



## TECHNICAL MANUAL

### EEV-KIT

#### For multiple refrigeration system

EEVKIT6-E-M/A, /B (Master)

EEVKIT6-E-C/A, /B (Slave)

In this manual, For multiple refrigeration system of EEV-KIT is shown.

Regarding the others manual please see below table.

Manual	No.
General information	'19 · KX-T-335
For single refrigeration system (EEVKIT6-E-C/A, /B)	'19 · KX-T-336

Preliminary information, all of contents are subject to final confirmation by MHI.

**MITSUBISHI HEAVY INDUSTRIES THERMAL SYSTEMS, LTD.**



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# 1. What is a multiple refrigeration system

A multiple refrigeration system is an AHU system with

- 1) Multiple independent refrigerant circuits.
- 2) One master control to control the whole system.

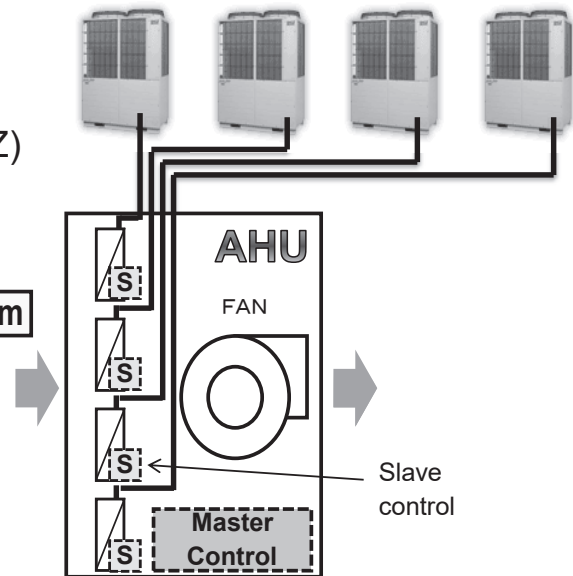
### Advantage

- Large systems are possible  
(Over 48 HP for KXE6 or 60 HP for KXZ)
- External control
- Capacity step control

### Additional parts over a single refrigeration system

- One master control

The slave EEV-Control and EEV-Set are the same as a single refrigeration system.



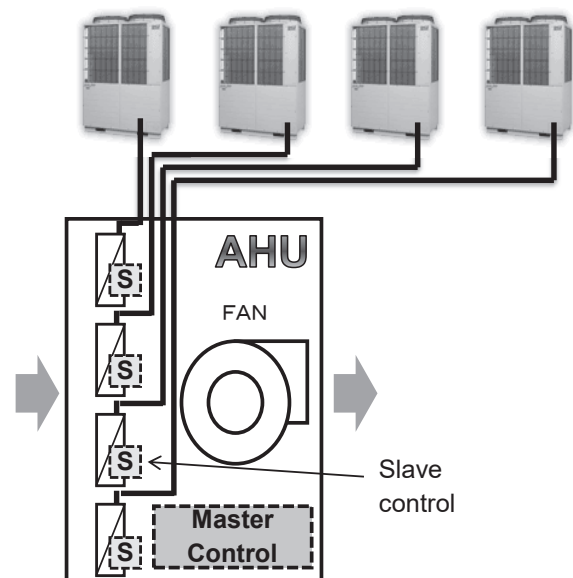
### Function of master / slave control

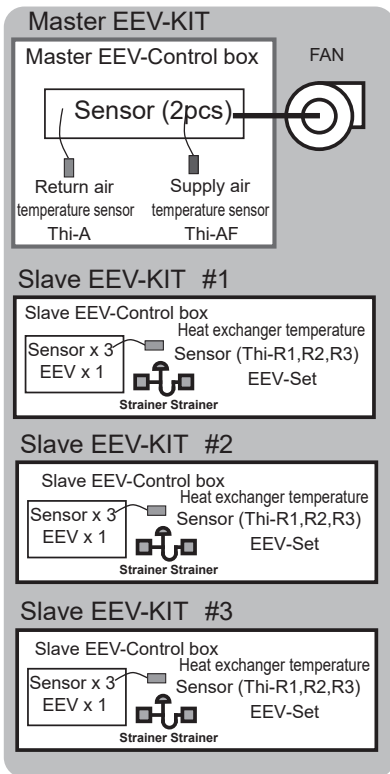
#### Master control

- Measurement of Thi-AF, Thi-A
- AHU fan operation input
- ON/OFF control of each slave control
- Oil return control for connected outdoor units
- External input for system control

#### Slave control

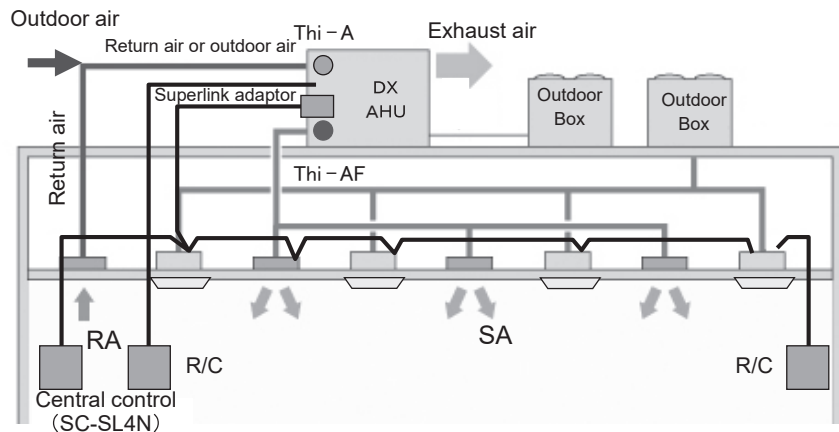
- Measurement of Thi-R1,2,3
- EEV-Control





**The master EEV control controls the whole system**

1. Basic operation can be done by the remote control
2. Central control including other KXE6 system can be done. (**Superlink adaptor SC-ADNA-E is required.**)  
Not possible to connect with other normal indoor unit in same Superlink.
3. External input for switching operation mode is available. (Input signal is connected to master EEV-Control box)



**1.1 Benefit of multiple refrigeration system**

**(1) Large capacity system (Different oil return control)**

As per a normal indoor unit, the **AHU fan motor must stop** during heating mode oil return operation. However oil return interval depends on each outdoor unit...



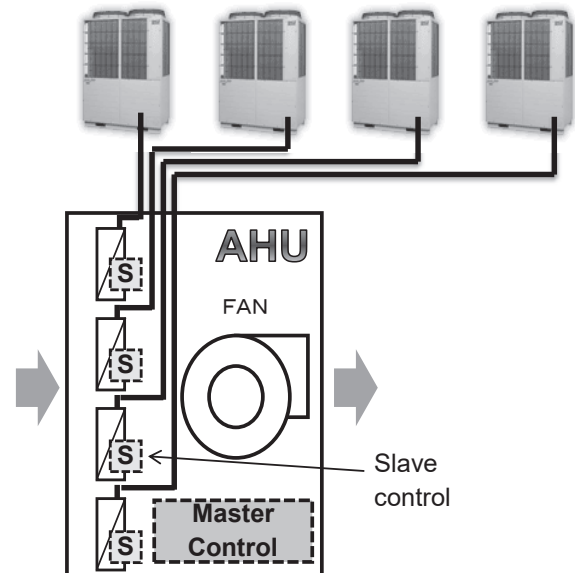
Connected outdoor unit's oil return operation has to be controlled to keep fan operation as long as possible.



Oil return control for connected outdoor units is one of the functions of the **master control**.



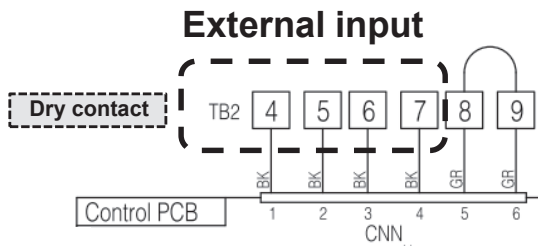
Over 48HP system is possible.



**(2) External input for mode selection**

The master control has an external input terminal block.

**Operation mode control**



TB2		Operation mode
4-5	6-7	
OFF	OFF	No signal
ON	OFF	Cooling
OFF	ON	Heating
ON	ON	Fan

**Emergency stop**



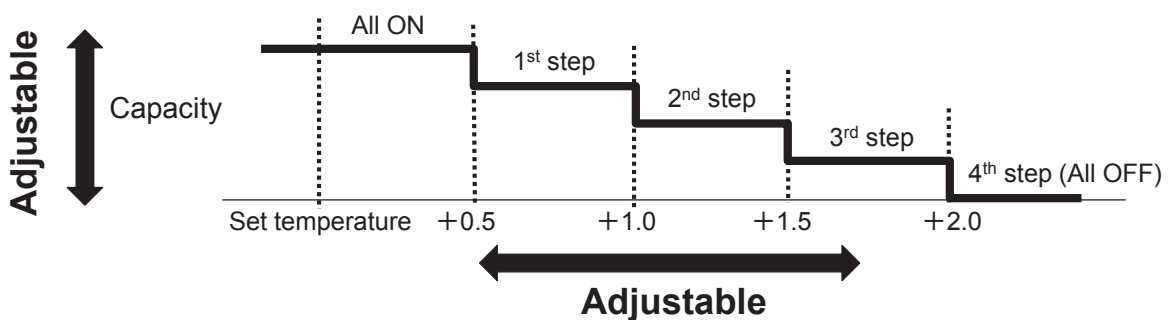
**(3) Capacity step control**

The master control can control total capacity by temperature difference from set temperature.

➡ **Possible to better track target temperature**

This step control is adjustable by the customer's requirements.

- Temperature difference for step change
- Thermo OFF temperature
- Step number



## 1.2 System control

**A suitable system should be selected from four system control options.**

System control	Return or supply air temperature control	Temperature setting
System control A	Return air temperature control	R / C
System control B	Supply air temperature control	R / C
System control C	Supply air temperature control	R / C
System control D	Supply air temperature control	PCB

R/C : Remote control

PCB: Printed circuit board of master PCB

System control type	Set temperature	Thermo ON/OFF	EEV control
System control A: Return air temperature control (Same as single refrigeration system return air temperature control)	R/A set by R/C	R/A sensor = R/A Set temperature (set by R/C)	Superheat of indoor unit heat exchanger becomes constant. (cooling) Subcool of indoor unit heat exchanger becomes constant. (heating)
System control B: Supply air temperature control	S/A set by R/C	S/A sensor = S/A Set temperature (set by R/C)	Subcool of indoor unit heat exchanger becomes constant. (heating)
System control C: Supply air temperature control	S/A set by R/C	R/A sensor = S/A Set temperature +3deg.C	Supply air temperature becomes constant.
System control D: Supply air temperature control (Same as single refrigeration system supply air temperature control)	S/A set by PCB R/A set by R/C	R/A sensor = R/A Set temperature (set by R/C)	Supply air temperature becomes constant.

### 1.3 System control A

**Setting return air temperature is adjustable (by remote control )**

#### Air-conditioning (Air circulation) system

This system controls the return air (R/A) temperature, which is the same as normal air-conditioner control. (RAC, PAC, KX)

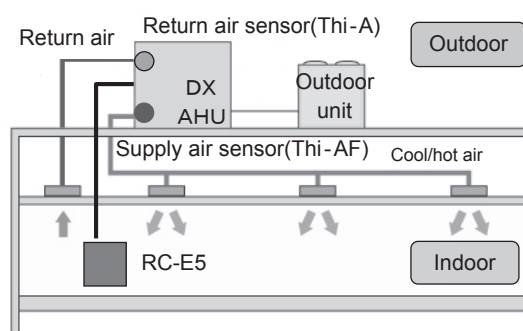
Thermo ON/OFF control is done by R/A temperature (or R/C sensor) and set temperature by remote control (R/C).

#### Return air (R/A) temperature control

R/A temperature setting : R/C



When R/A temperature becomes set R/A temperature = Thermo OFF



### 1.4 System control B

**Target supply air temperature is adjustable. (by master EEV-Control box)**

This system controls supply air (S/A) temperature.

#### OA processing system

Thermo ON/OFF control is done by S/A temperature and set temperature by remote control (R/C).

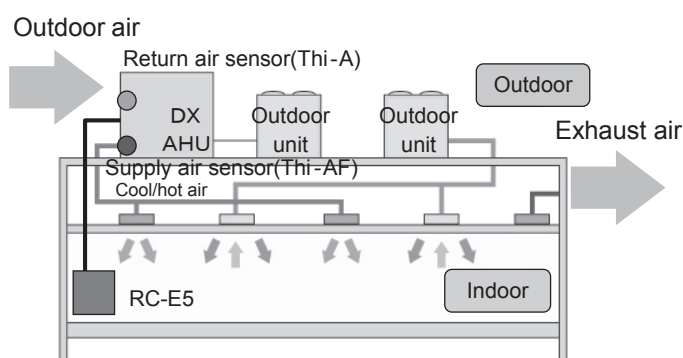
Multiple step control is better to prevent thermo ON/OFF hunting.

#### Supply air (S/A) temperature control

S/A temperature setting : R/C

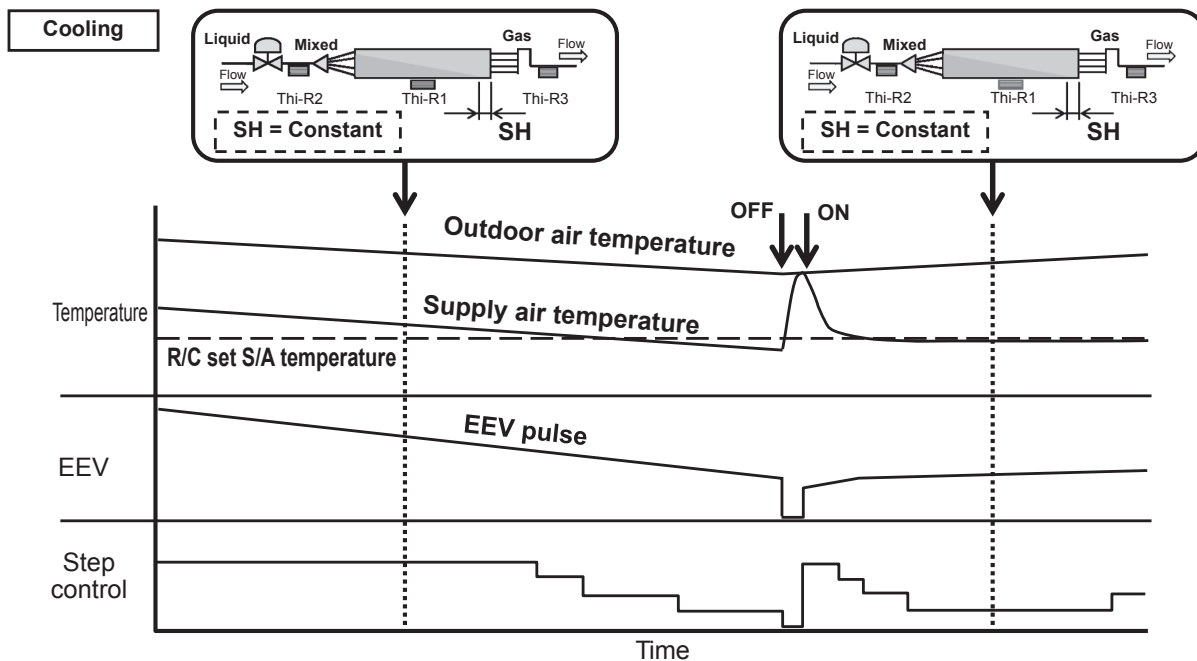


When S/A temperature becomes set S/A temperature = Thermo OFF





When S/A temperature becomes set S/A temperature = Thermo OFF



### 1.5 System control C

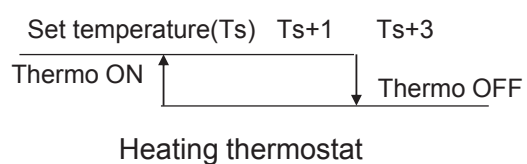
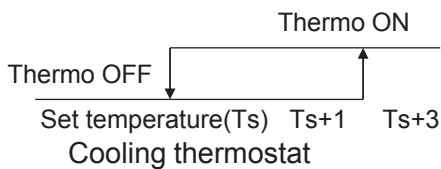
Target supply air temperature is adjustable (by remote control)

This system controls supply air (S/A) temperature.

**OA processing system**

Target S/A temperature is set by R/C, S/A becomes constant.

Thermo ON/OFF control is done by R/A temperature.



#### Supply air (S/A) temperature control

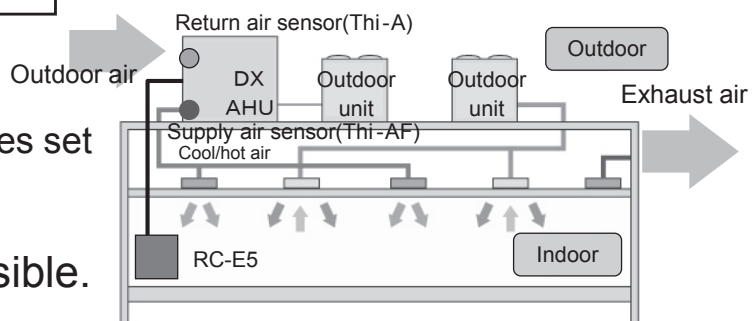
S/A temperature setting : R/C



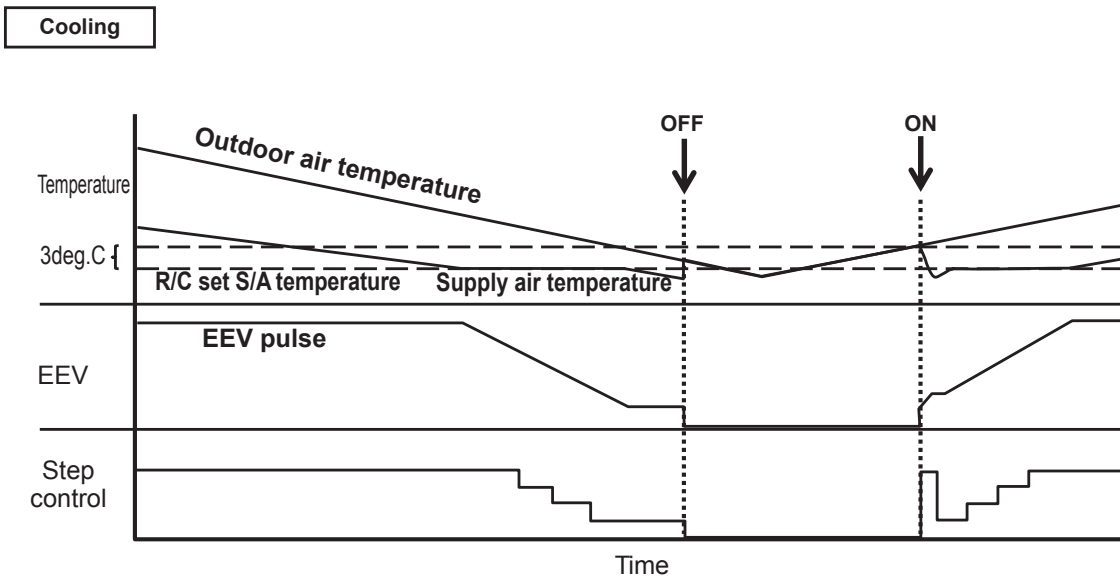
When R/A temperature becomes set S/A temperature +3deg.

= Thermo OFF

AUTO mode is NOT possible.



When R/A temperature becomes set S/A temperature + 3deg.C = Thermo OFF



### 1.6 System control D

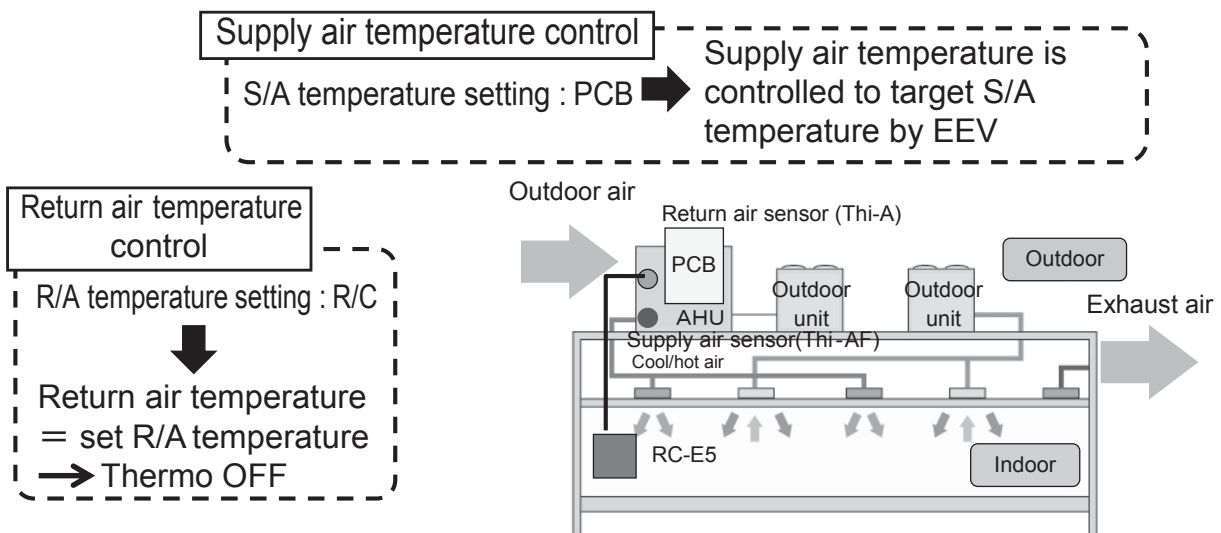
Target return/supply air temperature is adjustable (by R/C, master EEV-Control box)

This system controls supply air (S/A) temperature.

