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Commercial Heating

Heating Only Heat Pumps For Commercial Buildings

Ecodan CAHV Setup Procedure

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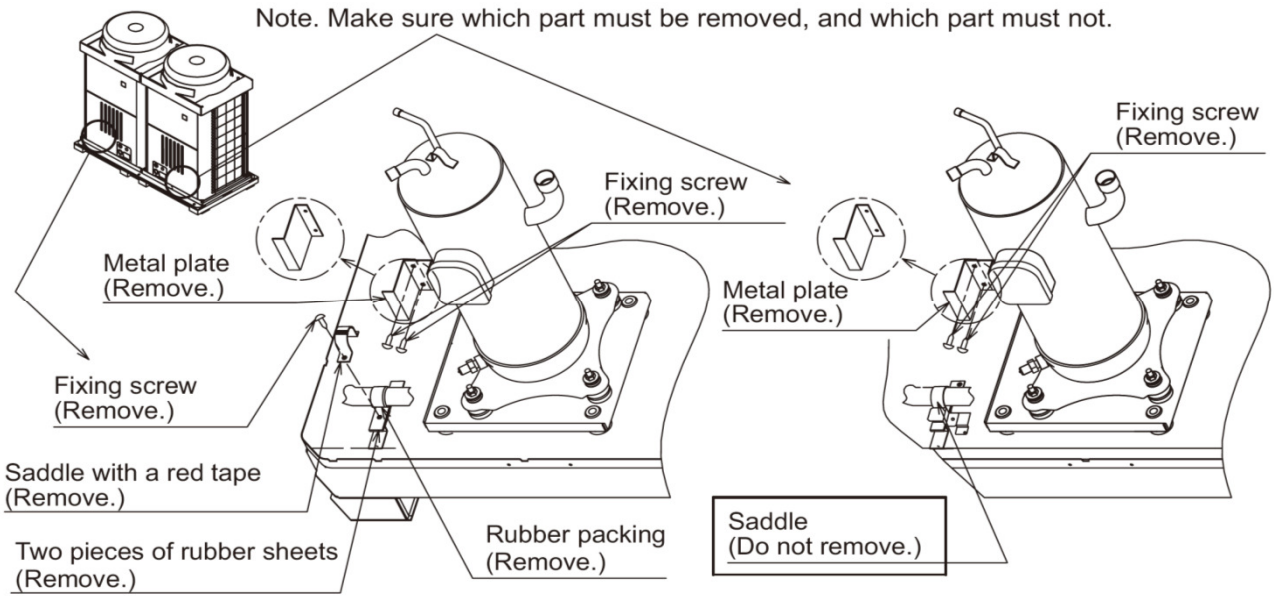
Important information before switching on the unit

⚠ The metal plates and saddles are used only for transportation. Remove the metal plates and saddles before operating the unit to keep the unit from vibrating excessively.



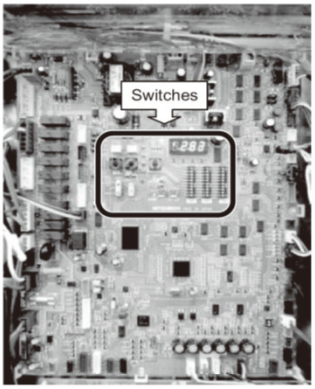
Factory Switch Settings (Dip switch settings table)

