restarted automatically, but if this anomaly occurs again within 60 minutes after the initial detection.

#### 4. Presumable cause

- Anomalous connection of remote control temperature sensor
- · Remote control temperature
- sensor anomaly
   Remote control PCB anomaly





\*1 Check several times to prove any poor connection.

Temperature-resistance characteristics of remote control temperature sensor (Thc).

Temperature (°C)	Resistance (kΩ)						
0	65	14	33	30	16	46	8.5
1	62	16	30	32	15	48	7.8
2	59	18	27	34	14	50	7.3
4	53	20	25	36	13	52	6.7
6	48	22	23	38	12	54	6.3
8	44	24	21	40	11	56	5.8
10	40	26	19	42	9.9	58	5.4
12	36	28	18	44	9.2	60	5.0

Note: After 10 seconds has elapsed since remote control temperature sensor was switched from invalid to valid, E28 will not be displayed even if the temperature sensor harness is disconnected or broken. However, in such case, the indoor return air temperature sensor (Thi-A) will be valid instantly instead of the remote control temperature sensor (The).

Please note that even though the remote control temperature sensor (Thc) is valid, the displayed return air temperature on the remote control LCD shows the value detected by the indoor return air temperature sensor (Thi-A), not by the remote control temperature sensor (Thc).

_					<u></u>
(	Error code	LED	Green	Red	Content
	Remote control: E63	Indoor	Keeps flashing	Stays OFF	Emergency ston
	7-segment display: E63	Outdoor	Keeps flashing	1-time flash	Emergency stop

# 1.Applicable model All models

## 2. Error detection method

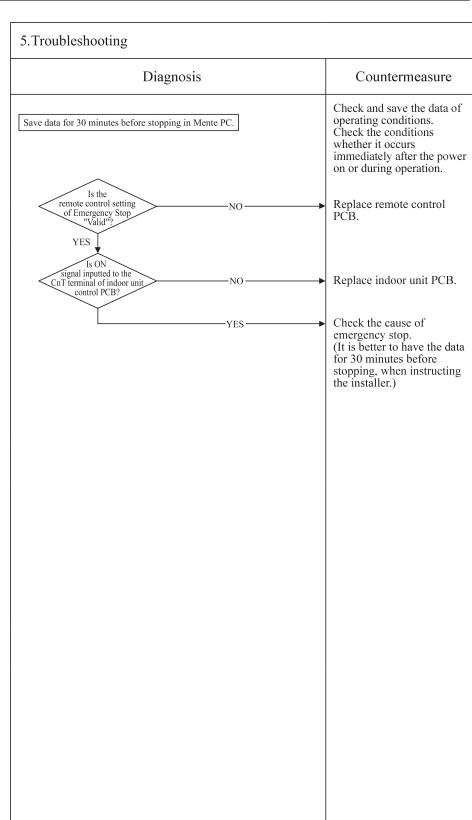
When ON signal is inputted to the CnT terminal of indoor unit control PCB

## 3. Condition of error displayed

Same as above

#### 4. Presumable cause

Factors for emergency stop



Note: Indoor unit detected emergency stop signal gives command "all stop"

## 11.3 Instruction of how to replace PCB

(1) FDT, FDTC series



#### **SAFETY PRECAUTIONS**

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.
   Both mentions the important items to protect your health and safety so strictly follow them by any means.

WARNING Wrong installation would cause serious consequences such as injuries or death.

CAUTION Wrong installation might cause serious consequences depending on circumstances.

After completing the replacement, do commissioning to confirm there are no abnormalities.

#### WARNING

- Replacement should be performed by the specialist
  - If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.
- Replace the PCB correctly according to these instructions.
- Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work. Start the work after elapsing 1 minute or more from power off.
   Replacement during the applying the current would cause the electric shock, unit failure or improper running.
   It would cause the damage of connected equipment such as fan motor, etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal.
   Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.

Defectiveness of replacement may cause electric shock or fire.