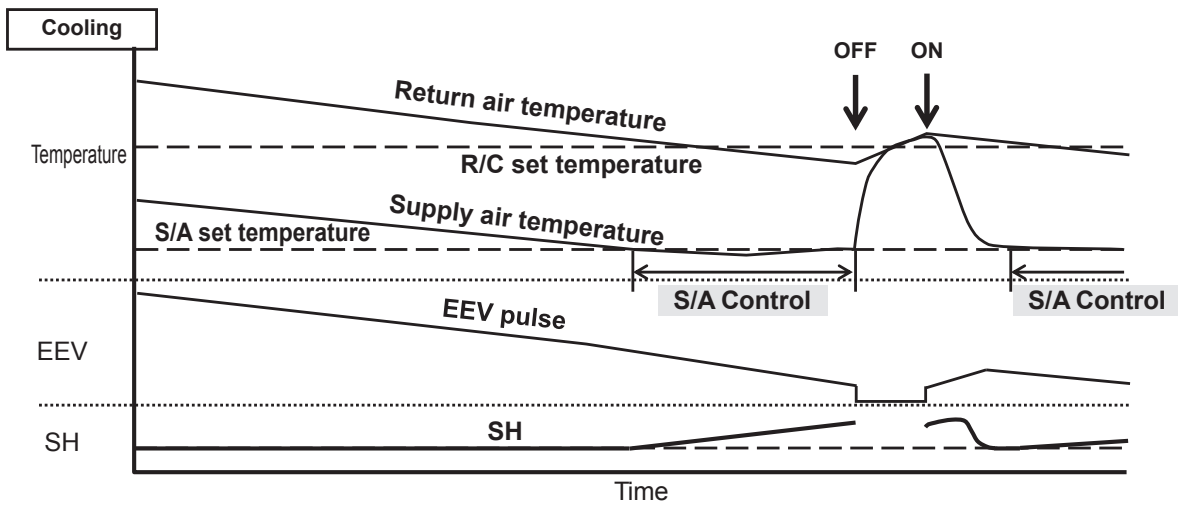
**OA processing system**

Target S/A temperature is set by master PCB, S/A becomes constant.

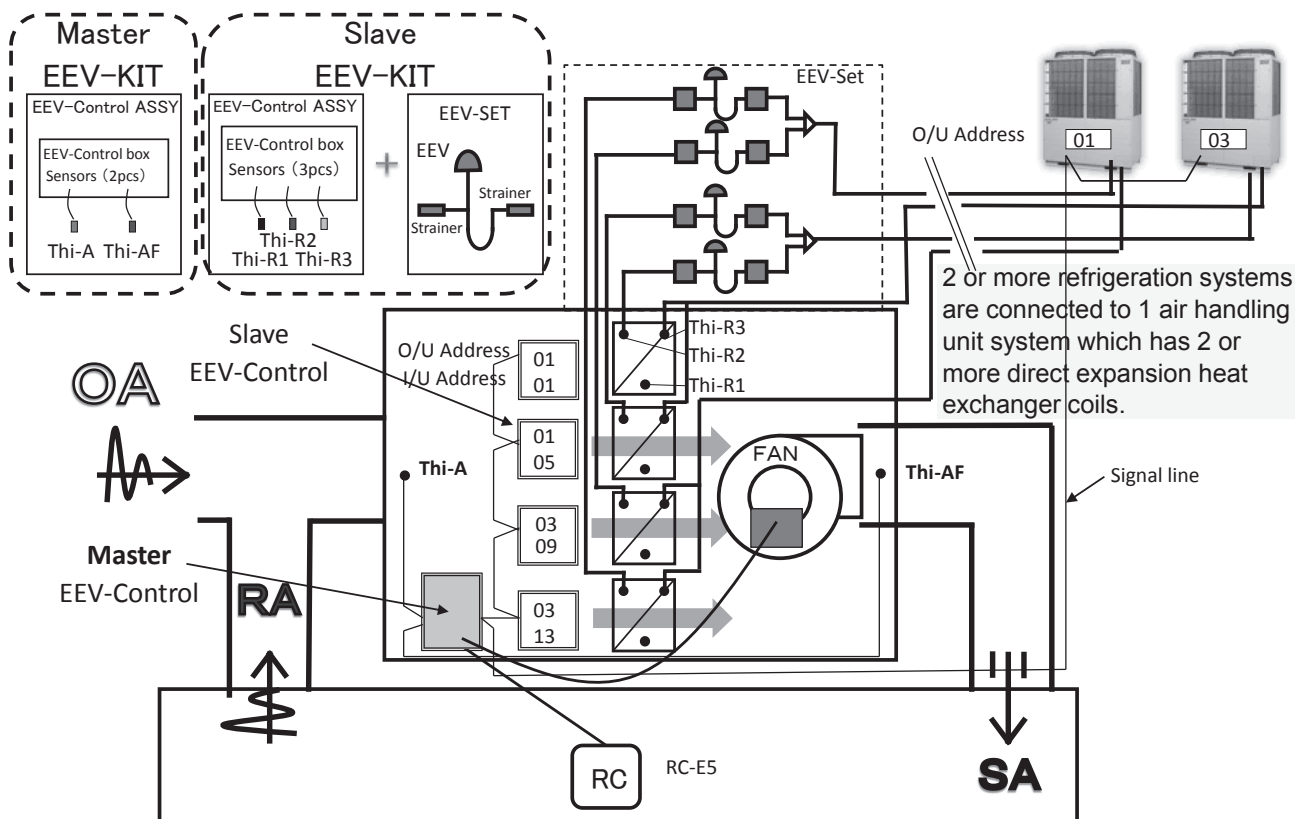
Thermo ON/OFF control is done by R/A temperature.



When R/A temperature becomes set R/A temperature = Thermo OFF  
 Almost the same as supply air control of the single refrigeration system.  
 The difference is step capacity control.

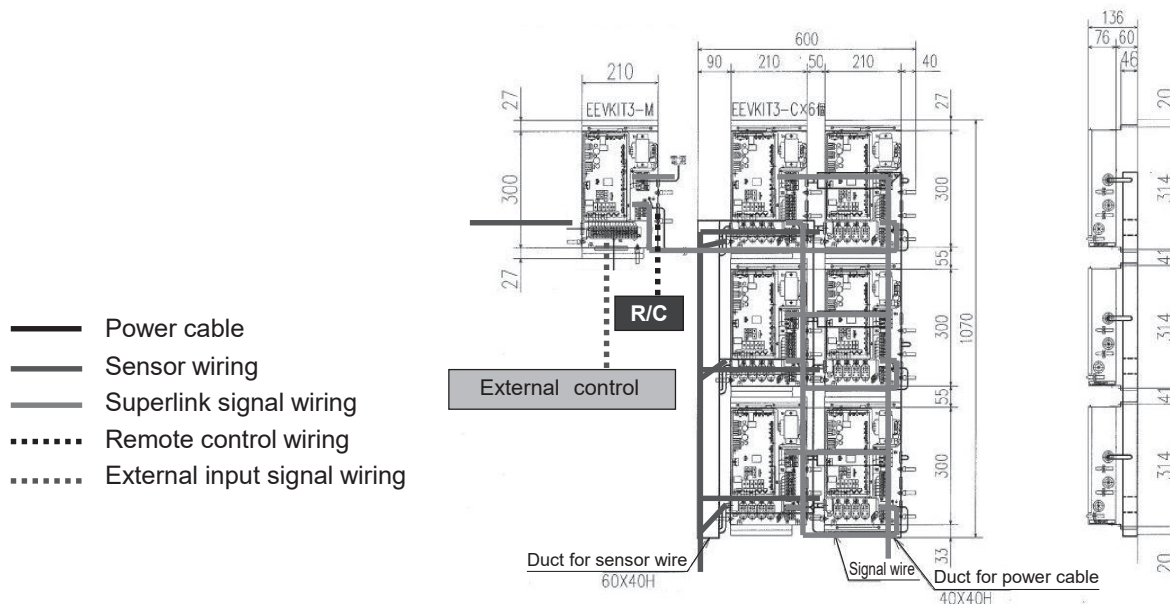


## 2. Components of multiple refrigeration system



The master control PCB and slave control PCB are supplied as an EEV-Control box. They should be installed in the control box of the air handling unit.

Example of layout : 1 master control box and 6 slave control boxes



The components of the DX AHU for multiple refrigeration system is as follows.

1. Master EEV-Control ASSY (EEVKIT6-E-M or EEVKIT6-E-M/A)
  - a) Master EEV-Control box
  - b) 2 x Air sensor Assy. (Thi-A, Thi-AF)
2. Slave EEV-Control ASSY (EEVKIT6-E-C or EEVKIT6-E-C/A)
  - a) Slave EEV-Control box
  - b) Heat exchanger sensor Assy. (Thi-R1, Thi-R2, Thi-R3)
3. EEV-Set (EEV-body, -coil, 2 x Strainers)
4. Outdoor unit for KXE6 or KXZ system.
  - Check the applicable models in the following tables.

**KXZE2 series**

Model	Compatibility
FDC-KXZE2	○
FDC-KXZXE2	○
FDC-KXZE2M	○
FDC-KXZXE2M	○
FDC(S)-(C)KXZA2	○
FDC(S)-(C)KXZA2	○
FDC-KXZRE2	-
FDC-KXZRXE2	-

**KXZE1 series**

Model	Compatibility
FDC-KXZEN1	○
FDC-KXZES1	○
FDC-KXZEN1-W	-
FDC-KXZES1-W	-
FDC-KXZPE1	○
FDC-KXZME1	○
FDC(S)-KXZE1	○
FDCL-KXZE1	○
FDC-KXZXE1	○
FDC-KXZE1M	○
FDCB-KXZE1	○ *2
FDC-KXZRE1	-
FDC-KXZRXE1	-
FDC-KXZWE1	-

**KXE6 series**

Model	Compatibility
FDC(S)-KXEN6	○
FDC(S)-KXES6	○
FDC(S)-KXE6	○
FDC(S)-KXE6M	○
FDC-KXRE6	○ *1
FDCB-KXE6	○ *2
FDCR-KXE6	-
FDCH-CKXE6G	-
FDCH-KXE6	-

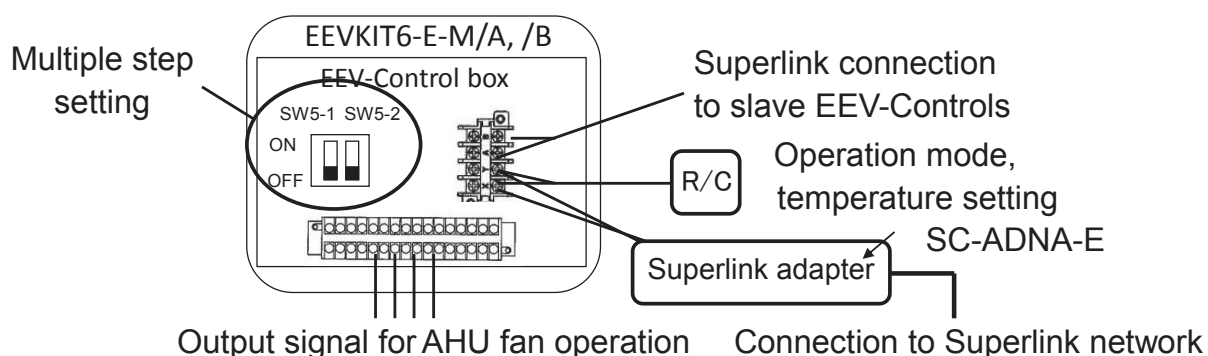
\*1: Not possible to change the evaporating/condensing temperature  
 \*2: If air drawing condition of AHU can be regarded as that of FDC-KXZE1, it is applicable.

The two air sensors (Thi-A, Thi-AF) in the slave EEV-Control ASSY are not required.

## 2.1 Master EEV-Control ASSY

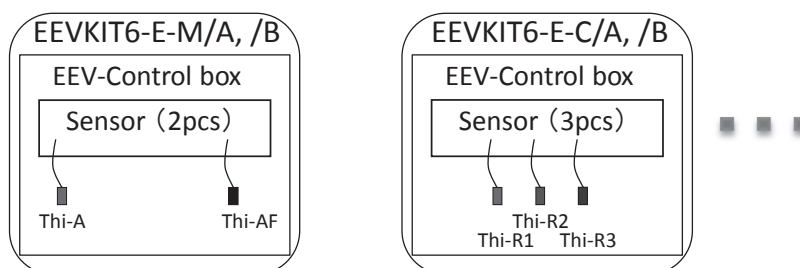
Functions –

1. Connection to the Superlink network
2. AHU fan operation (Signal output of the blower operation)
3. Connection to a R/C
4. Operation mode change of DX AHU by external input
5. Temperature setting
6. Multiple step control setting



## 2.2 Slave EEV-Control ASSY

- Select the number of slave EEV-Control boxes depending on the number of refrigeration systems and heat exchangers to be controlled. Set model capacities and addresses.
- Slave EEV-Control box controls the refrigerant flow volume according to the operation mode and operation command from the master EEV-Control box.
- The EEVs controlled by the slave EEV-Control box follows the command of the master EEV-Control box, such as operation mode, ON/OFF, set temperature.

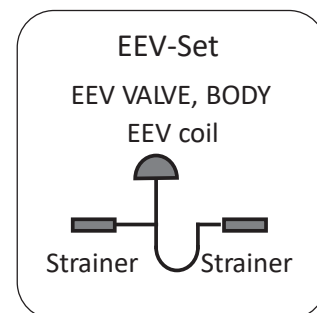


### 2.3 EEV-Set

Same as a single refrigeration system.

- EEV-Set: Select from following 3 types according to the capacity required.

Type	EEV6-71-E EEV6-71-E/A	EEV6-160-E EEV6-160-E/A	EEV6-280-E EEV6-280-E/A
Capacity	22 - 71	90 - 160	224 - 280



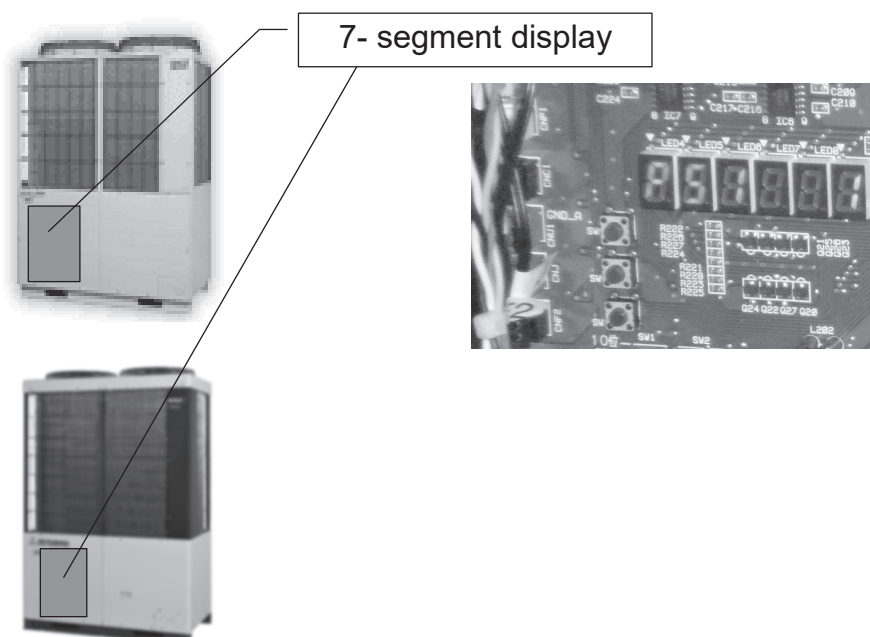
#### Parts of EEV-set

Part name	Part No.	Model Name		
		EEV6-71-E EEV6-71-E/A	EEV6-160-E EEV6-160-E/A	EEV6-280-E EEV6-280-E/A
VALVE, BODY (EXP)	SSA387F047A	1		
VALVE, BODY (EXP)	SSA387F045		1	
VALVE, BODY (EXP)	SSA387F049A			1
STRAINER	SSA357A005B	1	1	1
STRAINER	SSA357A005T		1	1
STRAINER	SSA357A005AC	1		
COIL, SOLENOID	PCH387F002	1		
COIL, SOLENOID	PCH387F002A		1	1

These parts are the same as KXE6 indoor units.

### 2.4 Outdoor unit

- KXE6 and KXZ outdoor units are connectable.
- Check the applicable models in the tables at page 10.
- To apply the outdoor unit to the AHU for multiple refrigeration systems, the setting must be done on the outdoor unit PCB 7-segment display.



The setting for the outdoor unit is required for it to recognize the multiple refrigeration system.

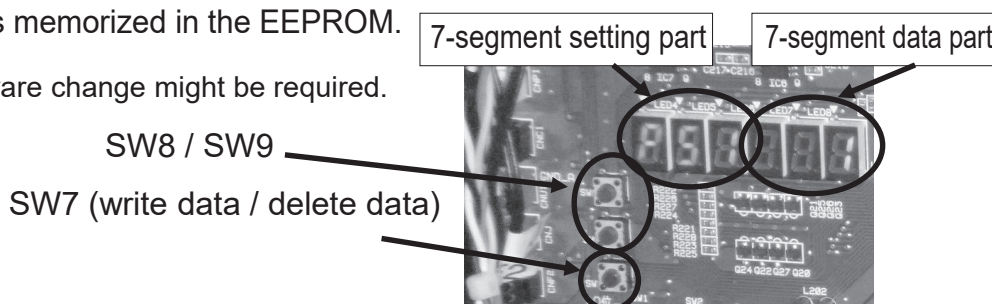
KXE6 4-6HP	P54
KXE6 8-12HP	P54
KXE6 14HP-	P58
KXRE6	P54
KXZE1,2	P68

Setting method -

1. Select P54/P58/P68 of 7-segment using SW8 and SW9.
2. Push SW7 more than 3 seconds.
3. 7-segment display right side starts blinking.  
(If there is no operation for more than 10 seconds, it goes back to normal display and changed setting is cancelled.)
4. Push SW8 to change from "0" to "1". (factory setting is "1".)
5. Push SW7 more than 3 seconds.

The setting is memorized in the EEPROM.

Outdoor unit software change might be required.



### How to change the target pressure

Same as single refrigeration system.

- Change the target pressure against evaporating temperature in cooling or/and condensing temperature in heating by using the 7-segment display of outdoor unit.
- Each model has different 7-segment code as below.

Setting item	Micro	KXZM	KXZP		KXZE1,2	
	FDC121-155 KXZEN1, KXZES1	FDC224-335 KXZME1	FDC224-280KXZPE1		FDC280-1680KXZE1,2 FDCB224-335KXZE1	
			Standard	TYPE1	Standard	TYPE1
Cooling target low pressure	P11	P11	P40	P73	P40	P73
Heating target high pressure	P12	P12	P41	P74	P41	P74

1. Select 7-segment code according outdoor unit model by using SW8 and SW9.
2. Push SW7 (Data setting/deleting) more than 3 seconds.
3. 7-segment right side starts blinking. (Every 0.5 seconds)  
(If there is no operation for more than 10 seconds, it goes back to normal display and changed setting is cancelled.)
4. Push SW8 (ones digit) and select the adjusting value from standard value.  
Cooling (Standard value is 0.83MPa (5°C) in STANDARD mode  
1.05MPa (12°C) in TYPE1 mode)  
0.00 → 0.01 → 0.02 ..... → 0.50 → -0.30 → -0.29 → ..... → -0.01 → 0.00  
Heating (Standard value is 2.75MPa(47°C) in STANDARD mode  
1.77MPa(30°C) in TYPE1 mode)  
0.00 → 0.10 → 0.20 ..... → 0.70 → -0.90 → -0.80 → ..... → -0.10 → 0.00
5. Display the required adjusting pressure, then push SW7 for 3 seconds.  
The setting is memorized in EEPROM.
6. Confirm the setting by selecting 7-segment code again.

Example1

1. FDC400KXE6
2. Air-conditioning mode
3. Target condensing temperature is 40°C  
→High pressure in heating 2.35 MPa

- ↓
1. Select C73
  2. Select “- 0.40”  
(=2.35 - 2.75)

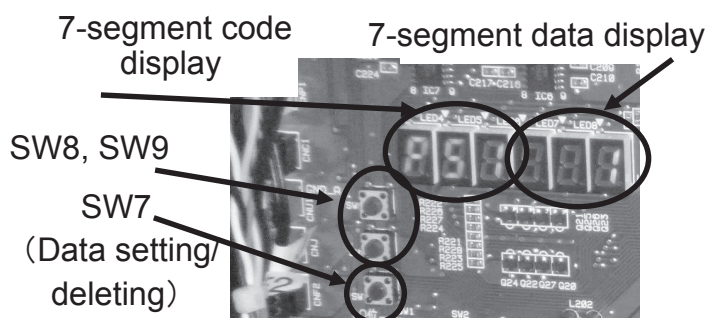
Example2

1. FDC450KXE6
2. OA processing mode
3. Target evaporating temperature is 8°C  
→Cooling pressure in cooling 0.92 MPa

- ↓
1. Select C72
  2. Select “-0.13”  
(= 0.92 - 1.05 = -0.13)

Official adjustable range

Cooling	STANDARD	0 - +0.22
	TYPE 1	- 0.22 - 0
Heating	STANDARD	0 - - 0.9
	TYPE 1	+0.7 - 0





Check the outdoor unit software version by 7-segment display “98”.