SW		Function	Usage	Factory setting MAIN circuit	Factory setting SUB circuit	OFF setting	ON setting	Setting timing
SW1	1	Model setting		Depends on the unit	-	Leave the setting as it is.		At a reset
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10	Model setting		OFF	-	Leave the setting as it is.		At a reset
SW2	1	Freeze-up protection setting		OFF	-	Starts the pump when both the outside and water temperatures drop to prevent water pipe freeze up.	Same as when set to OFF	At a reset
	2	Scheduled operation display	Turns on and off the remote display during scheduled operation.	OFF	-	Turns off the operation display during the period in which the unit is scheduled to be stopped.	Leaves the operation display on during the period in which the unit is scheduled to be stopped.	At a reset
	3	Model setting		OFF	-	Leave the setting as it is.		At a reset
	4	Model setting		OFF	OFF	Leave the setting as it is.		At a reset
	5	Recovery conditions after forced stoppage	Selects what the operation restoration condition will be based on after the unit was forced to stop based on the external thermistor reading (water outlet temperature).	OFF	-	External thermistor	Built-in thermistor	At a reset
	6	Power supply option to the communication circuit	Switches between supplying or not supplying power to the communication circuit.	-	ON	Supplies power to the communication circuit.	Does not supply power to the communication circuit.	Any time
	7	Remote water-temperature setting	Allows or disallows the water temperature to be set using analog signals from a remote location.	OFF	-	Disallows the water temperature to be set using external analog signals.	Allows the water temperature to be set using external analog signals.	At a reset
	8	Water-temperature control option	Selects either the external water temperature sensor or the built-in sensor to be used to control water temperature.	OFF	-	Built-in sensor on the unit	External water temperature sensor	At a reset
	9	Individual/Multiple system	Selects between individual and Multiple system	OFF	-	Individual system	Multiple system	At a reset
	10	Display mode switch 7	This switch is used in combination with dip switches SW3-5 through 3-10 and push switches SWP 1, 2, and 3 to configure or view the settings when performing a test run or changing the system configuration.	OFF	OFF	Changes the 7-segment LED display mode.		Any time
SW3	1	Remote reset	Enables or disables the error to be reset from a remote location.	ON	-	Disables the error to be reset from a remote location.	Enables the error to be reset from a remote location.	At a reset
	2	Auto restart after power failure	Enables or disables the automatic restoration of operation after power failure (in the same mode as the unit was in before a power failure).	ON	-	An alarm will be issued when power is restored after a power outage. The alarm will be reset when the power is turned off and then turned back on.	Automatically restores operation after power failure.	At a reset
	3	Water-temperature control	Switches between inlet-water-temperature-based control and outlet-water-temperature-based control.	OFF	-	Outlet-water-temperature-based control	Inlet-water-temperature-based control	At a reset
	4	Pump-thermistor interlock setting	Interlocks or does not interlock the operation of the pump with the external thermistor. (Effective only when SW2-8 is set to ON.)	OFF	-	The pump turns on when the operation switch is turned on regardless of the Thermo-ON/Thermo-OFF status.	Interlocks the operation of the pump with the Thermo-ON/Thermo-OFF status.	At a reset
	5	Display mode switch 1	These switches are used in combination with dip switches SW2-5 and push switches SWP 1, 2, and 3 to configure or view the settings when performing a test run or changing the system configuration.	OFF	OFF	Changes the 7-segment LED display mode.		Any time
	6	Display mode switch 2		OFF	OFF	Changes the 7-segment LED display mode.		Any time
	7	Display mode switch 3		OFF	OFF	Changes the 7-segment LED display mode.		Any time
	8	Display mode switch 4		OFF	OFF	Changes the 7-segment LED display mode.		Any time
	9	Display mode switch 5		OFF	OFF	Changes the 7-segment LED display mode.		Any time
	10	Display mode switch 6		OFF	OFF	Changes the 7-segment LED display mode.		Any time