#### 

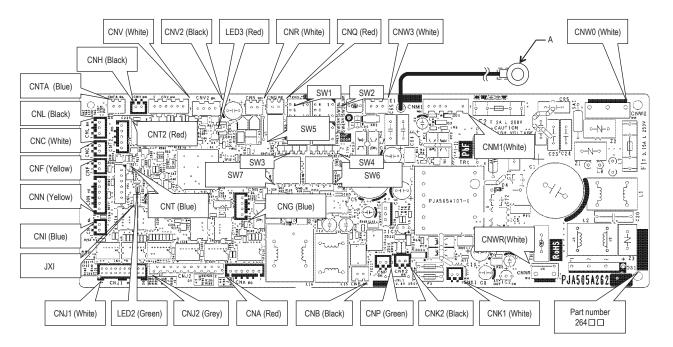
- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connector securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.

This pwb is a general PCB. Replace the PCB according to this instruction.

#### (1) Replace the PCB

- ① Unscrew terminal(Arrow A) of the "E1" wiring(yellow/green) that is connected to PCB.
- ② Replace the PCB only after all the wirings connected to the connector are removed.
- 3 Fix the board such that it will not pinch any of the wires.
- ④ Switch setting must be same setting as that of the removed PCB.
- (§) Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB.
- ⑥ Screw back the terminal(Arrow A) of the "E1" wiring, that was removed in ①.

#### (2) Control PCB



#### (2) FDK series

#### (a) FDK15-56KXZE1

PHA012D050AA

#### **SAFETY PRECAUTIONS**

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.

  Both mentions the important items to protect your health and safety so strictly follow them by any means.

  WARNING
  Wrong installation would cause serious consequences such as injuries or death.
  - CAUTION Wrong installation might cause serious consequences depending on circumstances.
- After completing the replacement, do commissioning to confirm there are no abnormalities.

#### 

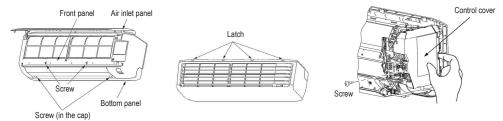
- Replacement should be performed by the specialist.
- If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.
- Replace the PCB correctly according to these instructions.
   Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work. Start the work after elapsing 1 minutes or more from power off
  Replacement during the applying the current would cause the electric shock, unit failure or improper running.
  It would cause the damage of connected equipment such as fan motor, etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal.
   Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.

#### Defectiveness of replacement may cause electric shock or fire

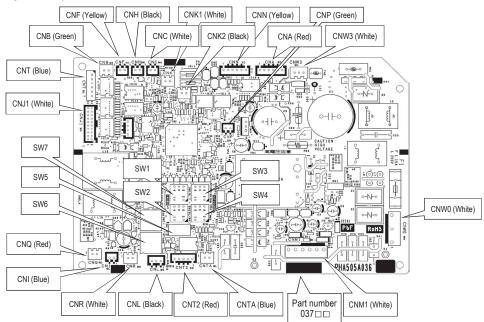
- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction
- Insert connector securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation

Exchange the PCB according to the following procedure

- (1) Remove the air inlet panel.
- 2 Remove the 2 screws in the cap of bottom panel.
- ③ Remove the 2 hooks of left and right side and then bottom panel can be removed.
- 4 Remove the screws. (2 screws)
- ⑤ Remove the upper latches and then front panel can be removed.(4 latches)
- 6 Remove the screw and control cover.



- ⑦ Replace the PCB only after all the wirings connected to the connector are removed.
- ® Fix the board such that it will not pinch any of the wires.
- Switch setting must be same setting as that of the removed PCB.
- Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB.



#### (b) FDK71KXZE1

#### PHA012D051AA

#### SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.
   Both mentions the important items to protect your health and safety so strictly follow them by any means.
  - WARNING Wrong installation would cause serious consequences such as injuries or death.

    CAUTION Wrong installation might cause serious consequences depending on circumstances.
- After completing the replacement, do commissioning to confirm there are no abnormalities.

#### 

- Replacement should be performed by the specialist.
- If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.
- Replace the PCB correctly according to these instructions.
   Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work. Start the work after elapsing 1 minutes or more from power off.
   Replacement during the applying the current would cause the electric shock, unit failure or improper running.
  - It would cause the damage of connected equipment such as fan motor, etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal.
   Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.