Change the outdoor unit software version if the version is older than below.

	Software version
FDC112-155KXE6	3.501
FDC224-335KXE6	3.101
FDC400-680KXE6	2.53
FDC224-680KXRE6	1.102

How to change the outdoor unit software.

1. Preparation

Power OFF → Change the pin position

→ Connect RS232C cable → Power ON (Green LED stays ON)

2. Rewriting software

Start rewriting software “FlashSta” → Select software → Execute rewriting.

3. Back to normal

Power OFF → Change back the pin position → Power ON (Green LED starts blinking)

4. Confirmation

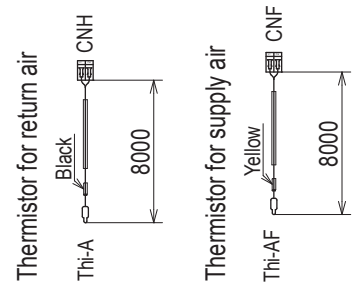
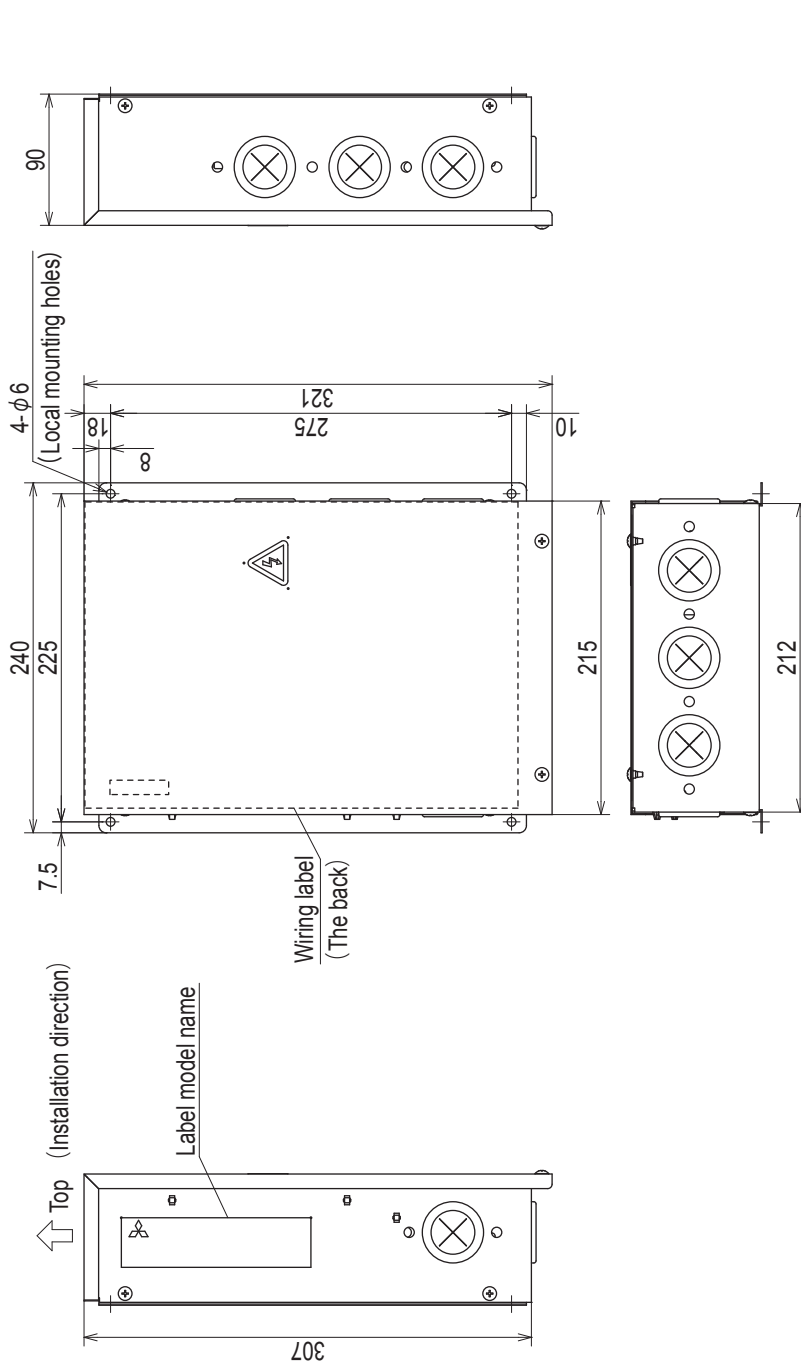
Check the software version by 7-segment 98.

In case of KXZ series, it is not necessary to change the outdoor unit software version.

The version was applied in KXZ series.

### 3. Functions of the master

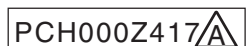
#### (1) Outline of the master control EEV control box

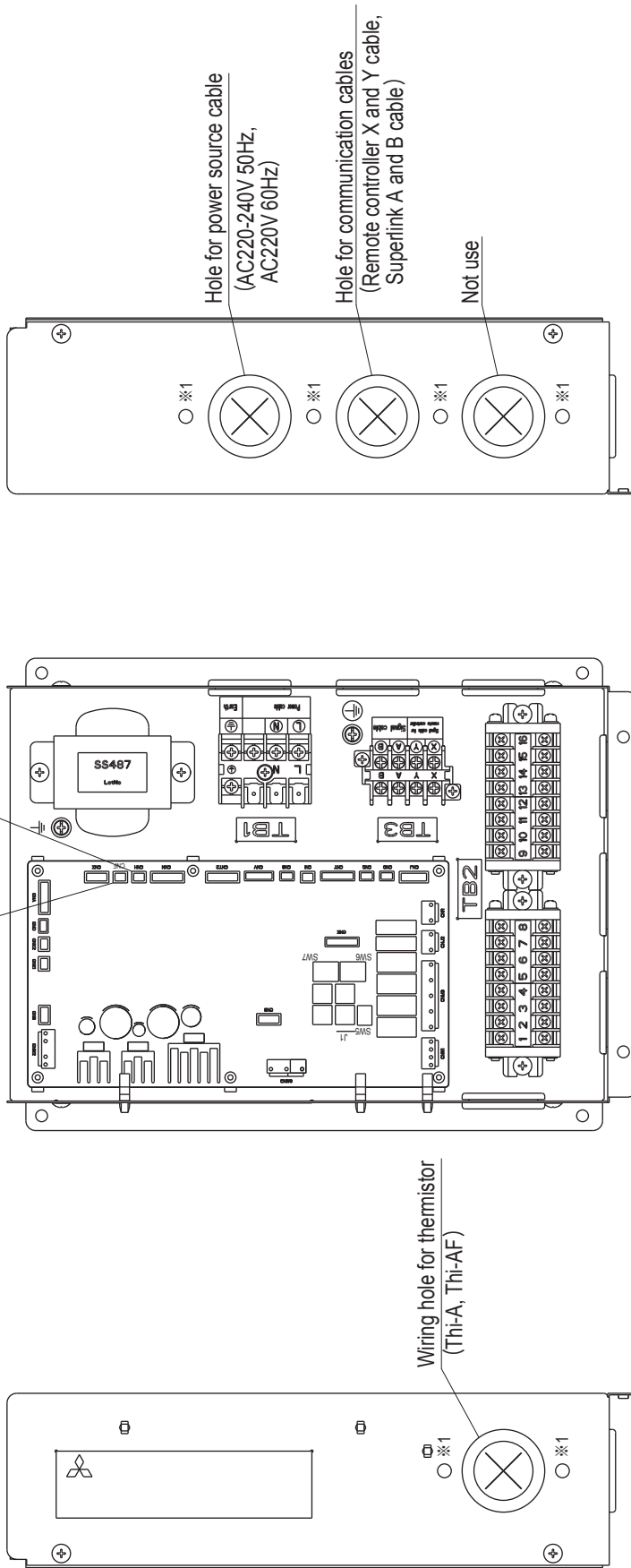


**Notes**

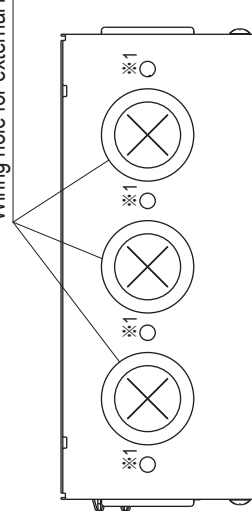
- (1) Take note that this control box is not waterproof. Do not allow water or dust to enter the control box.
- (2) Mount the control box firmly using the four holes shown in the figure and confirm that it will not come loose due to vibration.
- (3) Use the tie-wraps included in the control box to fix the wiring. Confirm that there is no tension on the wiring to the terminal blocks and that the wiring connections are fixed tight in the terminal blocks.
- (4) The label for the model name is located on the left side of the control box.
- (5) Take note that the wiring diagram is located on the back of the lid. If you do not use the lid of the control box, then use the wiring diagram that comes with the control box.
- (6) Ensure a gap of more than 15mm at the top of the control box to remove the lid of the control box.
- (7) Always install this control box in a secure location inside a locked enclosure.  
(As there is danger of electric shock or incorrect operation)
- (8) Provide the following clearances above, below, to the right and to the left to ensure enough space for ventilation and service work of the control box.

Bottom clearance	Min. 100mm (Recommended length of 200mm or more) ...	Space for wiring and service
Top clearance	Min. 30mm	Space for cooling
Left clearance	Min. 100mm (Recommended length of 200mm or more) ...	Space for wiring and service
Right clearance	Min. 100mm (Recommended length of 200mm or more) ...	Space for wiring and service
Front clearance	Min. 30mm	Space for cooling



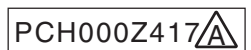


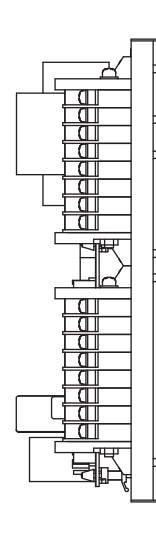
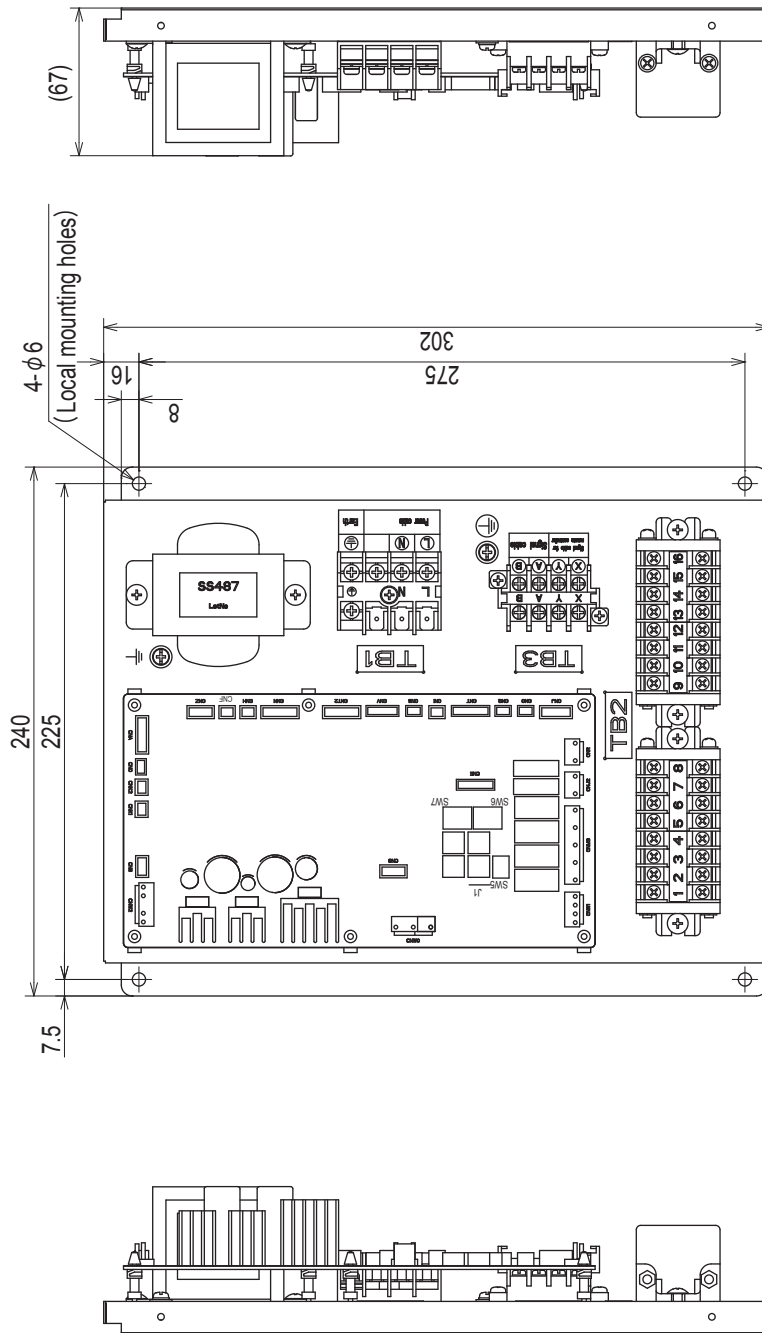
Wiring hole for external input or output



Notes


- (1) This view is shown by removing the lid. The wiring diagram has been pasted to the back of the lid. If you do not want to use the lid, then use the wiring diagram supplied as an accessory.
- (2) ※1 are the holes for accessory cable tie bands for fixing the site wiring.
- (3) ※2 is a connector to be connected to thermistor Thi-A.
- (4) ※3 is a connector to be connected to thermistor Thi-AF.

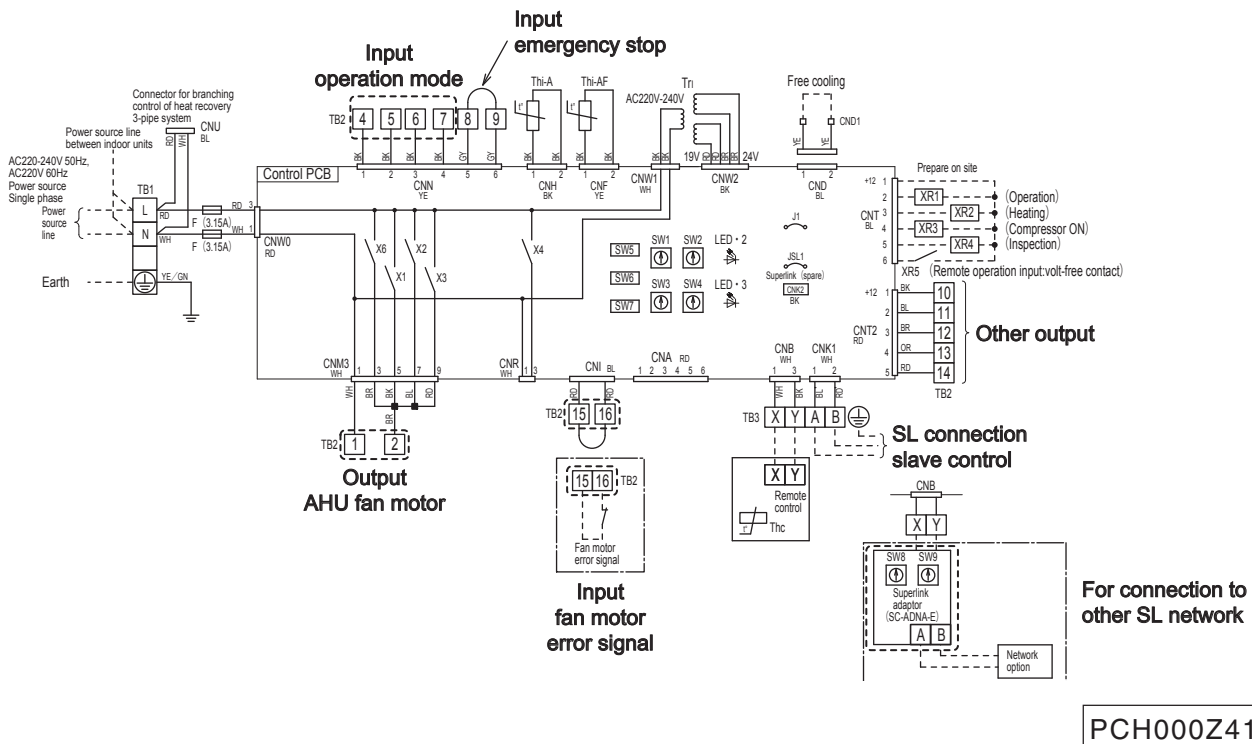




**Notes**

- (1) When removing the sheet metal cover take care not to damage the internal control box wiring.
- (2) After connecting the local wiring, confirm that there is no direct tension of the local wiring onto the terminal blocks or the connectors of printed circuit board (PCB).
- (3) If you are using the control box as shown in the figure, take note of the following points.
  - Ensure that the exposed high-temperature and the high-voltage parts do not come into contact with any wiring.
  - Ensure that there is an air gap of more than 90mm above the high-temperature and the high-voltage parts.

PCH000Z417 



### AHU fan control

The AHU fan motor should be controlled by EEV-KIT control.  
 Fan step connection is **different** from the slave control.

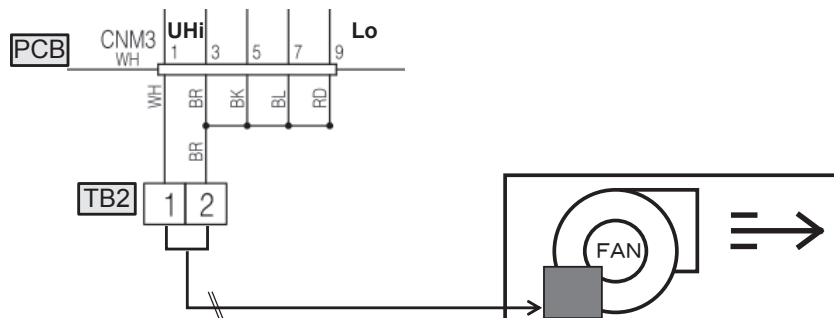
### Fan step control

The master control has one terminal for the fan motor.

TB2 : 1,2 ⇒ Lo -UHi

When step control is required, the following items are necessary -

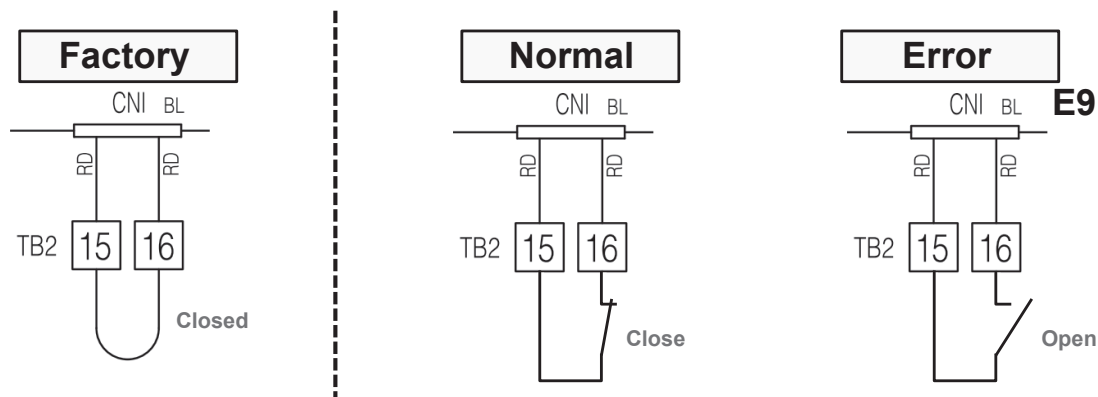
- 1) Step number changed by SW7-4 (1 ⇒ 3 step)
- 2) Fixing of fan motor wiring



## AHU error input

The AHU fan motor should be controlled by the EEV-KIT control.

Error input to the master control is **different** from the slave control.



External input	Master control	Slave control
Open	Error [E9]	Normal
Close	Normal	Error [E9]

The fan motor error signal is sent to the float switch connector(CNI). When an error signal is sent, “E9” is shown.

This table shows the summary of terminals and external inputs and outputs.

Terminal	Function	Specification	Note
TB1	Power source terminal block	AC300V, 25A	Terminal size M4
TB2	1,2 <b>Output:</b> fan	AC600V 15A	AC230V, 1A
	4,5 <b>Input:</b> Operation mode change		<b>Dry contact</b>
	6,7		<b>Dry contact</b>
	8,9 <b>Input:</b> Emergency stop		DC12V
	11 <b>Output:</b> Cooling operation		DC12V
	12 <b>Output:</b> Defrost operation		DC12V
	13 <b>Output:</b> Oil return operation		DC12V
	14 <b>Output:</b> Return temperature is below 0deg.C		<b>Dry contact</b>
	15,16 <b>Input:</b> AHU anomaly		Terminal size M3.5
TB3	Remote control/ Superlink line		
CNT	External control	Relay capacity: DC12V max 160mA at total use	Same as normal KX indoor
CND	Free cooling <b>Output</b>	Relay capacity: DC12V <b>max 75mA</b>	

External input for operation mode	Connector	TB2	Operation mode			
			No signal	Cooling	Heating	Fan
	CNN1, 2	4, 5	0	1	0	1
CNN3, 4	6, 7	0	0	1	1	

0 : Open (OFF), 1: Short (ON)

This table shows the DIP switch settings, and the symbol meanings in the wiring diagrams.