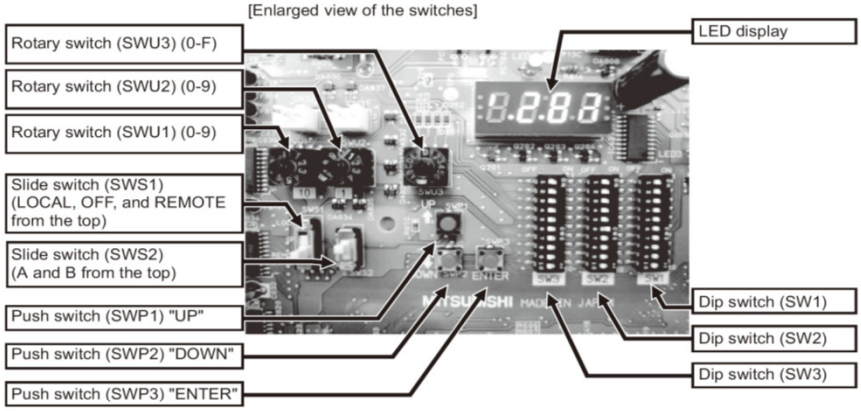
"-" in the table indicates that the function in the corresponding row will be disabled regardless of the actual switch setting.
The factory setting for these items is OFF.

Different types of switches on the PCB

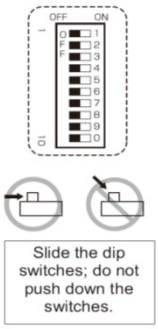
[Entire view of a PCB]



[Enlarged view of the switches]



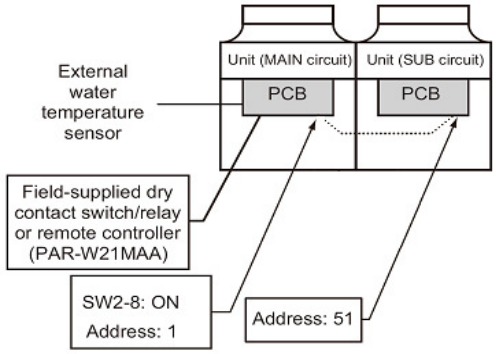
			Initial Setting	
			MAIN circuit	SUB circuit
Rotary switch (SWU1)	Sets the 10's digit of the unit address (Multiple system).		"0"	"5"
Rotary switch (SWU2)	Sets the 1's digit of the unit address (Multiple system).		"1"	"1"
Rotary switch (SWU3)	Starts up or resets the system (when set to F).		"0"	"0"
Slide switch (SWS1)	LOCAL OFF REMOTE	The action that the switch takes when set to a certain position depends on the type of system configuration (e.g., individual or multiple system)	REMOTE	REMOTE
Slide switch (SWS2)	Unused		A	A
Push switch (SWP1)	Switches the display between the item code and the current value for a specific item. Increases value.		-	-
Push switch (SWP2)	Switches the display between the item code and the current value for a specific item. Decreases value.		-	-
Push switch (SWP3)	Advances the item code. Saves the changed value.		-	-
Dip switches (SW1-3)	Switches the LED display contents.			



Slide the dip switches; do not push down the switches.

Individual Unit - M-Net and Addressing (Set as below)

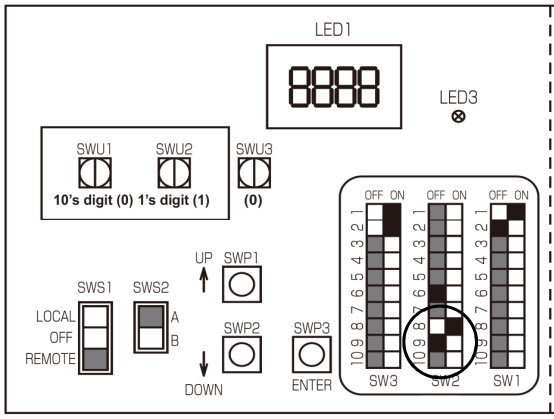
N.B - POWER OFF ALL UNITS TO MAKE CHANGES