Defectiveness of replacement may cause electric shock or fire.

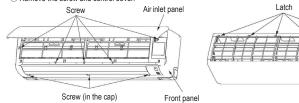
#### **CAUTION**

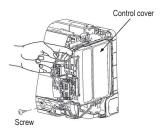
- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connector securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.

Exchange the PCB according to the following procedure.

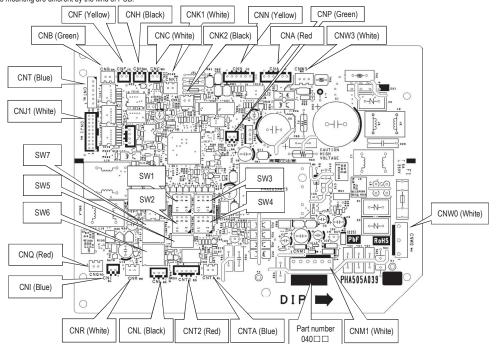
- 1 Remove the air inlet panel.
- ② Remove the screws. (8 screws)
- 3 Remove the upper latches and then front panel can be removed.(5 latches)

4 Remove the screw and control cover.





- (5) Replace the PCB only after all the wirings connected to the connector are removed.
- ⑥ Fix the board such that it will not pinch any of the wires.
- Switch setting must be same setting as that of the removed PCB.
- ® Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB.



- (3) Models except for FDT, FDTC, FDK series
  - (a) Control PCB

(i) FDTW, FDTS, FDU, FDUM, FDUT71, FDE, FDU-F series

PSB012D991B ⚠

#### SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.

Both mentions the important items to protect your health and safety so strictly follow them by any means.

<u>↑ WARNING</u> Wrong installation would cause serious consequences such as injuries or death.

Wrong installation might cause serious consequences depending on circumstances.

• After completing the replacement, do commissioning to confirm there are no abnormalities.

## **⚠** WARNING

- Replacement should be performed by the specialist.
  - If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.
- Replace the PCB correctly according to these instructions.
   Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work. Start the work after elapsing 1 minutes or more from power off.
   Replacement during the applying the current would cause the electric shock, unit failure or improper running.
   It would cause the damage of connected equipment such as fan motor,etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal. Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.
   Defectiveness of replacement may cause electric shock or fire.

## **↑** CAUTION

- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connector securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.

Replace and set up the PCB according to this instruction.

Set to an appropriate address and function using switch on PCB.
 Select the same setting with the removed PCB.

Item	Switch		Content of control			
	SW1,2 (Blue)	Indoor unit address: 00-99				
Addraga	SW5-2	OFF	Indoor unit address : under 100			
Address	5005-2	ON Indoor unit address : 100 or more				
	SW3,4 (Green)	Outdoor unit address				

<b>I</b> tem	Switch		Content of control
Superlink	CIME 4	OFF	Automatic adjustment
setting	SW5-1	ON	Fixed previous version of Superlimk protocol
Tootrus	0147.4	OFF	Normal
Test run	SW7-1	ON	Operation check/drain motor test run

2) Set to an appropriate capacity using the model selector switches (SW6, 8 and J1). Select the same setting with the removed PCB.

Setting		S'	W6		SW8	J1
model	-1	-2	-3	-4	-1	J I
15	0FF	0FF	0FF	0FF	ON	OPEN
22	0FF	0FF	0FF	0FF	0FF	OPEN
28	ON	0FF	0FF	0FF	0FF	OPEN
36	0FF	ON	0FF	0FF	0FF	OPEN
45	0FF	0FF	ON	0FF	0FF	OPEN

Setting		S	SW8	J1		
model	-1	-2	-3	-4	-1	31
56	0FF	ON	ON	0FF	0FF	OPEN
71	0FF	0FF	0FF	ON	0FF	OPEN
an	0FF	ON	0FF	ON	0FF	OPEN

Setting		S	SW8	J1		
model	-1	-2	-3	-4	-1	31
112	ON	ON	0FF	ON	0FF	OPEN
140	0FF	0FF	ON	ON	0FF	OPEN
160	ON	0FF	ON	ON	0FF	OPEN
224	0FF	ON	ON	ON	0FF	OPEN
280	ON	ON	ON	ON	0FF	OPEN





Example setting for 56

#### (b) Power PCB

(i) FDTS, FDUM22-56, FDUT71, FDE series



## SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.

  Both mentions the important items to protect your health and safety so strictly follow them by any means.