CNA-Z	Connector
F	Fuse
FS	Float switch
JSL1	Spare Superlink terminal setting (for spare)
LED · 2	Indication lamp (Green-Normal operation)
LED · 3	Indication lamp (Red-Inspection)
SM	Stepping motor (for electronic expansion valve)
SW1	Supply air temperature setting at system control D in cooling mode
SW2	Changing the temperature interval for multiple step control in heating mode
SW3	Supply air temperature setting at system control D in heating mode
SW4	Changing the temperature interval for multiple step control in heating mode
SW5-1, 2	Multiple step control (☆OFF)
SW6-1, 2	Automatic operation valid/invalid and switching operation pattern (☆OFF)
SW6-3	Hot start control (☆ON)
SW6-4	Medium temperature cooling setting (☆OFF)
SW7-1	Check indoor fan operation (☆OFF)
SW7-2, 3	Switching return/supply air temperature control (☆OFF) ※1
SW7-4	1fan tap/3fan tap (☆OFF/ON)
J1	Setting of indoor fan control during defrost operation (☆Short)
TB1	Terminal block (Power source line) (□mark)
TB2	Terminal block (Relay connect) (□mark)
TB3	Terminal block (Signal line)(□mark)
Thc	Thermistor (Remote control)
Thi-A	Thermistor (Return air)
Thi-AF	Thermistor (Supply air)
Thi-R1, 2, 3	Thermistor (Heat exchanger)
Tri	Transformer
X1-3, 6	Relay for FM
■mark	Closed-end connector

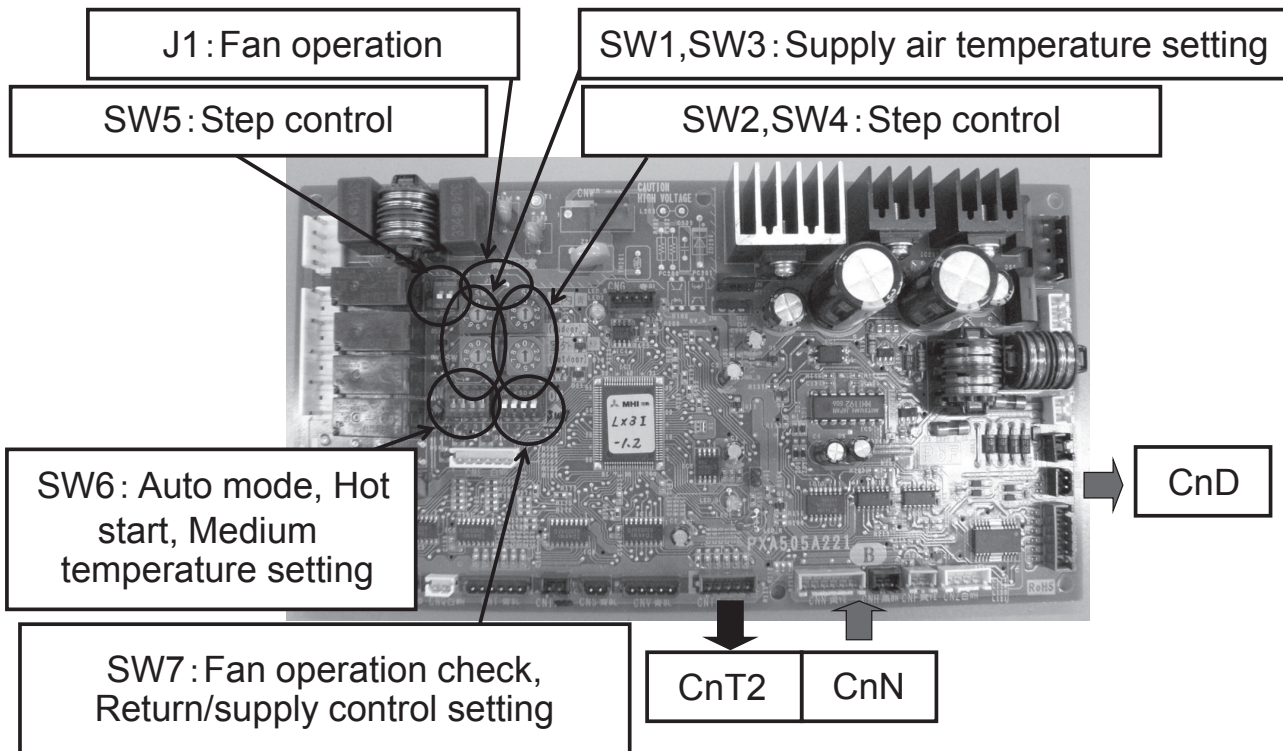
☆Factory default

※ 1 You must also configure the slave EEV-KIT. Refer to the technical documentation of slave EEV-KIT how to set.  
When the multiple refrigeration system is in use, it is necessary to set it with the outdoor unit control.  
Refer to the technical documentation.

This is the error code list of the master EEV-Control box.

Error code indoor unit

Display on remote control	LED on indoor circuit board		Content	
	Red (checking)	Green (normal)		
OFF	Stays OFF	Keeps flashing	Normal	
	Stays OFF	Stays OFF	Fault in power source, indoor power off or one phase down	
E1	Stays OFF	Keeps flashing	Fault on the transmission between indoor circuit board and remote control	
	Not sure	Not sure	Indoor computer abnormal	
E2	1-time flash	Keeps flashing	Duplication of indoor address No. (can only be detected during operation) Excess number of remote controls (can only be detected during operation)	
E3	2-time flash	Keeps flashing	Outdoor power off or one phase down There is no corresponding outdoor unit address.	
E5	2-time flash	Keeps flashing	Fault on outdoor-indoor transmission	
E6	1-time flash	Keeps flashing	Indoor heat exchanger thermistor interrupted or short-circuit	
E7	1-time flash	Keeps flashing	Return air thermistor interrupted or short-circuit	
E9	1-time flash	Keeps flashing	Float switch activative (only with FS),total heat exchanger error	
E10	Stays OFF	Keeps flashing	Excess number of remote control connections	
E11	Stays OFF	Keeps flashing	The master indoor unit is not set properly.	
E12	1-time flash	Keeps flashing	Superlink	
			Indoor unit address switch	
			Indoor No.	Outdoor No.
			New specification	001-127
Old specification	0-47	48, 49		
	48, 49	0-47		
E15	1-time flash	Keeps flashing	Indoor supply air thermistor interrupted or short-circuit	
E18	1-time flash	Keeps flashing	The address configuration fault for master-slave indoor units.	
E19	1-time flash	Keeps flashing	Indoor unit operation check/drain motor check mode fault	
E28	Stays OFF	Keeps flashing	Remote control thermistor anomaly	
Over E30	Stays OFF	Keeps flashing	Outdoor unit checking (outdoor circuit board LED checking)	
E63	Stays OFF	Keeps flashing	Emergency stop	



### SW1-SW4

- SW1-SW4 are not for the address setting of the master EEV-Control box.
- The address of the master EEV-Control box is fixed [00].

Switch		Operation mode	Function
SW1	Rotary switch (Blue)	Cooling	Target S/A temperature setting for system control D
SW2	Rotary switch (Blue)		Temperature interval for multiple step control
SW3	Rotary switch (Green)	Heating	Target S/A temperature setting for system control D
SW4	Rotary switch (Green)		Temperature interval for multiple step control



### 3.1 Multiple step control

A multiple step control is the control to change the operating slave control number by the difference between set temperature and detected air temperature.

SW5-1 , SW5-2 : Step number setting

SW2 , SW4 : Temperature interval setting for one step

Note : It is not recommended to use auto mode with this control.

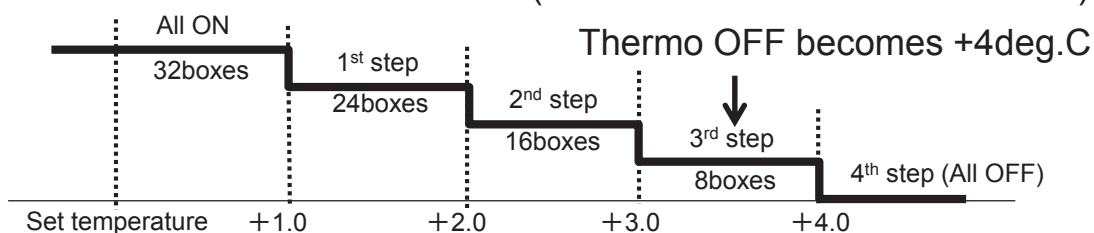
Step control	SW5-1	SW5-2
None	★OFF	★OFF
4-step	ON	OFF
6-step	OFF	ON
8-step	ON	ON

★Factory default

Cooling		Heating	
Set by SW2	Temperature interval	Set by SW4	Temperature interval
★0	Invalid	★0	Invalid
1	0.2	1	0.2
2	0.5	2	0.5
3	1.0	3	1.0
4	1.5	4	1.5
5	2.0	5	2.0
6	2.5	6	2.5
Other No.s	Invalid	Other No.s	Invalid

[e.g. 4-step control by 1.0°C temperature interval in heating]

(With 32 slave EEV-Control boxes)



\*Holding at least for 1 minute on each step and adjustable.

Step control	SW5-1	SW5-2
None	★OFF	★OFF
4-step	ON	OFF
6-step	OFF	ON
8-step	ON	ON

★Factory default

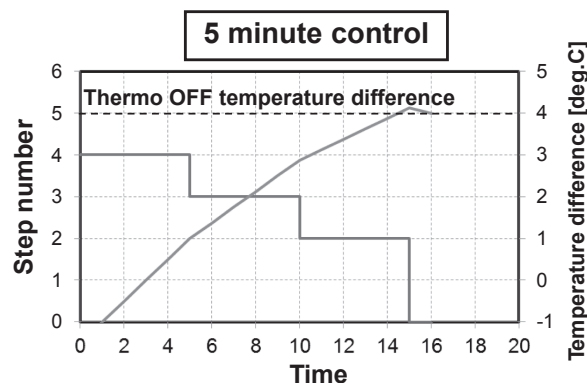
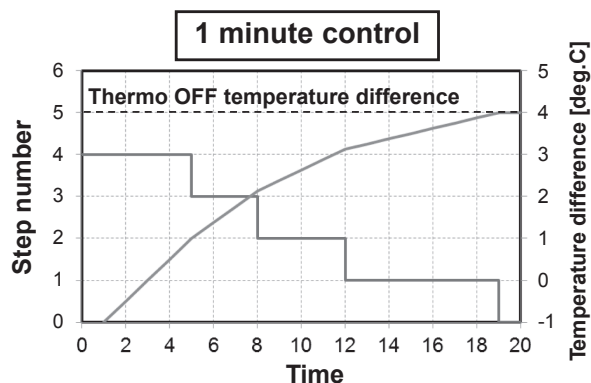
Cooling		Heating	
Set by SW2	Temperature interval	Set by SW4	Temperature interval
★0	Invalid	★0	Invalid
1	0.2	1	0.2
2	0.5	2	0.5
3	1.0	3	1.0
4	1.5	4	1.5
5	2.0	5	2.0
6	2.5	6	2.5
Other No.s	Invalid	Other No.s	Invalid

### 3.2 Interval time setting for step change

Interval time is adjustable by R/C. [ Indoor unit function No.2 : Fan speed set ]

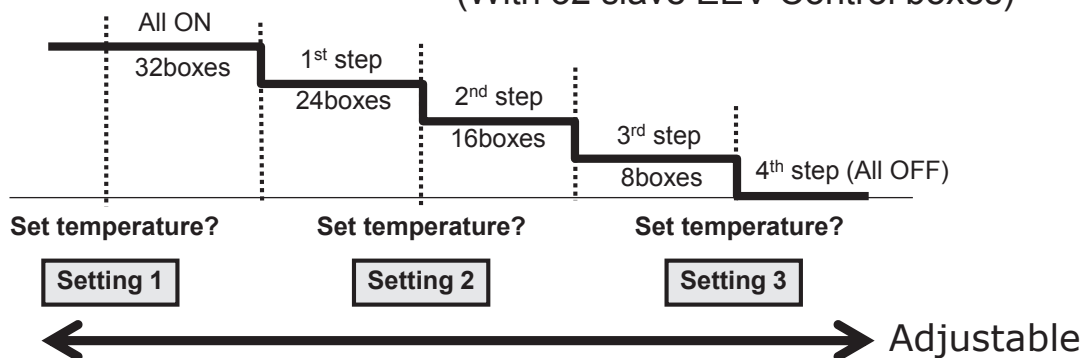
Remote control function			Actual meaning
No	Function	Display on R/C	
02	FAN SPEED SET	★STANDARD	★1 minute
		HIGH SPEED 1	3 minute
		HIGH SPEED 2	5 minutes

★Factory default



### 3.3 Step control adjustment

[e.g. 4-step control by 1.0°C temperature interval in heating]  
(With 32 slave EEV-Control boxes)



Indoor unit function			Actual meaning
No	Function	Display on R/C	
13	Drain pump link	★Cool, Dry	Setting 1
		Cool, Dry, Heat	Setting 2
		Cool, Dry, Heat, Fan	Setting 3

### 3.4 Supply air temperature setting at system control D

#### SW1:Target supply air temperature in cooling

SW1	0	1	2	3	4	5	6	7	8	9
<b>Cooling target S/A temperature [°C]</b>	12	14	16	18	20	22	24	26	28	30

#### SW3:Target supply air temperature in heating

SW3	SW7-2 [Slave]	0	1	2	3	4	5	6	7
<b>Heating target S/A temperature [°C]</b>	OFF	16	18	20	22	24	26	28	30
	ON	31	33	35	37	39	41	43	45

When SW7-2 of the slave PCB is ON, the heating target supply air temperature becomes +15deg.C. (Range becomes 31deg.C to 45deg.C)

### 3.5 SW6 : Function setting

SW6 has a different setting from the slave control.

★Factory default

Switch	Function	ON/OFF	Setting
SW6-1	Automatic operation switching temperature	★OFF/ON	As per setting
SW6-2		★OFF/ON	
SW6-3	Hot start control	OFF	Invalid
		★ON	Valid
SW6-4	Medium temperature for cooling	★OFF	Invalid
		ON	Valid

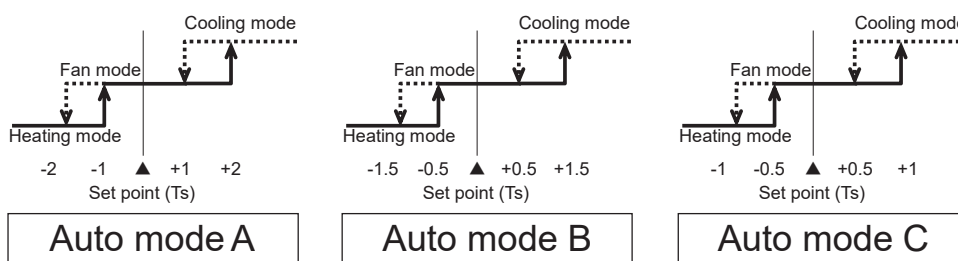
### 3.6 Automatic operation control

- Operation mode in auto mode is changed by temperature difference between set temperature and R/A or S/A temperature. (Cooling, Heating, Fan )
- When auto mode is used, “Switching temperature difference” setting by SW6-1,2 is necessary.
- To activate auto mode. R/C setting is also necessary. ( Indoor unit function 2)

**Slave control box auto mode setting doesn't work.**

★ Factory default.

Auto mode changeover pattern	SW6-1	SW6-2
Auto mode is invalid	★OFF	★OFF
Auto mode A $\pm 2^{\circ}\text{C}$	ON	OFF
Auto mode B $\pm 1.5^{\circ}\text{C}$	OFF	ON
Auto mode C $\pm 1^{\circ}\text{C}$	ON	ON



### 3.7 Hot start control setting

Hot start control setting can be set Valid / Invalid by SW6-3.

Hot start control

- In order to prevent cold air from blowing out at the starting period of operation in heating, the fan operation is kept under the stand-by condition.
- However, since there is some opinion that this control is not required for the direct expansion type AHU, it is possible to cancel this control with this switch.

### 3.8 Medium temperature cooling setting

- It is possible to switch to medium temperature range in cooling.
- Remote control RC-E3 can change the setting temperature between 10 -30deg.C
- It is NOT possible to use the RC-E4, E5,RC-EX in this case

### 3.9 SW7

★Factory default

Switch	Function	ON/OFF	Setting
SW7-1	Check indoor fan operation	★OFF	Invalid
		ON	Valid
SW7-2	Switching return/supply air temperature control	★OFF/ON	As per setting
SW7-3		★OFF/ON	
SW7-4	1 fan step/ 3 fan step	★OFF	1 fan step
		ON	3 fan step

- SW7-1 is used for the operation check of indoor fan, before connecting the refrigeration piping.
- The indoor fan can operate by switching SW7-1 ON.  
(This function is useful to check the AHU fan operation without the outdoor unit.)
- SW7-4 can change from 1 fan step to 3 fan step, but requires wiring adjustment.

### 3.10 System selection

By using SW7-2 and SW7-3, the following 4 types of system control can be selected.

★Factory default

System control	SW7-2	SW7-3	Remarks
System control A	★OFF	★OFF	Return air temperature control
System control B	ON	OFF	Supply air temperature control
System control C	OFF	ON	Supply air temperature control
System control D	ON	ON	Supply air temperature control

- The slave EEV-Control box also needs setting for return/supply air temperature control.
- Refer to the slave EEV-Control box section.

### 3.11 Fan control setting during defrost operation

#### When AHU must not be stop...

★Factory default

Jumper	Function	Short/Open	Setting
J1	Setting of indoor fan control during defrosting	★Short	Fan stops
		Open	Fan keeps operating

- During defrost operation and oil return operation (heating), the fan motor needs to be stopped. But in some cases the AHU may require the fan operation is kept ON.
- If one refrigeration circuit starts defrost operation, all refrigeration system are forced to start defrost operation, and all refrigeration systems needs to wait to finish all defrost operations.
- By cutting J1, this fan control becomes invalid and the fan motor keeps operating. And the oil return/defrost operation works separately in each refrigeration system.
- If the system cannot keep the condition, don't cut (open) J1.
- The conditions to keep the operation of the AHU fan during defrosting in heating are list on the next slide.
- If the one of following conditions is satisfied, J1 can be cut (open).

#### Conditions to keep fan operation

1. If dampers are installed on the indoor heat exchangers in each refrigeration system and the dampers can be shut off during defrost operation.
2. If the outdoor units are heat recovery system (KXRE6 models), and the oil return can be done between the outdoor heat exchangers and PFD box in each refrigeration system.
3. If the height difference between the outdoor unit and indoor heat exchanger is within 20m.

(Note) Max. height difference is 20m.

However if the height difference exceeds 10m, then 300cc of refrigerant oil must be charged additionally on site per outdoor unit.

### 3.12 External input

Connector		Function	Terminal block TB2	Remarks
CnN1,2	6P	Switching operation mode (Cooling, Fan, Heating)	4, 5, 6, 7	See following table for details
CnN3,4				
CnN5,6		Emergency stop	8, 9	
CnI	2P	Overcurrent anomaly of fan motor	15, 16	

Inputs are no voltage contacts.

It is possible to change operation mode by external input signal

Connector	TB2	Operation mode			
		No signal	Cooling	Heating	Fan
CnN1,2	4,5	0	1	0	1
CnN3,4	6,7	0	0	1	1

0 : Open (OFF), 1: Short (ON).

### 3.13 External output

Connector		Contents of output information	Terminal block TB2	Remarks
CnM3	5P	Operation command to indoor fan motor	1, 2	
CnT2	5P	Cooling / Defrost Oil return / Low temperature	10, 11, 12, 13, 14	See following table for details

The voltage of the relay (prepared on site) for output signal CNT2 should be DC12V. Max load of all relays should be 160mA.

Pin No. of connector	TB2	Function
CnT2-1	10	Common (+DC12V)
CnT2-2	11	Output during cooling operation
CnT2-3	12	Output during defrost operation of all refrigeration systems
CnT2-4	13	Output when any refrigeration systems starts cooling oil return operation
CnT2-5	14	Output when the return air temperature becomes below 0°C

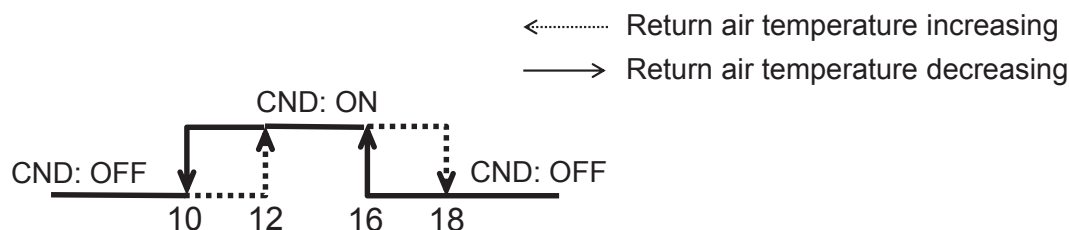
### 3.14 Backup operation

- When a fault occurs on one of refrigeration system in multiple refrigeration systems, the system stops once. But switching to backup operation is available.
- By changing the R/C function below from STANDARD to TYPE1, the other refrigeration systems (except damaged systems) can be operated as emergency operation with displaying “Backup” on the remote control.
- (If the setting is already “TYPE 1”, change back to “STANDARD”, then change again.)
- Every time a fault occurs, changing the R/C function setting is required. If the master control box is powered OFF, the setting is cancelled.