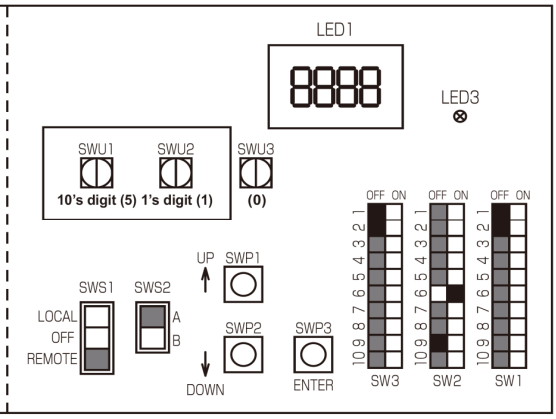
Individual Unit - Dip Switches (Circles signify required changes)

N.B. POWER OFF ALL UNITS TO MAKE CHANGES

Main unit (MAIN circuit)



Main unit (SUB circuit)



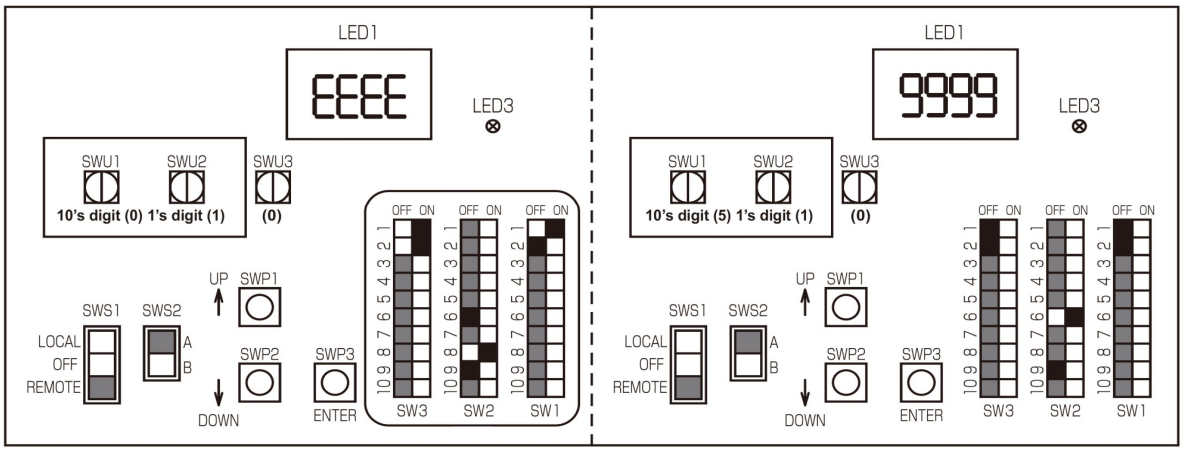
N.B. If the individual unit is to be used for 1 heating circuit only and not provide hot water via a 3 port valve SW2-8 can be left in the OFF position

Individual Unit - LED Display will show

N.B - POWER ON TO ALL UNITS

Main unit (MAIN circuit)

Main unit (SUB circuit)



Follow these steps (MAIN circuit side)