 ⚠WARNING
 Wrong installation would cause serious consequences such as injuries or death.

 ♠CAUTION
 Wrong installation might cause serious consequences depending on circumstances.

• After completing the replacement, do commissioning to confirm there are no abnormalities.

## **⚠ WARNING**

- Replacement should be performed by the specialist.
  - If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.
- Replace the PCB correctly according to these instructions.
   Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work. Start the work after elapsing 1 minutes or more from power off.
   Replacement during the applying the current would cause the electric shock, unit failure or improper running.
   It would cause the damage of connected equipment such as fan motor,etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal. Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.
   Defectiveness of replacement may cause electric shock or fire.

## **⚠** CAUTION

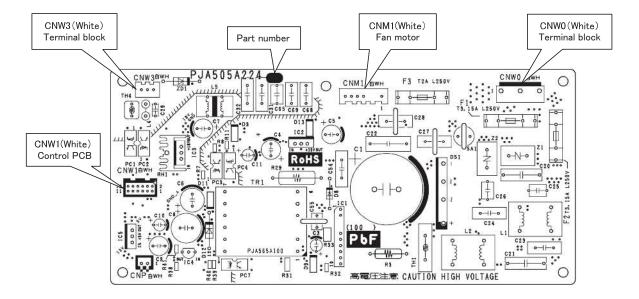
- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connector securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.

This PCB is a general PCB. Replace the PCB according to this instruction.

#### 1) Replace the PCB

- a) Unscrew terminal of the wiring(yellow/green) connected to terminal block (CNWO) from the box.
- b) Replace the PCB only after all the wirings connected to the connector are removed.
- c) Fix the board such that it will not pinch any of the wires.
- d) Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB.
- e) Screw back the terminal of wiring, that was removed in a).

#### 2) Power PCB



#### (ii) FDTW, FDUM71-160 series

PSB012D993

#### SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself,
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.
   Both mentions the important items to protect your health andsafety so strictly follow them by any means.

<u>↑</u>WARNING Wrong installation would cause serious consequences such as injuries or death.

Wrong installation might cause serious consequences depending on circumstances.

• After completing the replacement, do commissioning to confirm there are no abnormalities.

## **!** WARNING

· Replacement should be performed by the specialist.

If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.

- Replace the PCB correctly according to these instructions.
   Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work.
  - Replacement during the applying the current would cause the electric shock, unit failure or improper running. It would cause the damage of connected equipment such as fan motor, etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal. Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.
   Defectiveness of replacement may cause electric shock or fire.

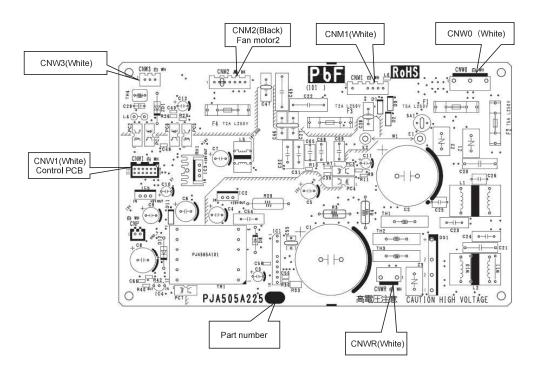
## ♠ CAUTION

- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connector securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.

This PCB is a general PCB. Replace the PCB according to this instruction.

- 1) Replace the PCB
- a) Unscrew terminal of the wiring (yellow/green) connected to terminal block (CNW0) from the box.
- b) Replace the PCB only after all the wirings connected to the connector are removed.
- c) Fix the board such that it will not pinch any of the wires.
- d) Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB.
- e) Screw back the terminal of wiring, that was removed in a).