★Factory default

Remote control function			Actual meaning
No	Function	Display on R/C	
17	PRESSURE CONTROL	★STANDARD	★Normal operation
		TYPE 1	Backup operation

### 3.15 Free cooling control

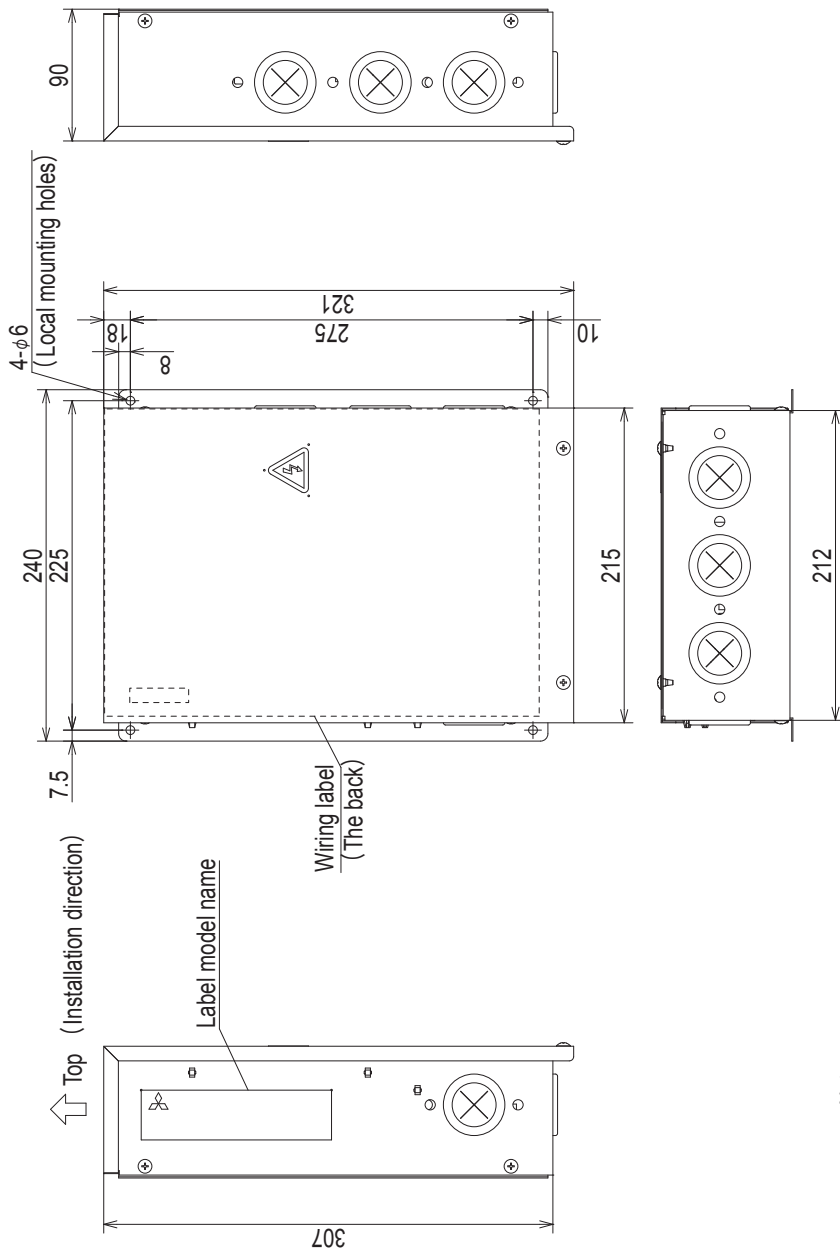


- Free cooling is the function to control the opening of the by-pass damper of the total heat exchanger in cooling mode.
- The by-pass damper of the total heat exchanger can be controlled by CND. CND outputs on the PCB is ON/OFF signal according to outdoor temperature (= return air temperature).
- When using this function, the return air temperature sensor should be relocated by using the remote sensor (8m) to the position where the outdoor air temperature can be detected.
- The remote control sensor cannot be used.



# 4. Functions of the slave

## Outline of slave EEV-Control box

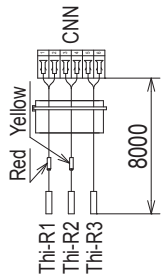


### Notes

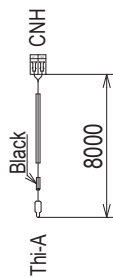
- (1) Take note that this control box is not waterproof. Do not allow water or dust to enter the control box.
- (2) Mount the control box firmly using the four holes shown in the figure and confirm that it will not come loose due to vibration.
- (3) Use the tie-wraps included in the control box to fix the wiring. Confirm that there is no tension on the wiring to the terminal blocks and that the wiring connections are fixed tight in the terminal blocks.
- (4) The label for the model name is located on the left side of the control box.
- (5) Take note that the wiring diagram is located on the back of the lid. If you do not use the lid of the control box, then use the wiring diagram that comes with the control box.
- (6) Ensure a gap of more than 15mm at the top of the control box to remove the lid of the control box.
- (7) Always install this control box in a secure location inside a locked enclosure. (As there is danger of electric shock or incorrect operation)
- (8) Provide the following clearances above, below, to the right and to the left to ensure enough space for ventilation and service work of the control box.

Bottom clearance	Min. 30mm	.....	Space for cooling	
Top clearance	Min. 30mm	.....	Space for cooling	
Left clearance	Min. 100mm	(Recommended length of 200mm or more)	.....	Space for wiring and service
Right clearance	Min. 100mm	(Recommended length of 200mm or more)	.....	Space for wiring and service
Front clearance	Min. 30mm	.....	Space for cooling	

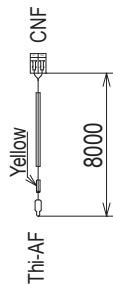
### Thermistors for heat exchanger



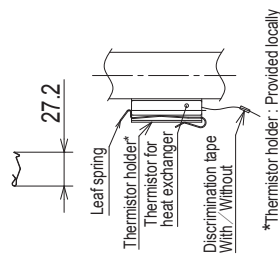
### Thermistor for return air



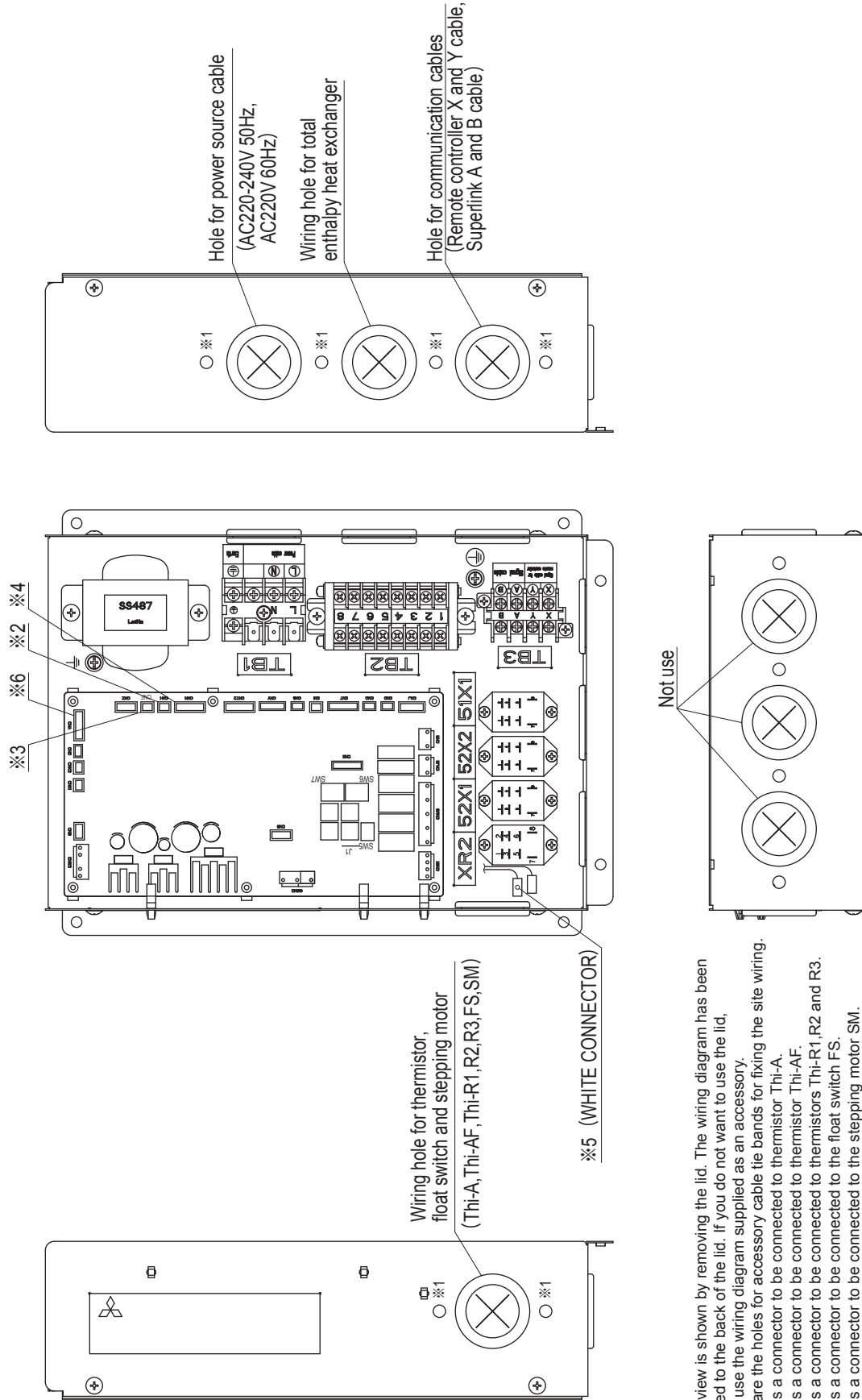
### Thermistor for supply air



### Leaf spring for heat exchanger (Use when heat exchanger thermistor is installed.)

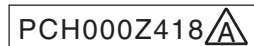


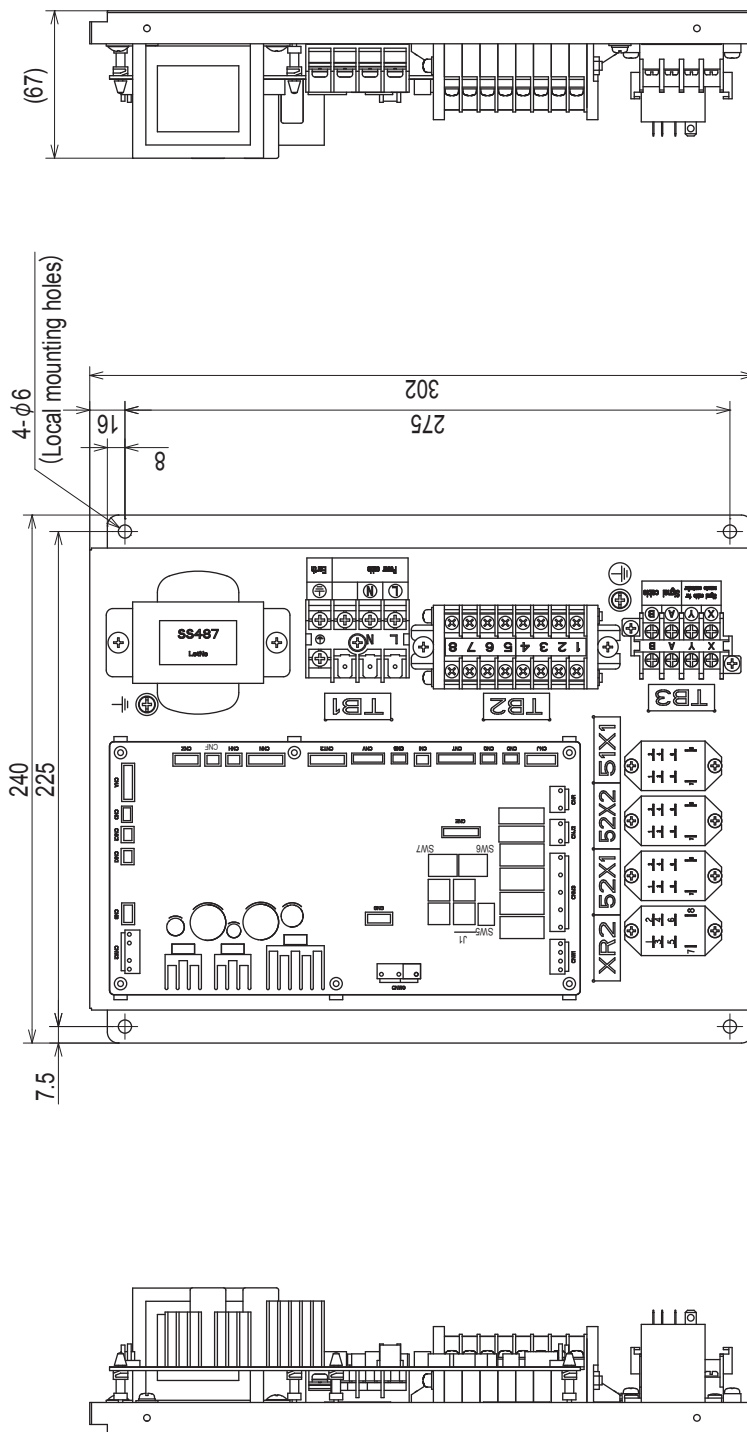
Thermistor	Material
For Thi-R3	φ9.52x10.6
For Thi-R1,-R2	φ8.0x10.6
	Copper tube



Notes

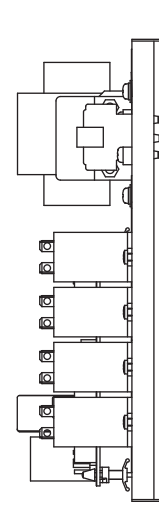
- (1) This view is shown by removing the lid. The wiring diagram has been pasted to the back of the lid. If you do not want to use the lid, then use the wiring diagram supplied as an accessory.
- (2) ※1 are the holes for accessory cable tie bands for fixing the site wiring.
- (3) ※2 is a connector to be connected to thermistor Thi-A.
- (4) ※3 is a connector to be connected to thermistor Thi-AF.
- (5) ※4 is a connector to be connected to thermistors Thi-R1, R2 and R3.
- (6) ※5 is a connector to be connected to the float switch FS.
- (7) ※6 is a connector to be connected to the stepping motor SM.



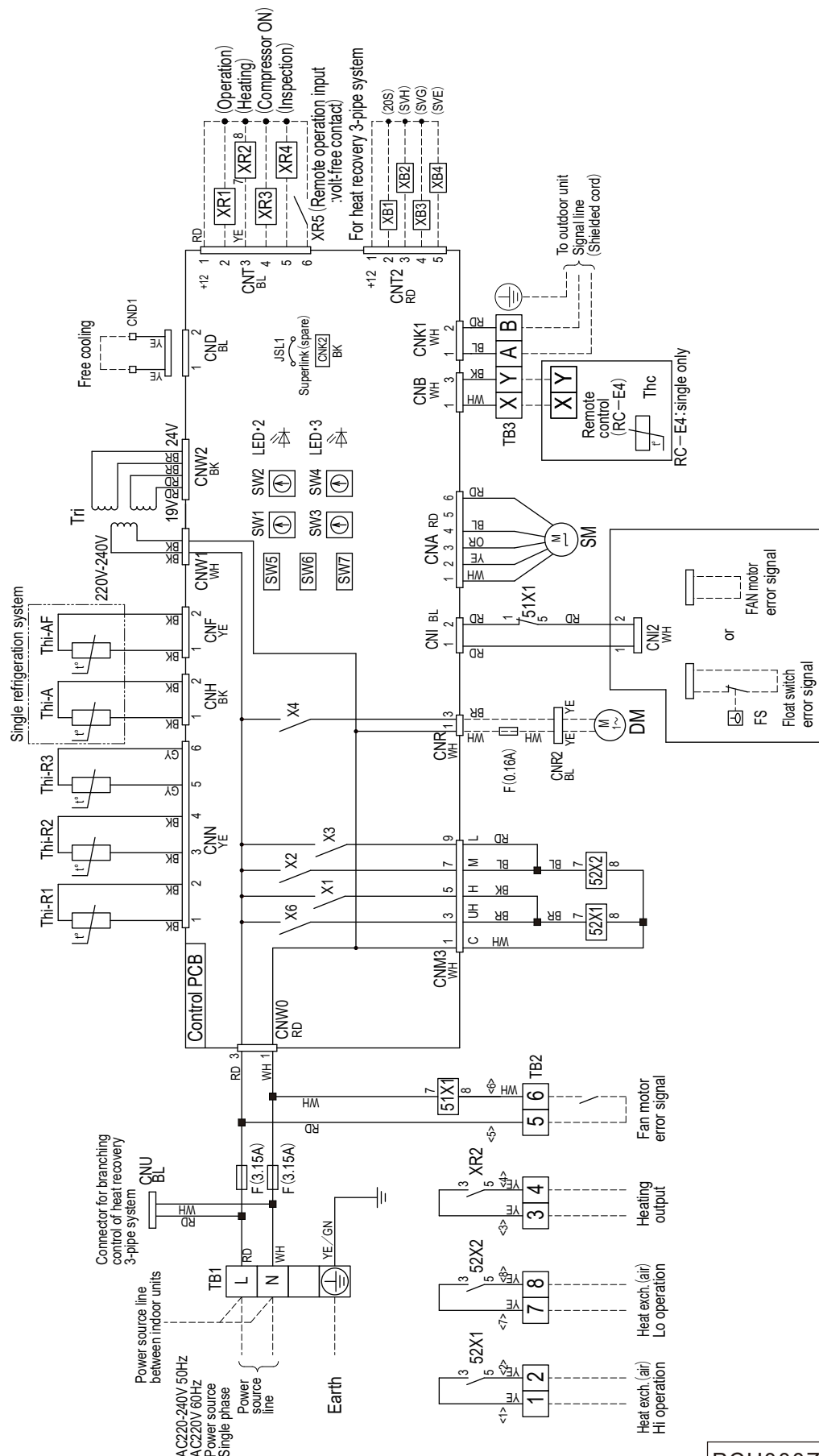


Notes

- (1) When removing the sheet metal cover take care not to damage the internal control box wiring.
- (2) After connecting the local wiring, confirm that there is no direct tension of the local wiring onto the terminal blocks or the connectors of printed circuit board (PCB).
- (3) If you are using the control box as shown in the figure, take note the following points.
  - Ensure that the exposed high-temperature and the high-voltage parts do not come into contact with any wiring.
  - Ensure that there is an air gap of more than 90mm above the high-temperature and the high-voltage parts.