1. The rotary switch should now be set to "F" SWU3 (F) {**EEEE**{ will appear on Unit (MAIN circuit) LED1

2. Now Press - SWP3 ENTER for 1 second or longer. This will initialise the system ready for operation

Whilst the system is starting up {**9999**} will appear

When start-up is complete a control property {**0012**} will appear

Then five seconds later {**FFFF**} will appear

3. The rotary switch should now be set to "0" SWU3 (0) Set up complete

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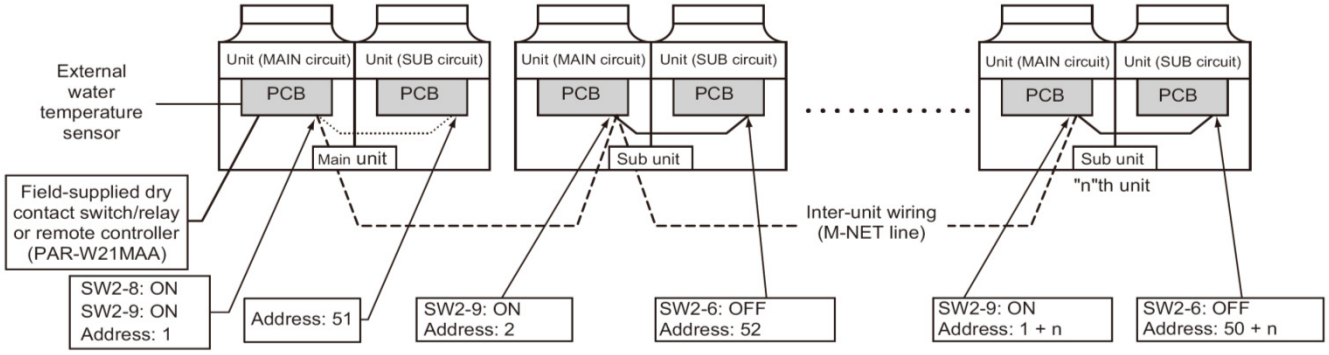
Multiple Unit - M-Net and Addressing (Set as below)

N.B - POWER OFF ALL UNITS TO MAKE CHANGES

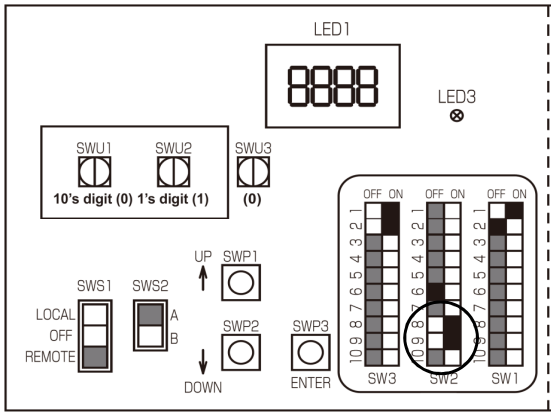


* The main unit is the unit to which an external water temperature sensor is connected.

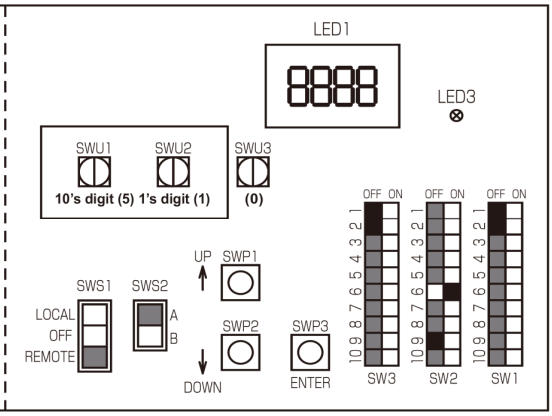
Multiple Unit - Dip Switches (Circles signify required changes)

N.B. POWER OFF ALL UNITS TO MAKE CHANGES

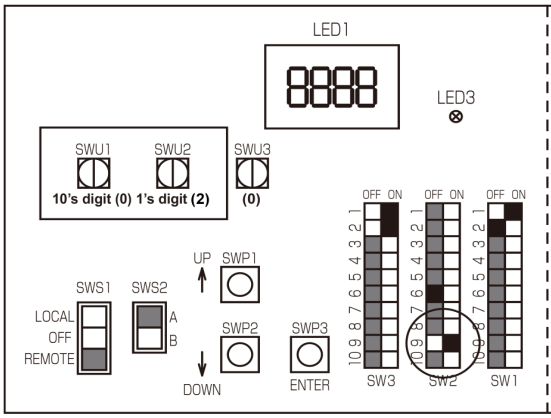
Main unit (MAIN circuit)