#### 2) Power PCB



#### (iii) FDU45-160, FDU650, 1100F series



#### SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.
   Both mentions the important items to protect your health andsafety so strictly follow them by any means.

Marning Wrong installation would cause serious consequences such as injuries or death.

⚠ CAUTION Wrong installation might cause serious consequences depending on circumstances.

• After completing the replacement, do commissioning to confirm there are no abnormalities.

## **⚠ WARNING**

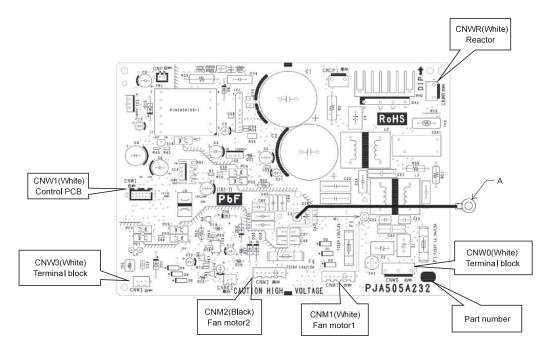
- · Replacement should be performed by the specialist.
- If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire. Replace the PCB correctly according to these instructions.
- Replace the PCB correctly according to these instructions Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work.
- Replacement during the applying the current would cause the electric shock, unit failure or improper running. It would cause the damage of connected equipment such as fan motor,etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal. Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.
   Defectiveness of replacement may cause electric shock or fire.

## **⚠** CAUTION

- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connector securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.

This PCB is a general PCB. Replace the PCB according to this instruction.

- 1) Replace the PCB
  - a) Unscrew terminal (Arrow A) of the "E2" wiring (yellow/green) that is connected to PCB.
  - b) Replace the PCB only after all the wirings connected to the connector are removed.
  - c) Fix the board such that it will not pinch any of the wires.
- d) Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB.
- e) Screw back the terminal (Arrow A) of the "E2" wiring, that was removed in a).
- 2) Power PCB



PSC012D035

#### **SAFETY PRECAUTIONS**

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.

  Both mentions the important items to protect your health and safety so strictly follow them by any means.

⚠ WARNING
 ⚠ CAUTION
 Wrong installation would cause serious consequences such as injuries or death.
 Wrong installation might cause serious consequences depending on circumstances.

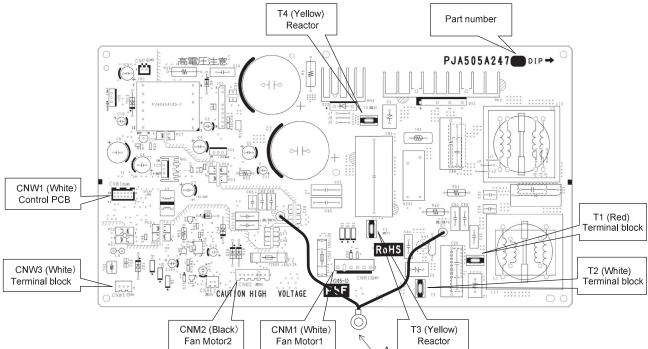
After completing the replacement, do commissioning to confirm there are no abnormalities.

## ♠ WARNING

- Replacement should be performed by the specialist.
  - If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.
- Replace the PCB correctly according to these instructions.
  - Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work. Start the work after elapsing 1 minutes or more from power off.
   Replacement during the applying the current would cause the electric shock, unit failure or improper running.
   It would cause the damage of connected equipment such as fan motor, etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal. Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement. Defectiveness of replacement may cause electric shock or fire.

## **CAUTION**

- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connector securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.
- 1) Replace the PCB
  - a) Unscrew terminal(Arrow A) of the "E1, E2" wiring(yellow/green) that is connected to PCB.
  - b) Replace the PCB only after all the wirings connected to the connector are removed.
  - c) Fix the board such that it will not pinch any of the wires.
  - d) Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB.
  - e) Screw back the terminal(Arrow A) of the "E1, E2" wiring, that was removed in a).
- 2) Power PCB



(c) Fan motor control PCB (FDU224, 280, FDU1800, 2400F only)

PSC012D036

#### **SAFETY PRECAUTIONS**

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.