# Wiring diagram of slave EEV



PCH000Z420

This table shows the input/output summary

		Capacity	
TB1 *1	Power source terminal block	AC300V, 25A	
TB2 1,2	External output for fan	AC600V 15A	DC5V, max 2mA
TB2 3,4	Heating output		
TB2 5,6	External input for total heat exchanger anomaly		AC200V, 1A
TB3 *1	Remote control/ Superlink line		
CNT *1	Available	Relay capacity: DC12V max 160mA at total use	
CNT2 *1	Available	Relay capacity: DC12V max 160mA at total use	
CND *2	Free cooling output	Relay capacity: DC12V max 160mA at total use	

\*1 : Same as normal KXE6 indoor units

\*2 : CND connector is included in control unit

### Wiring diagram information

	Single refrigeration system	Multiple refrigeration system
CNA-Z	Connector	Connector
DM	Drain pump motor	Drain pump motor
F	Fuse	Fuse
FS	Float switch	Float switch
JSL1	Spare Superlink terminal setting (for spare)	Spare Superlink terminal setting (for spare)
LED• 2	Indication lamp (Green-Normal operation)	Indication lamp (Green-Normal operation)
LED• 3	Indication lamp (Red-Inspection)	Indication lamp (Red-Inspection)
SM	Stepping motor (for electronic expansion valve)	Stepping motor (for electronic expansion valve)
SW1	Indoor unit address: tens place	Slave box address: tens place
SW2	Indoor unit address: ones place	Slave box address: ones place
SW3	Outdoor unit address: tens place	Outdoor unit address: tens place
SW4	Outdoor unit address: ones place	Outdoor unit address: ones place
SW5-1	Switching PCB setting for single/multiple refrigeration system (☆OFF=single/ON=multiple)	Switching PCB setting for single/multiple refrigeration system (☆OFF=single/ON=multiple)
SW5-2	Indoor unit address: hundreds place (☆OFF)	Reserved (keep off)
SW6-1-4	Model capacity setting (☆ON)	Model capacity setting (☆ON)
SW7-1	Test run, drain pump motor test (☆OFF)	Reserved (keep off)
SW7-2	Target supply air temperature adjustment (heating mode) (☆OFF)	+15deg.C setting at supply air temperature control in heating (☆OFF)
SW7-3	Switching return/supply air temperature control (☆OFF)	Switching the control method of refrigerant flow volume (☆OFF=Super heat control, ON=Supply air temperature control)
SW7-4	Automatic supply air temperature adjust. control (☆OFF)	Reserved (keep off)
TB1	Terminal block (Power source line) (□mark)	Terminal block (Power source line) (□mark)
TB2	Terminal block (□mark)	Terminal block (□mark)
TB3	Terminal block (Signal line) (□mark)	Terminal block (Signal line) (□mark)
Thc	Temperature sensor (Remote control)	
Thi-A	Temperature sensor (Return air)	It is not used in the multiple system.
Thi-AF	Temperature sensor (Supply air)	
Tri	Transformer	Transformer
Thi-R1, 2, 3	Temperature sensor (Heat exchanger)	Temperature sensor (Heat exchanger)
X1-3, 6	Relay for FM	Relay for FM
X4	Relay for DM	Relay for DM
XR2	Relay (DC12V)	Relay (DC12V)
52X1, 52X2, 51X1	Relay (AC200V)	Relay (AC200V)
■mark	Closed-end connector	Closed-end connector

☆Factory default

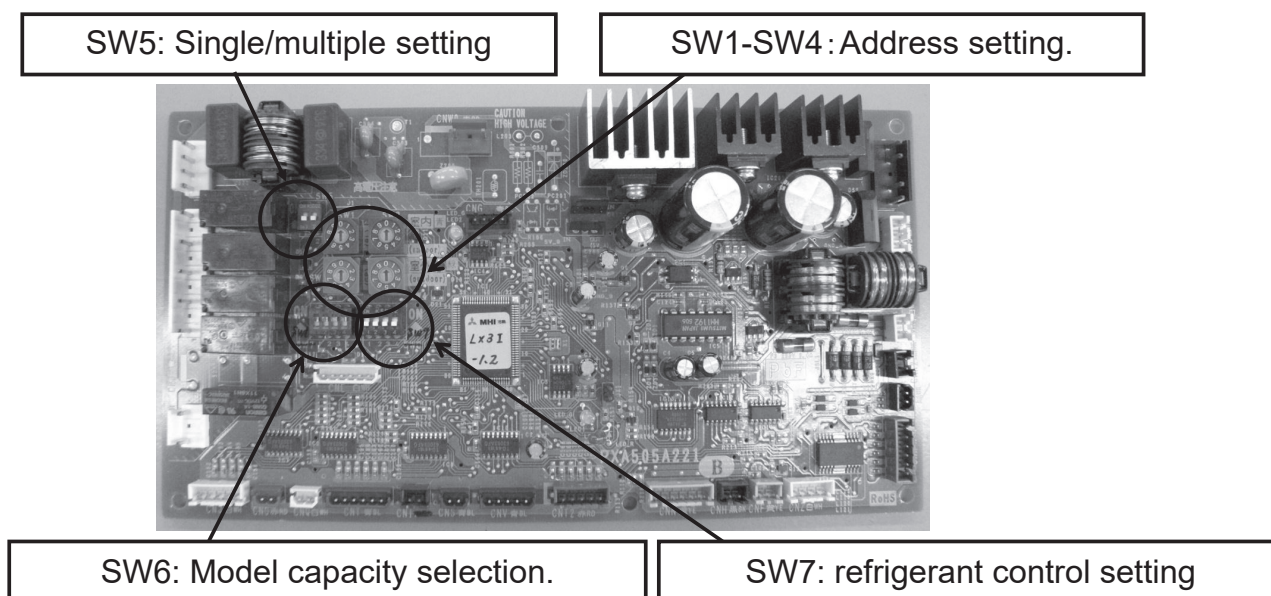
※ 1 The method of setting the address of the multiple system is different than usual.

Refer to the technical documentation.

Error code indoor unit

Display on remote control	LED on indoor circuit board		Content	
	Red (checking)	Green (normal)		
OFF	Stays OFF	Keeps flashing	Normal	
	Stays OFF	Stays OFF	Fault in power source, indoor power off or one phase down	
E1	Stays OFF	Keeps flashing	Fault on the transmission between indoor circuit board and remote control	
	Not sure	Not sure	Indoor computer abnormal	
E2	1-time flash	Keeps flashing	Duplication of indoor address No. (can only be detected during operation) Excess number of remote controls (can only be detected during operation)	
E3	2-time flash	Keeps flashing	Outdoor power off or one phase down There is no corresponding outdoor unit address.	
E5	2-time flash	Keeps flashing	Fault on outdoor-indoor transmission	
E6	1-time flash	Keeps flashing	Indoor heat exchanger temperature sensor interrupted or short-circuit	
E7	1-time flash	Keeps flashing	Return air temperature sensor interrupted or short-circuit	
E10	Stays OFF	Keeps flashing	Excess number of remote control connections	
E11	Stays OFF	Keeps flashing	The master indoor unit is not set properly.	
E12	1-time flash	Keeps flashing	Superlink	
			Indoor unit address switch	
			New specification	Indoor No. Outdoor No.
			Old specification	Indoor No. Outdoor No.
E15	1-time flash	Keeps flashing	Indoor supply air temperature sensor interrupted or short-circuit	
E16	1-time flash	Keeps flashing	Float switch activation (only with FS), Fan motor (Faulty)	
E18	1-time flash	Keeps flashing	The address configuration fault for master-slave indoor units.	
E19	1-time flash	Keeps flashing	Indoor unit operation check/drain motor check mode faulty	
E28	Stays OFF	Keeps flashing	Remote control temperature sensor anomaly	
Over E30	Stays OFF	Keeps flashing	Outdoor unit checking (outdoor circuit board LED checking )	
E63	Stays OFF	Keeps flashing	Emergency stop	

This is the PCB of the EEVKIT6-E-C



SW1-SW4 and SW6 can be set according to the required specifications

### Slave control box limitations

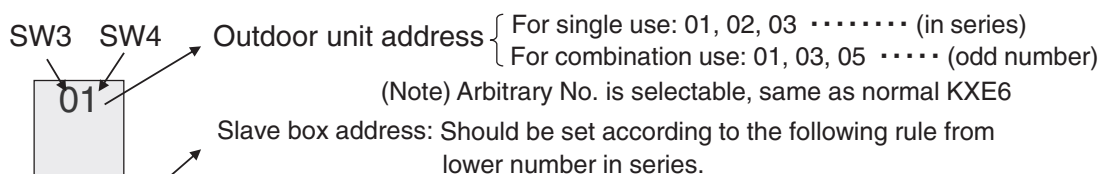
- The number of slave control boxes must follow the table. (Example -3 slave boxes with 1 master box is not allowed.)
- The combination of the multiple step control and the number of slave EEV-Control boxes is shown in table.
- If applying other combinations, E18 appears

No.	Number of slave EEV-Control box	Step control number
1	1	X
2	2	X
3	4	4
4	6	6
5	8	4
6	8	8
7	12	6
8	16	4
9	16	8
10	18	6
11	20	4
12	24	4
13	24	6
14	24	8
15	28	4
16	30	6
17	32	4
18	32	8

### 4.1 Address setting (SW1-SW4)

Switch		Contents
SW1	Rotary switch (Blue)	Slave Box address (10's)
SW2	Rotary switch (Blue)	Slave Box address (1's)
SW3	Rotary switch (Green)	Outdoor unit address (10's)
SW4	Rotary switch (Green)	Outdoor unit address (1's)

Set the address of slave EEV-Control box as follows.



Refrigerant system (*)	Indoor address	Refrigerant system (*)	Indoor address
No.1 (01)	01, 02, 03, 04	No.5 (05)	17, 18, 19, 20
No.2 (02)	05, 06, 07, 08	No.6 (06)	21, 22, 23, 24
No.3 (03)	09, 10, 11, 12	No.7 (07)	25, 26, 27, 28
No.4 (04)	13, 14, 15, 16	No.8 (08)	29, 30, 31, 32

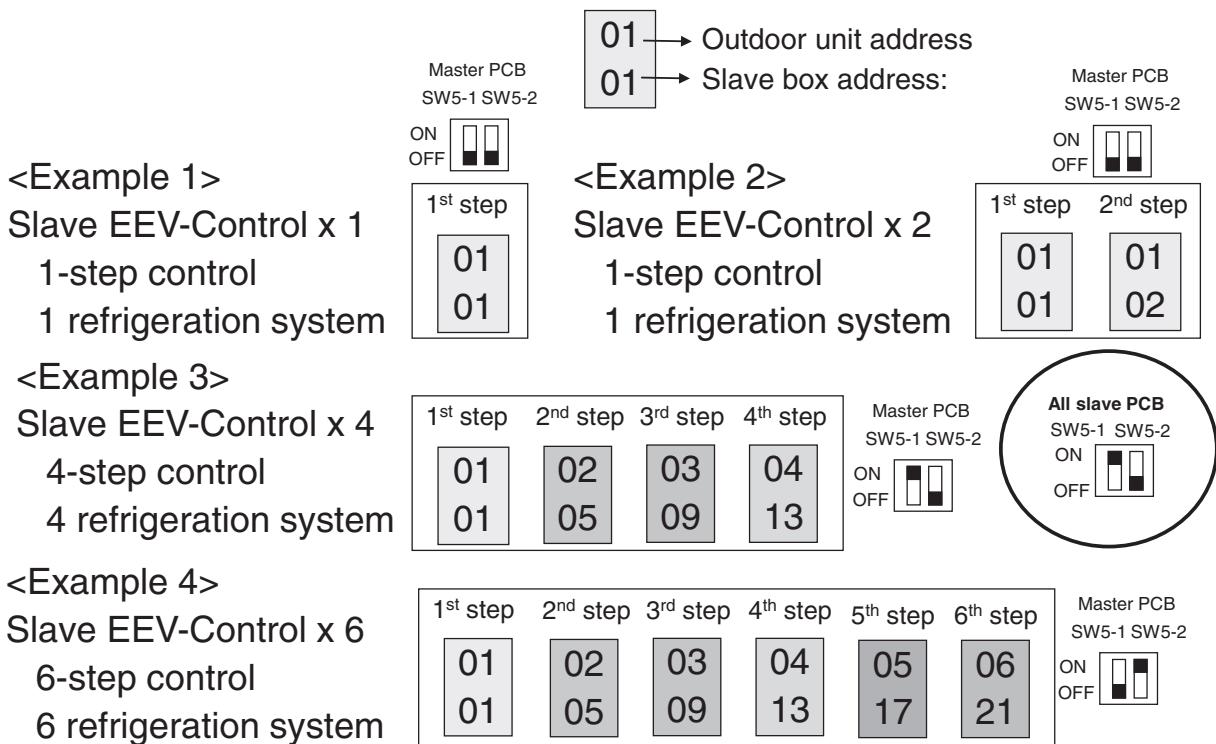
\* In ( ) shows examples of outdoor unit address as single use

\* In ( ) shows example of outdoor unit address as single circuit

Refrigerant system (*)	Slave address	Refrigerant system (*)	Slave address
No.1 (01)	01, 02, 03, 04	No.5 (05)	17, 18, 19, 20
No.2 (02)	05, 06, 07, 08	No.6 (06)	21, 22, 23, 24
No.3 (03)	09, 10, 11, 12	No.7 (07)	25, 26, 27, 28
No.4 (04)	13, 14, 15, 16	No.8 (08)	29, 30, 31, 32

4 slave EEV-Control and 4 refrigeration systems  
Slave address must be 01,05,09,13

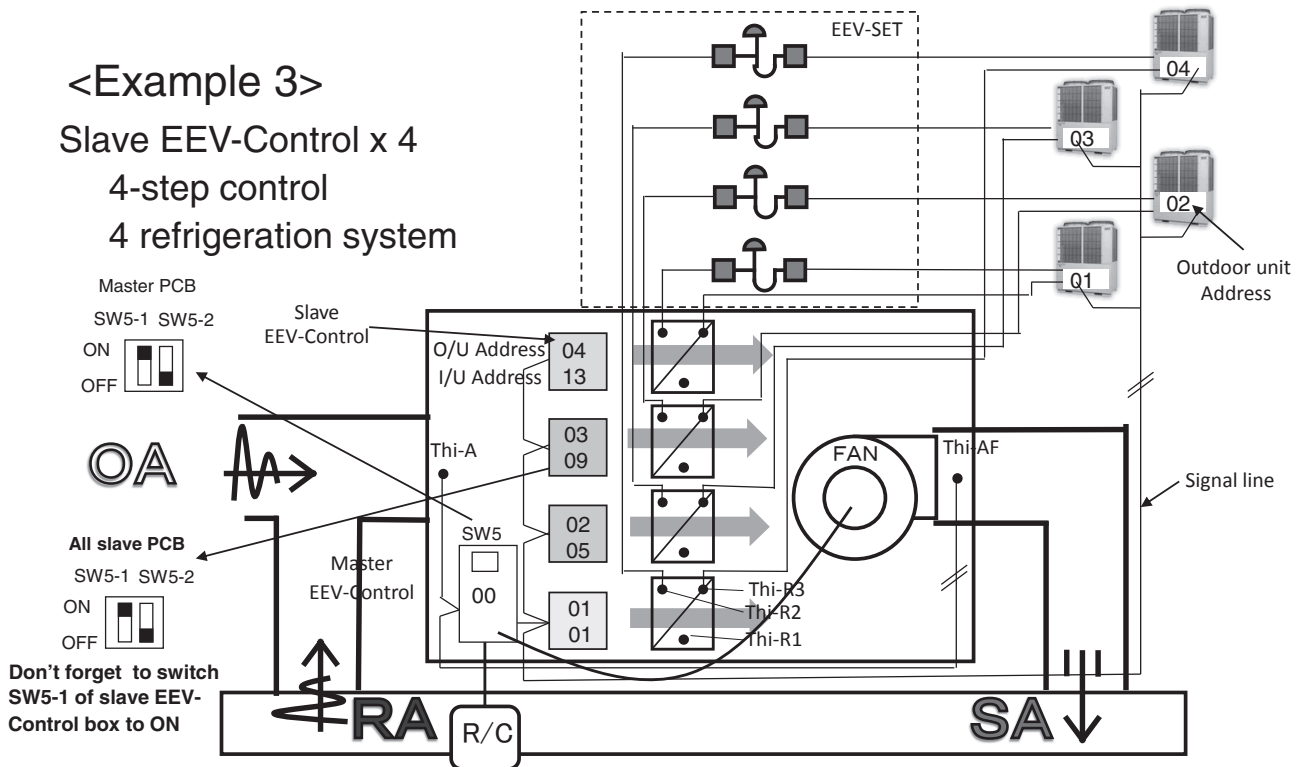
8 slave EEV-Control and 4 refrigeration systems  
Slave address must be 01,02,05,06,09,10,13,14





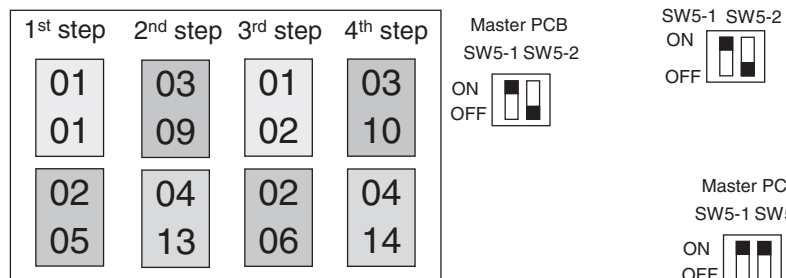
<Example 3>

Slave EEV-Control x 4  
4-step control  
4 refrigeration system



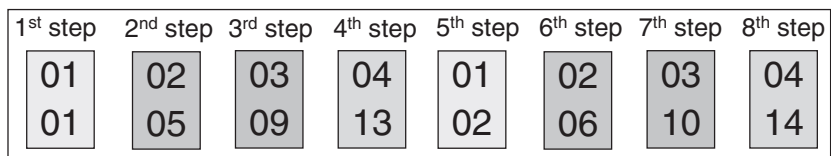
<Example 5>

Slave EEV-Control x 8  
4-step control  
4 refrigeration system



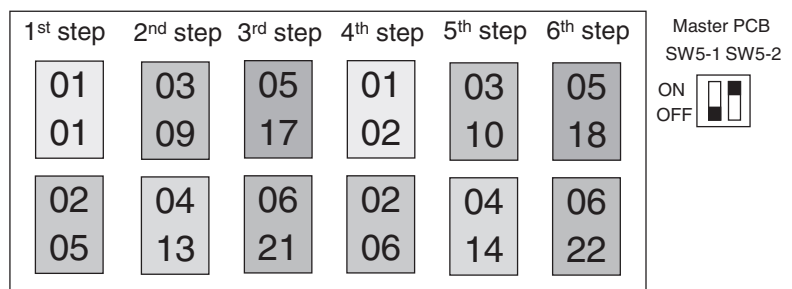
<Example 6>

Slave EEV-Control x 8  
8-step control  
4 refrigeration system



<Example 7>

Slave EEV-Control x 12  
6-step control  
6 refrigeration system

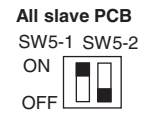


<Example 8>

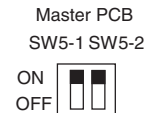
Slave EEV-Control x 16  
4-step control  
8 refrigeration system



1 <sup>st</sup> step	2 <sup>nd</sup> step	3 <sup>rd</sup> step	4 <sup>th</sup> step
01 01	05 17	01 02	05 18
02 05	06 21	02 06	06 22
03 09	07 25	03 10	07 26
04 13	08 29	04 14	08 30



01 → Outdoor unit address  
01 → Slave box address:



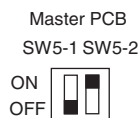
<Example 9>

Slave EEV-Control x 16  
8-step control  
8 refrigeration system

1 <sup>st</sup> step	2 <sup>nd</sup> step	3 <sup>rd</sup> step	4 <sup>th</sup> step	5 <sup>th</sup> step	6 <sup>th</sup> step	7 <sup>th</sup> step	8 <sup>th</sup> step
01 01	03 09	05 17	07 25	01 02	03 10	05 18	07 26
02 05	04 13	06 21	08 29	02 06	04 14	06 22	08 30

<Example 10>

Slave EEV-Control x 18  
6-step control  
6 refrigeration system

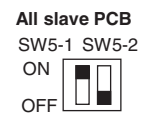


1 <sup>st</sup> step	2 <sup>nd</sup> step	3 <sup>rd</sup> step	4 <sup>th</sup> step	5 <sup>th</sup> step	6 <sup>th</sup> step
01 01	04 13	01 02	04 14	01 03	04 15
02 05	05 17	02 06	05 18	02 07	05 19
03 09	06 21	03 10	06 22	03 11	06 23

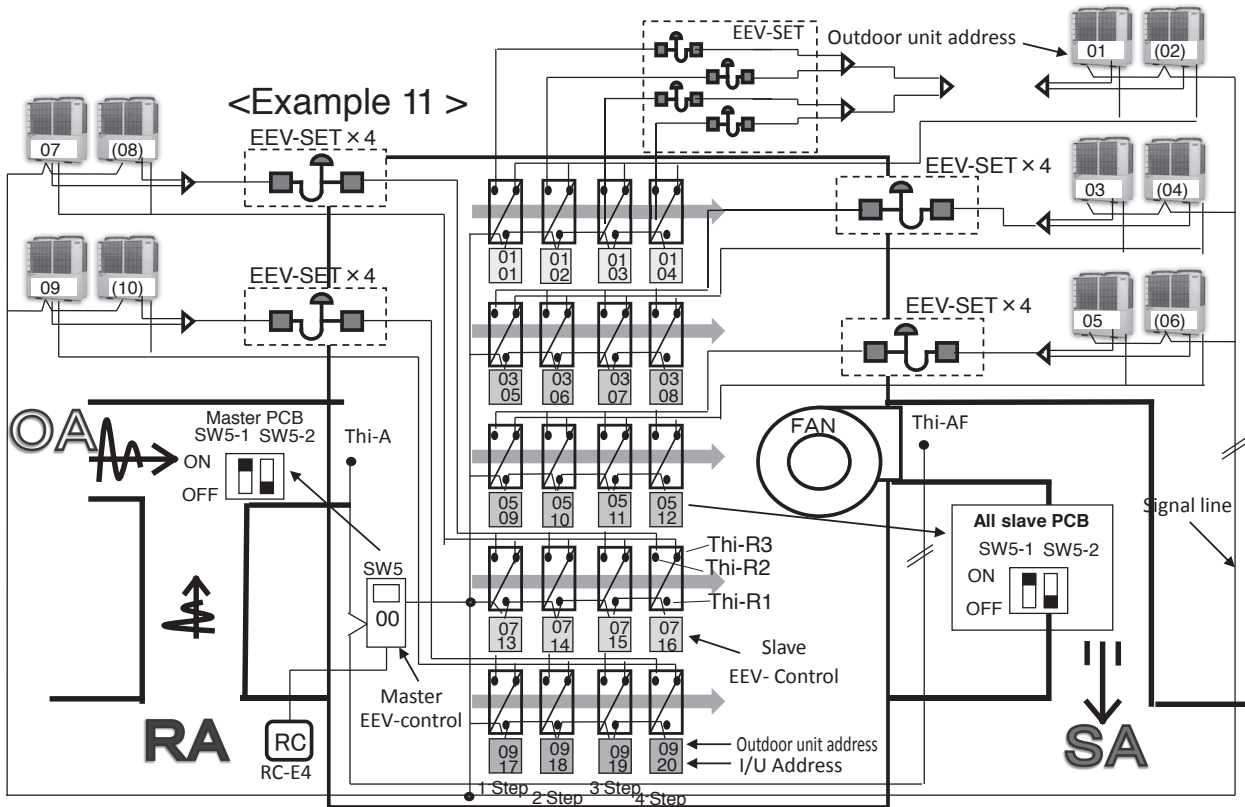
01 → Outdoor unit address  
01 → Slave box address:

<Example 11>

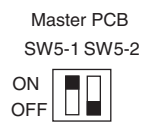
Slave EEV-Control x 20  
4-step control  
5 refrigeration system



1 <sup>st</sup> step	2 <sup>nd</sup> step	3 <sup>rd</sup> step	4 <sup>th</sup> step
01 01	01 02	01 03	01 04
02 05	02 06	02 07	02 08
03 09	03 10	03 11	03 12
04 13	04 14	04 15	04 16
05 17	05 18	05 19	05 20

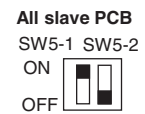


**<Example 12>**  
 Slave EEV-Control x 24  
 4-step control  
 6 refrigeration system



01 → Outdoor unit address  
 01 → Slave box address:

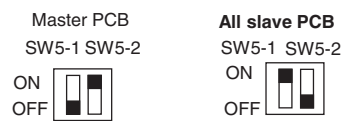
1 <sup>st</sup> step	2 <sup>nd</sup> step	3 <sup>rd</sup> step	4 <sup>th</sup> step
01 01	01 02	01 03	01 04
02 05	02 06	02 07	02 08
03 09	03 10	03 11	03 12
04 13	04 14	04 15	04 16
05 17	05 18	05 19	05 20
06 21	06 22	06 23	06 24



<Example 13>  
 Slave EEV-Control x 24  
 6-step control  
 6 refrigeration system

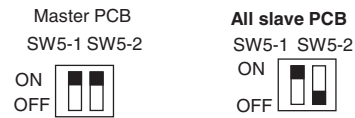
1 <sup>st</sup> step	2 <sup>nd</sup> step	3 <sup>rd</sup> step	4 <sup>th</sup> step	5 <sup>th</sup> step	6 <sup>th</sup> step
01 01	05 17	03 10	01 03	05 19	03 12
02 05	06 21	04 14	02 07	06 23	04 16
03 09	01 02	05 18	03 11	01 04	05 20
04 13	02 06	06 22	04 15	02 08	06 24

01 → Outdoor unit address  
 01 → Slave box address:



<Example 14>  
 Slave EEV-Control x 24  
 8-step control  
 6 refrigeration system



01 → Outdoor unit address  
 01 → Slave box address:





1 <sup>st</sup> step	2 <sup>nd</sup> step	3 <sup>rd</sup> step	4 <sup>th</sup> step	5 <sup>th</sup> step	6 <sup>th</sup> step	7 <sup>th</sup> step	8 <sup>th</sup> step
01 01	04 13	01 02	04 14	01 03	04 15	01 04	04 16
02 05	05 17	02 06	05 18	02 07	05 19	02 08	05 20
03 09	06 21	03 10	06 22	03 11	06 23	03 12	06 24

<Example 15>  
 Slave EEV-Control x 28  
 4-step control  
 7 refrigeration system



01 → Outdoor unit address  
 01 → Slave box address:



All slave PCB  
 SW5-1 SW5-2  
 ON   
 OFF 

Master PCB  
 SW5-1 SW5-2  
 ON   
 OFF 

1 <sup>st</sup> step	01 01	02 05	03 09	04 13	05 17	06 21	07 25
2 <sup>nd</sup> step	01 02	02 06	03 10	04 14	05 18	06 22	07 26
3 <sup>rd</sup> step	01 03	02 07	03 11	04 15	05 19	06 23	07 27
4 <sup>th</sup> step	01 04	02 08	03 12	04 16	05 20	06 24	07 28

<Example 16>  
 Slave EEV-Control x 30  
 6-step control  
 8 refrigeration system

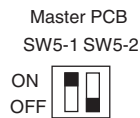
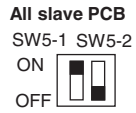
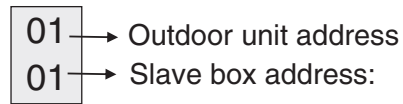
All slave PCB  
 SW5-1 SW5-2  
 ON   
 OFF 

Master PCB  
 SW5-1 SW5-2  
 ON   
 OFF 

01 → Outdoor unit address  
 01 → Slave box address:

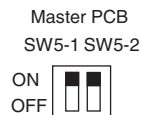
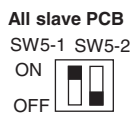
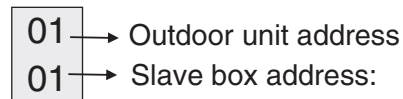
1 <sup>st</sup> step	01 01	06 21	03 10	08 30	05 19	03 12
2 <sup>nd</sup> step	02 05	07 25	04 14	01 03	06 23	04 16
3 <sup>rd</sup> step	03 09	08 29	05 18	02 07	07 27	05 20
4 <sup>th</sup> step	04 13	01 02	06 22	03 11	01 04	06 24
5 <sup>th</sup> step	05 17	02 06	07 26	04 15	02 08	07 28
6 <sup>th</sup> step						

<Example 17>  
 Slave EEV-Control x 32  
 4-step control  
 8 refrigeration system



1 <sup>st</sup> step	01 01	02 05	03 09	04 13	05 17	06 21	07 25	08 29
2 <sup>nd</sup> step	01 02	02 06	03 10	04 14	05 18	06 22	07 26	08 30
3 <sup>rd</sup> step	01 03	02 07	03 11	04 15	05 19	06 23	07 27	08 31
4 <sup>th</sup> step	01 04	02 08	03 12	04 16	05 20	06 24	07 28	08 32

<Example 18>  
 Slave EEV-Control x 32  
 8-step control  
 8 refrigeration system



1 <sup>st</sup> step	2 <sup>nd</sup> step	3 <sup>rd</sup> step	4 <sup>th</sup> step	5 <sup>th</sup> step	6 <sup>th</sup> step	7 <sup>th</sup> step	8 <sup>th</sup> step
01 01	05 17	01 02	05 18	01 03	05 19	01 04	05 20
02 05	06 21	02 06	06 22	02 07	06 23	02 08	06 24
03 09	07 25	03 10	07 26	03 11	07 27	03 12	07 28
04 13	08 29	04 14	08 30	04 15	08 31	04 16	08 32

(Note) These rules for setting the slave box address must be followed as per the examples 1 - 18 shown or error code “E18” will occur.

## 4.2 SW5 setting

★Factory default

Switch	Function	ON/OFF	Setting
SW5-1	Switching PCB setting for single/multiple refrigeration system	★OFF	For single refrigeration system
		ON	For multiple refrigeration system
SW5-2	Reserved	★OFF	-
		ON	-

- Set SW5-1 ON, when using this EEV-Control box (EEVKIT6-E-C) as the slave EEV-Control box for multiple refrigeration systems.
- If SW5-1 is not set to ON, then the multiple refrigerant system will not operate
- Don't forget to set all of the slave EEV-Control boxes SW5-1 ON.
- Always set SW5-2 to OFF.

## 4.3 SW6 (Model capacity selection)

- Set the model capacity according to the heat exchanger capacity.
- Setting capacity is the as same as the KXE6 systems.

	Model capacity											
	22	28	36	45	56	71	90	112	140	160	224	280
SW6-1	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	ON
SW6-2	OFF	OFF	ON	OFF	ON	OFF	ON	ON	OFF	OFF	ON	ON
SW6-3	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	ON	ON	ON
SW6-4	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON

### 4.4 SW7 function settings

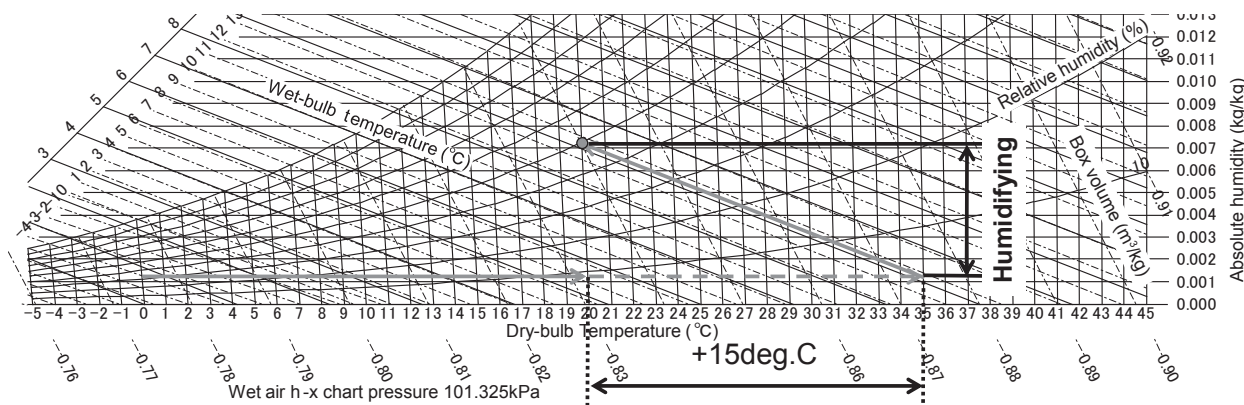
★Factory default

Switch	Function	ON/OFF	Setting
SW7-1	Reserved	★OFF	
		ON	
SW7-2	+15deg.C setting at supply air temperature control in heating	★OFF	Normal
		ON	+15deg.C setting
SW7-3	Switching the control method of refrigerant flow volume	★OFF	Superheat / subcool control
		ON	Supply air temperature control
SW7-4	Reserved	★OFF	
		ON	

SW7-1 and SW7-4 should be kept OFF.

### 4.5 +15deg.C setting at supply air temperature control SW7-2

- The target supply air temperature can be adjusted +15 deg.C from set value by setting SW7-2 to ON.
- This function is useful for applying water evaporating type humidifier on the secondary side of heat exchanger in order to maintain the actual supply air temperature at around the set value.
- Ensure that all slave EEV-Control boxes are set the same.
- This SW7-2 setting is available in all system B, C, D.





#### 4.6 Switching the control method of refrigerant flow volume SW7-3

- Switching the control method of refrigerant flow volume with SW7-3.
- When SW7-3 is OFF, the EEV is controlled to keep the superheat / subcool constant.
- When SW7-3 is ON, the EEV is controlled to keep the supply air temperature constant.
- Set according to the setting of master EEV-Control box.
- Ensure that all slave EEV-Control boxes are set the same.

	Master EEV-Control box	All slave control boxes SW7-3
1	System A, B	OFF
2	System C, D	ON

### 5. Summary

1. Multiple refrigeration systems use 1 master EEV-Control box with multiple slave EEV-Control boxes.
2. Superlink adaptor SC-ADNA-E is needed to connect with central controls.
3. 4 temperature control systems are available.
4. Outdoor unit 7-segment setting is required.
5. The number of slave control boxes are regulated. Slave control box Superlink addresses are also allotted.
6. Step control of slave control boxes is available.
7. Depending on installation, the fan stop function during defrost operation can be cancelled.
8. All slave control boxes must be changed to the same settings.  
(especially don't forget SW5-1 ON)

# 6. Instruction of how to replace indoor unit control PCB

## 6.1 Model EEVKIT6-E-M/A, /B (Master)

PCH012D016A

**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.
- 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 Check the model type**

Applicable model	Setting according to the model *1	
	I/U FAN	LOUVER SW
EEVKIT3-M		
EEVKIT6-E-M	HI	INVALID

**② Set to an appropriate address and function using switch on PCB.**

Select the same setting with the removed PCB.  
Applied differently depending on the model set.  
For more information please see also the back side.

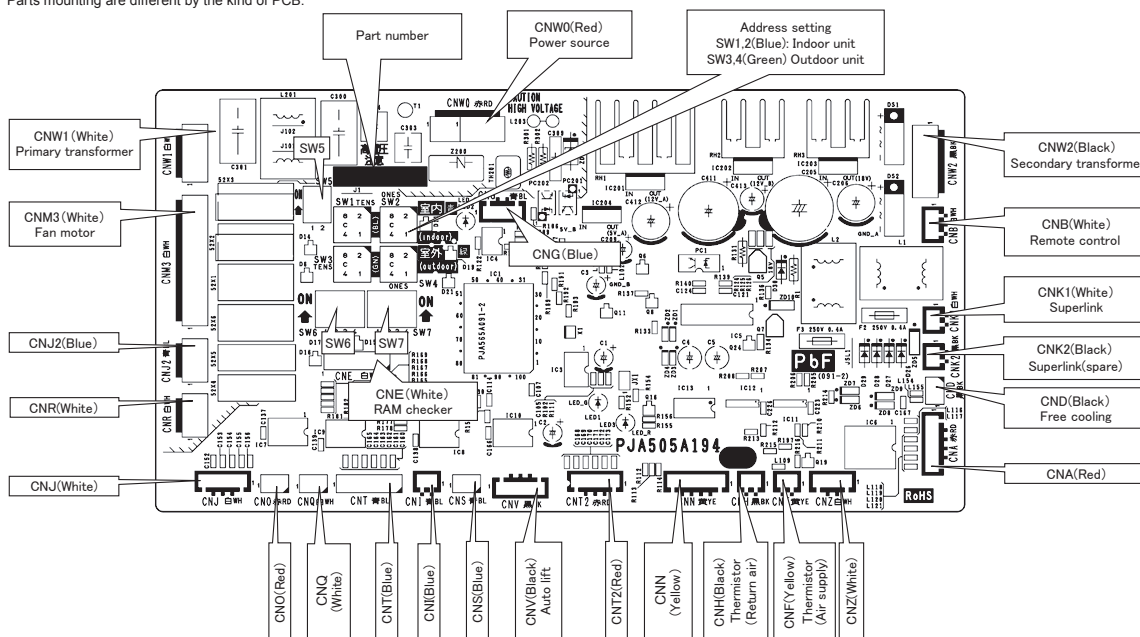
- There is a unit having plural applicable PCB depending on a model.
- Set the function setting corresponding the spare PCB and the applicable model.
- Do "Setting according to the model \*1" refer to "⑤ Function setting of wired remote control" after turning on the power source when using wired remote controller

**③ Replace the PCB**

- Fix the PCB so as not to pitch the cords.
- Connect connectors to the PCB. Connect a cable connector with the PCB connector of the same color.
- Do not pass CPU surrounding about wirings.

**④ Control PCB**

Parts mounting are different by the kind of PCB.



**⑥ Function setting of wired remote control**

During air-conditioner stopping, push SET and MODE button simultaneously for over 3 seconds.

Set the function setting corresponding the applicable model. The display changes into the function setting if pushing two buttons at the same time for over three seconds.

[Flow of function setting]  
 Fixed : Push SET button  
 Return : Push RESET button  
 Select : Push ▲▼ button  
 Finished: Push ON/OFF button

Confirm the detail of each function by the technical manual.

FUNCTION		
01	GRILL ↑ ↓ SET	↑ ↓ INVALID ○
		50Hz ZONE ONLY
		60Hz ZONE ONLY
02	AUTO RUN	AUTO RUN ON ○
		AUTO RUN OFF
03	TEMP SW	VALID ○
		INVALID
04	MODE SW	VALID ○
		INVALID
05	ON/OFF SW	VALID ○
		INVALID
06	FAN SPEED SW	VALID ○
		INVALID
07	LOUVER SW	VALID ○
		INVALID
08	TIMER SW	VALID ○
		INVALID
09	SENSOR SET	
	REMOTE CONTROL	SENSOR OFF ○
		SENSOR ON
		SENSOR +3.0°C
		SENSOR +2.0°C
		SENSOR +1.0°C
		SENSOR -1.0°C
		SENSOR -2.0°C
		SENSOR -3.0°C
10	AUTO RESTART	INVALID ○
		VALID
★		
11	VENT LINK SET	NO VENT ○
		VENT LINK
		NO VENT LINK
12	TEMP RANGE SET	INDN CHANGE ○
		NO INDN CHANGE
13	I/U FAN	HI-MI-LO ○
		HI-LO
		HI-MID ○
		1 FAN SPEED
14	LOUVER POSITION	4POSITION STOP ○
		FREE STOP
15	MODEL TYPE	HEAT PUMP ○
		COOLING ONLY
16	EXTERNAL CONTROL SET	INDIVIDUAL ○
		FOR ALL UNIT
17	ROOM TEMP INDICATION SET	INDICATION OFF ○
		INDICATION ON
18	HEATING PREPARATION	INDICATION OFF ○
		INDICATION ON
19	TEMP UNIT SET	°C ○
		°F

Only when plural indoor units are connected, Indoor No. selection

If to change re-set with other indoor unit, push AIRCON NO. button, and indoor selection indication (for example: I/U 000) is set back.

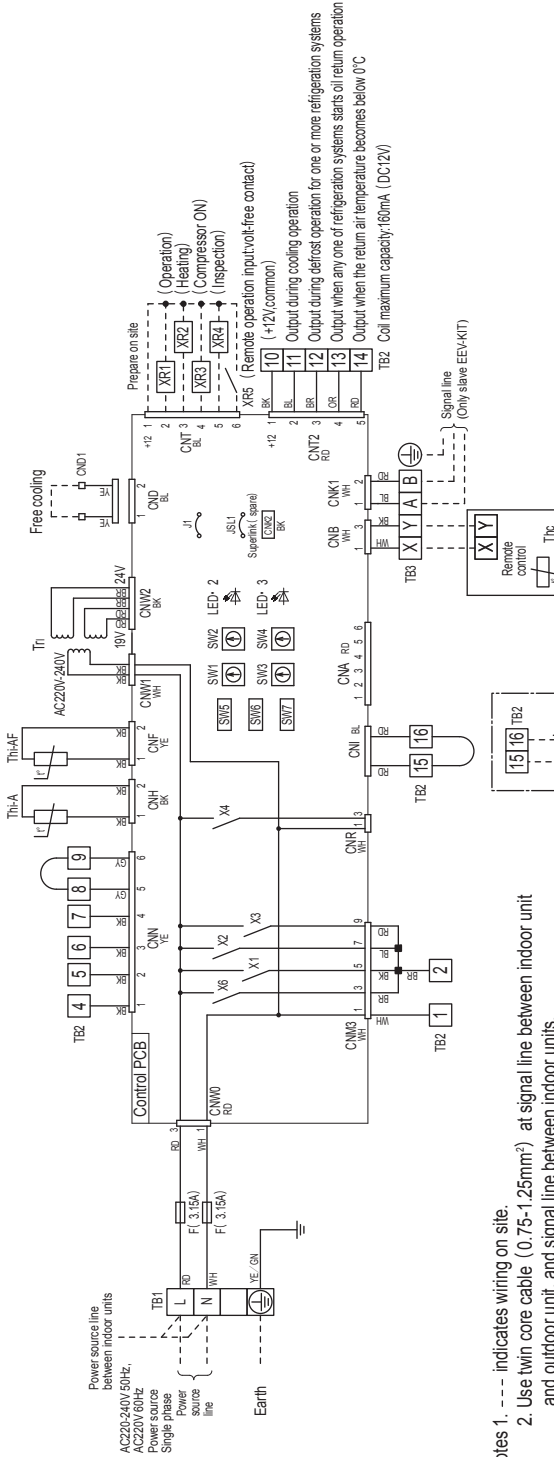
★ is EEVKIT's function. Confirm the detail by the technical manual.