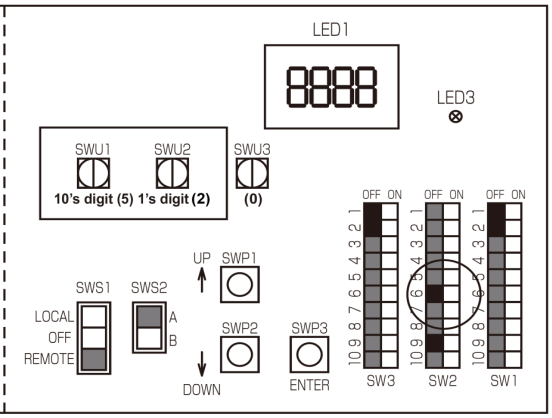
Main unit (SUB circuit)



Sub unit (MAIN circuit)

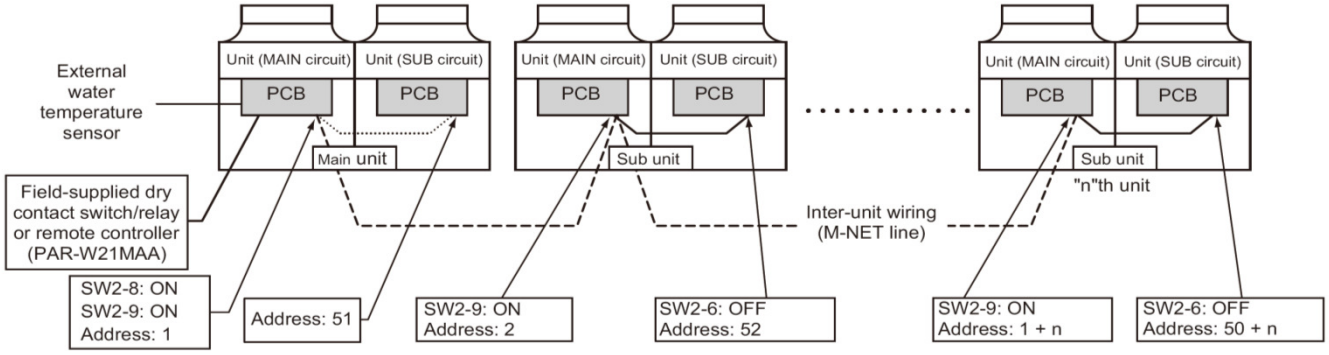


Sub unit (SUB circuit)



Multiple Unit - M-Net and Addressing (Set as below)

N.B - POWER OFF ALL UNITS TO MAKE CHANGES

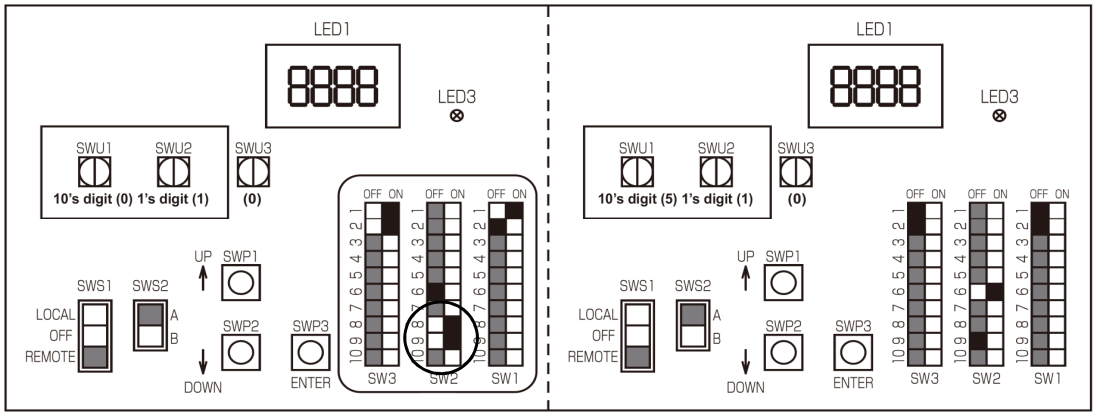


* The main unit is the unit to which an external water temperature sensor is connected.