  Both mentions the important items to protect your health and safety so strictly follow them by any means.

<u>MARNING</u> Wrong installation would cause serious consequences such as injuries or death.

⚠ CAUTION Wrong installation might cause serious consequences depending on circumstances.

· After completing the replacement, do commissioning to confirm there are no abnormalities.

## **!** WARNING

• Replacement should be performed by the specialist.

If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.

- Replace the PCB correctly according to these instructions.
  - Improper replacement may cause electric shock or fire.
- Shut off the power before electrical wiring work. Start the work after elapsing 1 minutes or more from power off.
   Replacement during the applying the current would cause the electric shock, unit failure or improper running.
   It would cause the damage of connected equipment such as fan motor,etc.
- Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal. Loose connections or hold could result in abnormal heat generation or fire.
- Check the connection of wiring to PCB correctly before turning on the power, after replacement.
   Defectiveness of replacement may cause electric shock or fire.

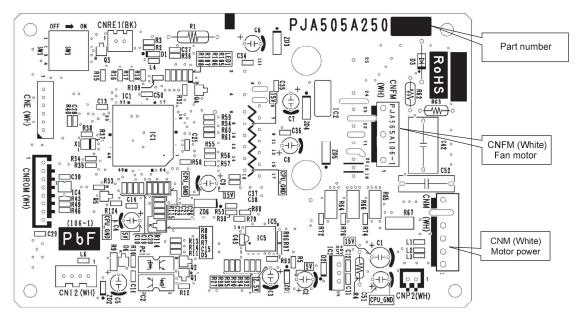
## **⚠** CAUTION

- In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
- Insert connector securely, and hook stopper. It may cause fire or improper running.
- Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.
- 1) Replace the PCB
  - a) Take off the connection of connector and remove the screw of power transistor then remove the PCB. Wipe off the silicon grease neatly on the controller's radiation heat fins.
  - b) Before installing the power transistor on the new PCB, apply uniformly a bundled of silicon grease first on the surface of power transistor. Make sure it is applied to prevent damage on power transistor, and install the PCB not to pinch the wirings.
  - c) Tighten the screw of power transistor and reconnect the wirings to the PCB. Confirm the connection and don't use soldering in the connection.

<u>Tighten properly the power transistor with a screw and make sure there is no slack.</u>

Power transistor can be damage if not properly tighten. (Recommended power transistor tightening torque:0.59-0.78N·m)

2) Fan motor control PCB



## 11.4 Indoor PCB setting

Code	Input			efault setting	Remarks
SW1	Indoor unit address No.(Order of 10)	0		0-9	
SW2	Indoor unit address No.(Order of 1)				0-9
SW3	Outdoor unit address No.(Order of 10)				0-9
SW4	Outdoor unit address No.(Order of 1)	9		0-9	
SW5-1	Superlink selection Automatic*/Previous SL		OFF	Automatic	
SW5-2	Indoor unit address No.(Order of 100	OFF	0	OFF: 0, ON: 1	
SW6-1					
SW6-2					
SW6-3	Model selection			model	See table 1
SW6-4					
SW8-1					
SW7-1	Test run, Drain motor	Normal*/Test run	OFF	Normal	
SW7-2	Reserved		OFF		Keep OFF
SW7-3	Spare				Keep OFF
SW7-4	Reserved				Keep OFF
JSL1	Superlink terminal spare Normal*/switch to spare		With	Normal	

<sup>\*</sup>Default setting

Table 1 ■Model selection with SW6-1 - SW6-4 and SW8-1

	P15	P22	P28	P36	P45	P56	P71	P90	P112	P140	P160
SW6-1	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON
SW6-2	OFF	OFF	OFF	ON	OFF	ON	OFF	ON	ON	OFF	OFF
SW6-3	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	ON
SW6-4	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON
SW8-1	ON	OFF	OFF	OFF							

	P224	P280				
SW6-1	OFF	ON				
SW6-2	ON	ON				
SW6-3	ON	ON				
SW6-4	ON	ON				
SW8-1	OFF	OFF				