I/U FUNCTION		
02	FAN SPEED SET	STANDARD ○
		HIGH SPEED1
		HIGH SPEED2
03	FILTER SIGN SET	INDICATION OFF ○
		TYPE1
		TYPE2
		TYPE3
		TYPE4
04	LOUVER POSITION	4POSITION STOP ○
		FREE STOP
05	EXTERNAL INPUT	LEVEL INPUT ○
		PULSE INPUT
06	OPERATION PERMISSION/PROHIBITION	INVALID ○
		VALID
07	EMERGENCY STOP	INVALID ○
		VALID
		OFFSET +3.0°C
		OFFSET +2.0°C
★		
08	HEATING SP OFFSET	OFFSET +1.0°C ○
		NO OFFSET
		OFFSET +2.0°C
		OFFSET +1.5°C
★		
09	RETURN AIR TEMP	OFFSET +1.0°C ○
		NO OFFSET
		OFFSET -2.0°C
		OFFSET -1.5°C
		OFFSET -1.0°C
10	HEATING FAN CONTROL	LOW FAN SPEED ○
		SET FAN SPEED
		INTERMITTENCE
		FAN STOP
11	FROST PREVENTION TEMP	TEMP HIGH ○
		TEMP LOW
12	FROST PREVENTION CONTROL	FAN CONTROL ON ○
		FAN CONTROL OFF
13	DRAIN PUMP LINK	STANDARD ○
		+HEATING
		+HEATING,FAN
		+FAN
14	COOLING FAN REMAINING	NO REMAINING ○
		0.5HR
		1HOUR
		6HOUR
15	HEATING FAN REMAINING	NO REMAINING ○
		0.5HR
		2HOUR
		6HOUR
16	HEATING FAN INTERMITTENCE	NO REMAINING ○
		5minOFF,5minON
★		
17	PRESSURE CONTROL	STANDARD ○
		TYPE 1

ON/OFF button (finished)

Mark	Parts name
CNM-Z	Connector
F	Fuse
FS	Four switch
JSL1	Spare Superlink terminal setting (for spare)
JT	Setting of indoor fan control during defrosting (1: Short)
LED-2	Indication lamp (Green-Normal operation)
LED-3	Indication lamp (Red-Inspection)
SM	Stopping motor (for electronic expansion valve)
SV1	Supply air temperature setting at system control D in heating mode
SV2	Charging the temperature interval for multiple step control in cooling mode
SV3	Charging the temperature interval for multiple step control in heating mode
SV4	Multiple step control (1: OFF)
SV5-1,2	Automatic operation valid / invalid and switching operation pattern (1: OFF)
SV6-3	Hot start control (1: ON)
SV6-4	Medium temperature cooling setting (1: OFF)
SV7-1	Check indoor fan operation (1: OFF)
SV7-2,3	Switching return, supply air temperature control (1: OFF) ※1
SV7-4	1 fan tap / 3 fan tap (1: OFF / ON)
TB1	Terminal block (Power source line) (mark)
TB2	Terminal block (Signal line) (mark)
TB3	Terminal block (Relay connect) (mark)
TBc	Thermistor (Remote control)
Th-A	Thermistor (Return air)
Th-AF	Thermistor (Supply air)
Th-R1,2,3	Thermistor (Heat exchanger)
Ti	Transformer
X1-3,6	Relay for F/M
mark	Closest end connector

※1: Factory default  
 ※2: You must also configure the slave EEV-KIT. Refer to the technical documentation of slave EEV-KIT how to set.  
 When the multiple refrigeration system is in use, it is necessary to set the outdoor unit control.  
 Refer to the technical documentation.



- Notes
1. --- indicates wiring on site.
  2. Use twin core cable (0.75-1.25mm<sup>2</sup>) at signal line between indoor unit and outdoor unit, and signal line between indoor units.
  3. Terminal [A] are signal terminal. (DC5V)
  4. Use twin core cable (0.3mm<sup>2</sup>) at remote control line. See spec sheet of remote control in case that the total length is more than 100m.
  5. Do not put signal line and remote control line alongside power source line.

Connector	TB2	Operation mode		
		No signal	Cooling	Heating
CNN1, 2	4, 5	0	1	0
CNN3, 4	6, 7	0	0	1

0: Open (OFF), 1: Short (ON)

Color Marks

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

Display on remote control	LED on indoor circuit board	Content
OFF	Red (Checking)	Normal
	Green (Normal)	Normal
	Keeps flashing	Fail in power source/indoor power off or one phase down
	Stays OFF	Stays OFF
	Keeps flashing	Fail in power source/indoor circuit board and remote control
E1	Stays OFF	Not sure
	Not sure	Indoor computer abnormal
E2	1-time flash	Keeps flashing
	Keeps flashing	Duplication of indoor address No. (can only be detected during operation)
E3	2-time flash	Keeps flashing
	Keeps flashing	There is no corresponding outdoor unit address.
E5	1-time flash	Keeps flashing
	Keeps flashing	Outdoor power off or one phase down
E6	1-time flash	Keeps flashing
	Keeps flashing	Fail on outdoor/indoor transmission
E7	1-time flash	Keeps flashing
	Keeps flashing	Indoor heat exchanger thermistor interrupted or short-circuit
E9	1-time flash	Keeps flashing
	Keeps flashing	Return air thermistor interrupted or short-circuit
E10	Stays OFF	Keeps flashing
	Keeps flashing	Indoor unit operation check / drain pump motor check mode fault
E11	Stays OFF	Keeps flashing
	Keeps flashing	Excess number of remote control connections
	Keeps flashing	The master indoor unit is not set properly.
E12	1-time flash	Keeps flashing
	Keeps flashing	Superlink
	Keeps flashing	Indoor No. 001-127
	Keeps flashing	Outdoor No. 49
	Keeps flashing	New specification 0-47
	Keeps flashing	Old specification 48-49
	Keeps flashing	0-47
E14	3-time flash	Keeps flashing
	Keeps flashing	Communication abnormal between master-slave indoor units
E15	1-time flash	Keeps flashing
	Keeps flashing	Room supply air thermistor interrupted or short-circuit
E18	1-time flash	Keeps flashing
	Keeps flashing	Return air thermistor interrupted or short-circuit
E19	1-time flash	Keeps flashing
	Keeps flashing	Refrigerant control thermistor abnormal
E20	1-time flash	Keeps flashing
	Keeps flashing	Indoor unit system connection abnormal
E43	1-time flash	Keeps flashing
	Keeps flashing	Outdoor unit check (outdoor circuit board LED checking)
E63	Stays OFF	Keeps flashing
	Keeps flashing	Indoor unit system local and setting detects
	Keeps flashing	Emergency stop

Mark	Terminal	Use	Capacity	Note
TB1	L,N, ⊕	Input for power source line	AC300V/25A	
TB2	1,2	Input for relay connect (Indoor fan motor)	AC6 00V/15A	
TB2	4,5,6,7	Input for switching operation mode (Cooling,Fan,Heating)	DC5V,max 2mA	
TB2	8,9	Input for emergency stop	DC5V,max 2mA	
CNT	6P	Output for operation mode	Relay capacity,DC12V,max 160mA at total use	Connector: Made by Molex 5264-06 Terminal: Made by Molex 5263T
CNT2	5P	Output for mode select (Cooling,Defrost,Oil return on cooling, Return air temp,0deg.C)	Relay capacity,DC12V,max 160mA at total use	
CND	2P	Output for: free cooling	Relay capacity,DC12V,max 160mA at total use	
CN	2P	Input for indoor unit error signal	DC5V,max 2mA	Connector includes control unit

PCH00Z419

## 6.2 Model EEVKIT6-E-C/A, /B (Slave)

PCH012D015A

**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.  
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 Check the model type

Applicable model	Setting according to the model *1	
	I/U FAN	LOUVER SW
SAF-DXP, SAF-DX-6	HI	INVALID
EEVKIT3-C		
EEVKIT6-E-C	HI-MID	

- 1 There is a unit having plural applicable PCB depending on a model.
- 2 Set the function setting corresponding the spare PCB.
- 3 Do "Setting according to the model \*1" refer to "⑥ Function setting of wired remote control" after turning on the power source when

② Set to an appropriate address and function using switch on PCB.

Select the same setting with the removed PCB.  
Applied differently depending on the model set.  
For more information please see also the back side.

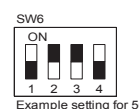
③ Set to an appropriate capacity using the model selector switch (SW6).

Select the same capacity with the PCB removed from the unit.

SW6	-1	-2	-3	-4
22	OFF	OFF	OFF	OFF
28	ON	OFF	OFF	OFF
36	OFF	ON	OFF	OFF
45	OFF	OFF	ON	OFF
56	OFF	ON	ON	OFF

SW6	-1	-2	-3	-4
71	OFF	OFF	OFF	ON
80	ON	OFF	OFF	ON
90	OFF	ON	OFF	ON
112	ON	ON	OFF	ON
140	OFF	OFF	ON	ON

SW6	-1	-2	-3	-4
160	ON	OFF	ON	ON
224	OFF	ON	ON	ON
280	ON	ON	ON	ON

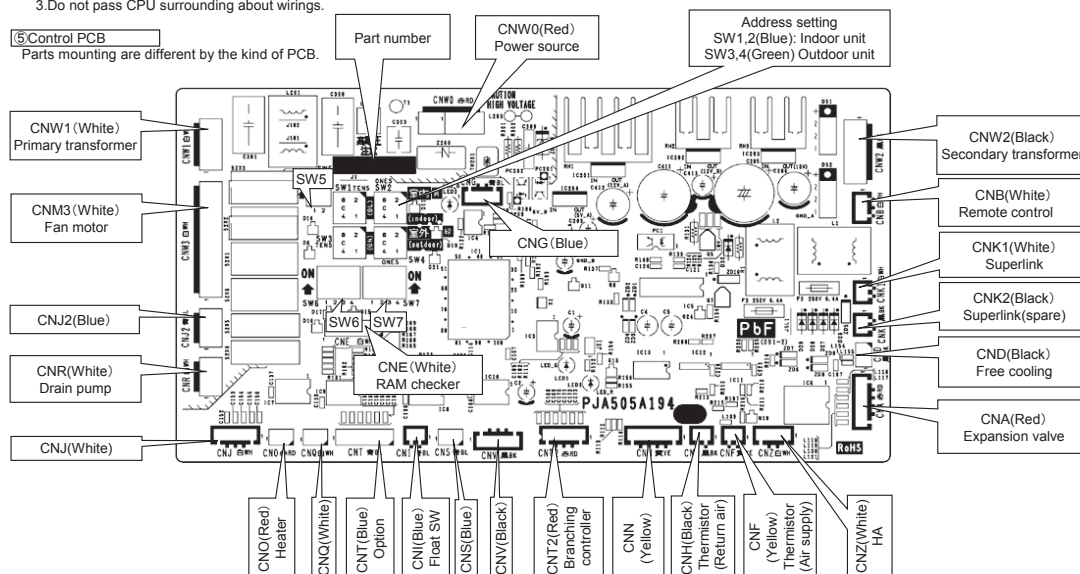


④ Replace the PCB

1. Fix the PCB so as not to pitch the cords.
2. Connect connectors to the PCB. Connect a cable connector with the PCB connector of the same color.
3. Do not pass CPU surrounding about wirings.

⑤ Control PCB

Parts mounting are different by the kind of PCB.



⑥ Function setting of wired remote control

Operation message  
Function description

Function No.

During air-conditioner stopping, push SET and MODE button simultaneously for over 3 seconds.

TEMP RANGE

FUNCTION SET

I/U FUNCTION

I/U 000

I/U 001

I/U 002

I/U 003

I/U 004

Selection

Indoor unit selection button

Previous screen button

Starting

Finishing button

Fixing button

Set the function setting corresponding the applicable model. The display changes into the function setting if pushing two buttons at the same time for over three seconds.

[Flow of function setting]  
Fixed : Push SET button  
Return : Push RESET button  
Select : Push ▲▼ button  
Finished: Push ON/OFF button

Confirm the detail of each function by the technical manual.

FUNCTION		
01	GRILL ↑ ↓ SET	↑ ↓ INVALID ○ 50Hz ZONE ONLY 60Hz ZONE ONLY
02	AUTO RUN	AUTO RUN ON ○ AUTO RUN OFF
03	TEMP SW	VALID ○ INVALID
04	MODE SW	VALID ○ INVALID
05	ON/OFF SW	VALID ○ INVALID
06	FAN SPEED SW	VALID ○ INVALID
07	LOUVER SW	VALID ○ INVALID
08	TIMER SW	VALID ○ INVALID
09	SENSOR SET	SENSOR OFF ○ REMOTE CONTROL
		SENSOR ON
		SENSOR +3.0°C
		SENSOR +2.0°C
		SENSOR +1.0°C
		SENSOR -1.0°C
		SENSOR -2.0°C
		SENSOR -3.0°C
10	AUTO RESTART	INVALID ○ VALID
★	VENT LINK SET	NO VENT ○ VENT LINK NO VENT LINK
12	TEMP RANGE SET	INDN CHANGE ○ NO INDN CHANGE
13	I/U FAN	HI-MI-LO ○ HI-LO HI-MID ○ 1 FAN SPEED
14	LOUVER POSITION	4POSITION STOP ○ FREE STOP
15	MODEL TYPE	HEAT PUMP ○ COOLING ONLY
16	EXTERNAL CONTROL SET	INDIVIDUAL ○ FOR ALL UNIT
17	ROOM TEMP INDICATION SET	INDICATION OFF ○ INDICATION ON
18	HEATING PREPARATION	INDICATION OFF ○ INDICATION ON
19	TEMP UNIT SET	°C ○ °F

Only when plural indoor units are connected, Indoor No. selection

If to change re-set with other indoor unit, push AIRCON NO. button, and indoor selection indication (for example: I/U 000) is set back.

★ is EEKIT's function. Confirm the detail by the technical manual.

02	FAN SPEED SET	STANDARD ○ HIGH SPEED1 HIGH SPEED2
03	FILTER SIGN SET	INDICATION OFF ○ TYPE1 TYPE2 TYPE3 TYPE4
04	LOUVER POSITION	4POSITION STOP ○ FREE STOP
05	EXTERNAL INPUT	LEVEL INPUT ○ PULSE INPUT
06	OPERATION PERMISSION/PROHIBITION	INVALID ○ VALID
07	EMERGENCY STOP	INVALID ○ VALID
		OFFSET +3.0°C OFFSET +2.0°C
★	HEATING SP OFFSET	OFFSET +1.0°C ○ NO OFFSET
		OFFSET +2.0°C OFFSET +1.5°C
★	RETURN AIR TEMP	OFFSET +1.0°C ○ NO OFFSET OFFSET -2.0°C OFFSET -1.5°C OFFSET -1.0°C
10	HEATING FAN CONTROL	LOW FAN SPEED ○ SET FAN SPEED INTERMITTENCE FAN STOP
11	FROST PREVENTION TEMP	TEMP HIGH ○ TEMP LOW
12	FROST PREVENTION CONTROL	FAN CONTROL ON ○ FAN CONTROL OFF
13	DRAIN PUMP LINK	STANDARD ○ +HEATING +HEATING,FAN +FAN
14	COOLING FAN REMAINING	NO REMAINING ○ 0.5HR 1HOUR 6HOUR
15	HEATING FAN REMAINING	NO REMAINING ○ 0.5HR 2HOUR 6HOUR
16	HEATING FAN INTERMITTENCE	NO REMAINING ○ 5minOFF,5minON
★	PRESSURE CONTROL	STANDARD ○ TYPE 1

ON/OFF button (finished)

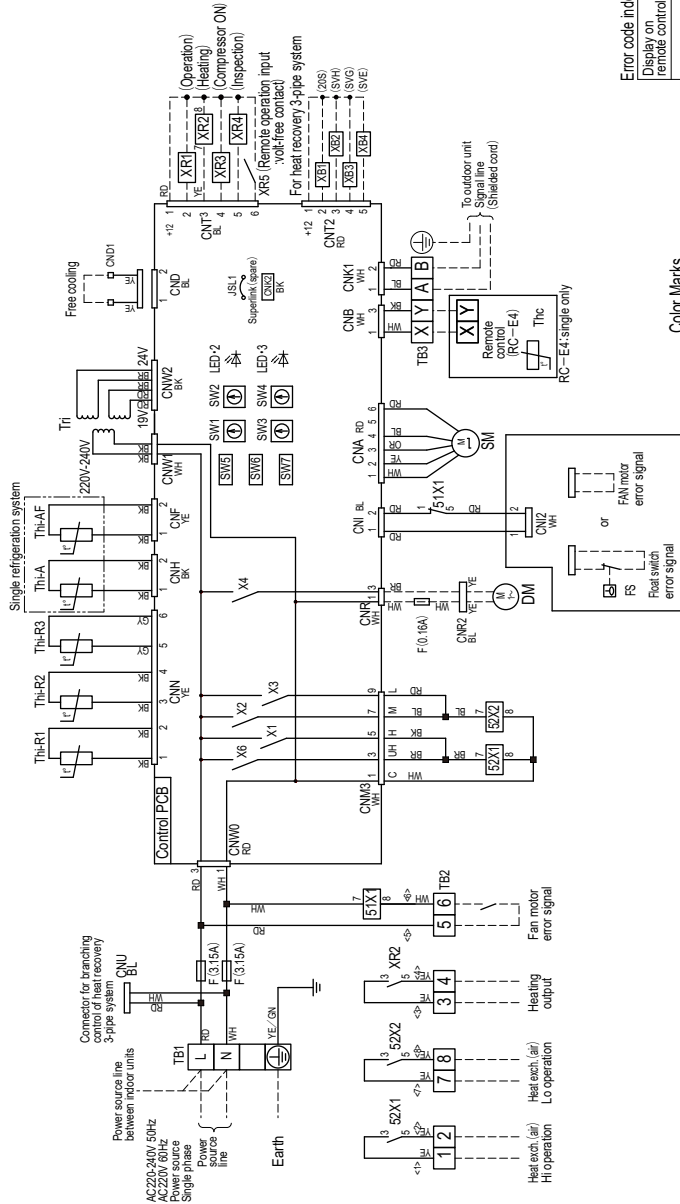


Meaning of marks

Mark	Parts name	Multiple refrigeration system
CNA-Z	Connector	Multiple refrigeration system
DM	Drain pump motor	
FS	Fuse	
LS1	Line switch	
LS2	Line switch	
LS3	Line switch	
LED-2	Indicator lamp (Red-Inspection)	
LED-3	Indicator lamp (Red-Inspection)	
SM	Starting motor (for electronic expansion valve)	
SW1	Outdoor unit address: tens place	
SW2	Outdoor unit address: tens place	
SW3	Outdoor unit address: tens place	
SW4	Outdoor unit address: tens place	
SW5-1	Outdoor unit address: multiple refrigeration system (OFF signal) (ON/multiple)	
SW5-2	Outdoor unit address: multiple refrigeration system (OFF signal) (ON/multiple)	
SW6-1	Model capacity setting (ON)	
SW6-2	Model capacity setting (ON)	
SW7-1	Reserved (keep off)	
SW7-2	Reserved (keep off)	
SW7-3	Reserved (keep off)	
SW7-4	Reserved (keep off)	
TB1	Terminal block (Power source line) (mark)	
TB2	Terminal block (Power source line) (mark)	
TB3	Terminal block (Signal line) (mark)	
Thc	Temperature sensor (Return air)	
Th-A	Temperature sensor (Return air)	
Th-1AF	Temperature sensor (Supply air)	
Th-12,3	Temperature sensor (Heat exchanger)	
X1-3,6	Relay for DM	
X4	Relay for DM	
XR2	Relay (DC12V)	
XR3	Relay (AC200V)	
XR4	Relay (AC200V)	
☆	Closed-end connector	

☆ Factory default

※1 The method of setting the address of the multiple system is different than usual. Refer to the technical documentation.



Notes 1. --- indicates wiring on site.

2. Use twin core cable (0.75-1.25mm) at signal line between indoor unit and outdoor unit, and signal line between indoor units.

3. Terminal [A][B] are signal terminal. (DC 5V)

4. Use twin core cable (0.3mm<sup>2</sup>) at remote control line.

See spec sheet of remote control in case that the total length is more than 100m.

5. Do not put signal line and remote control line alongside power source line.

Error code indoor unit

Display on remote control	LED on indoor circuit board	Content
Off	Reg (checking) / Green (normal)	
E1	Keeps flashing	Normal
E2	Keeps flashing	Failure in power source, indoor power off or one phase down
E3	Keeps flashing	Failure on the transmission between indoor circuit board and remote control
E4	Keeps flashing	Indoor computer abnormal
E5	Keeps flashing	Duplication of indoor address No. (can only be detected during operation)
E6	Keeps flashing	Excess number of remote controllers (can only be detected during operation)
E7	Keeps flashing	Outdoor power off or one phase down
E8	Keeps flashing	There is no corresponding outdoor unit address.
E9	Keeps flashing	Failure on outdoor-indoor transmission
E10	Keeps flashing	Indoor heat exchanger temperature sensor interrupted or short-circuit
E11	Keeps flashing	Return air temperature sensor interrupted or short-circuit
E12	Keeps flashing	Excess number of remote control connections
E13	Keeps flashing	The master indoor unit is not set properly
E14	Keeps flashing	Superlink
E15	Keeps flashing	Indoor No. 001~127
E16	Keeps flashing	Outdoor No. 0~47
E17	Keeps flashing	Old specification 48,49
E18	Keeps flashing	New specification 0~47
E19	Keeps flashing	Old specification 48,49
E20	Keeps flashing	New specification 0~47
E21	Keeps flashing	Indoor supply air temperature sensor interrupted or short-circuit
E22	Keeps flashing	Flat switch activation (only with FS), Fan motor (Faulty)
E23	Keeps flashing	The address configuration fault for master-slave mode units.
E24	Keeps flashing	Indoor unit operation check / drain motor check mode faulty
E25	Keeps flashing	Remote control temperature sensor anomaly
E26	Keeps flashing	Outdoor unit checking / outdoor circuit board LED checking
E27	Keeps flashing	Emergency stop

Color Marks

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

Mark	Terminal	Use	Capacity	Note
TB1	L,N, ⊕	Input for power source line	AC300V, 25A	Screw : M4
TB2	1, 2	Output for heat exch. (air) Hi operation		
TB2	7, 8	Output for heat exch. (air) Lo operation	DC5V, max 2mA	Screw : M3.5
TB2	3, 4	Heating output		
TB2	5, 6	Input for fan motor error signal	AC200V, 1A	
CNT	6P	Output for operation mode	Relay capacity, DC12V, max 160mA at total use	Connector : Made by Molex 5264-06
CNT2	5P	Output for heat recovery 3-pipe system	Relay capacity, DC12V, max 160mA at total use	Terminal : Made by Molex 5263T
CND	2P	Output for free cooling	Relay capacity, DC12V, max 160mA at total use	Connector includes control unit

PCH000Z420

# MEMO





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**EEV-KIT  
FOR MULTIPLE REFRIGERATION SYSTEM**

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<http://www.mhi-mth.co.jp/en/>

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