Multiple Unit - Dip Switches (Circles signify required changes)

N.B. POWER OFF ALL UNITS TO MAKE CHANGES

Main unit (MAIN circuit) **Main unit (SUB circuit)**



Follow these steps

MAIN circuit

1. Set dip switch SW2-8 to ON

2. Set dip switch SW2-9 to ON

SUB circuit

Make sure the address of the MAIN circuit on the main unit is set to "1" and the SUB circuit on the main unit is set to "51"

The address of each SUB circuit should equal the sum of the MAIN circuit address on the same unit plus 50

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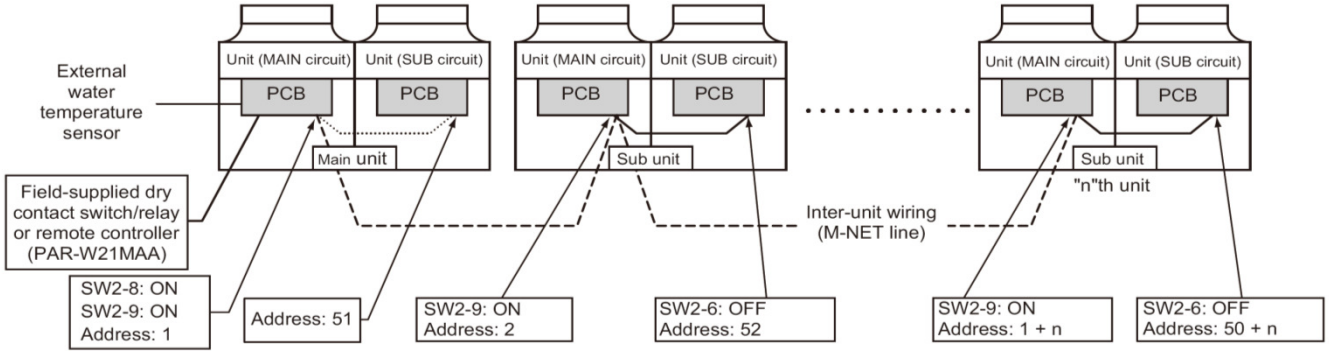
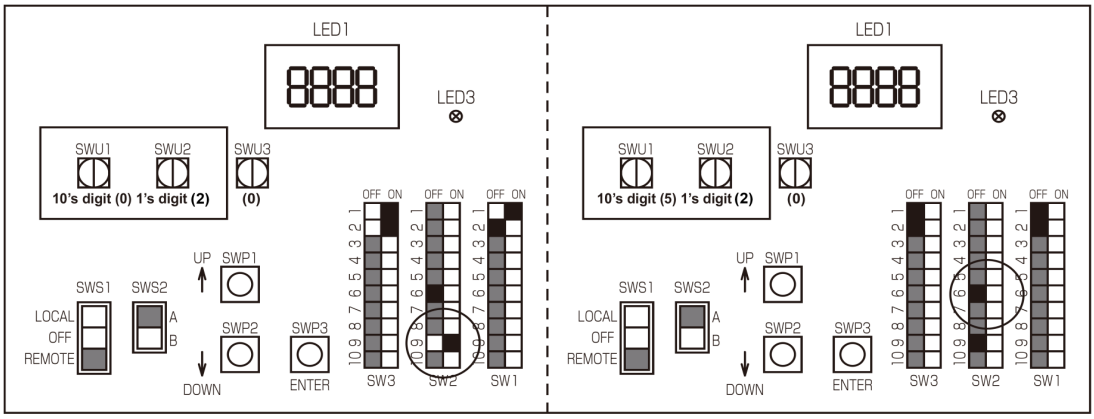
Multiple Unit - M-Net and Addressing (Set as below) **N.B - POWER OFF ALL UNITS TO MAKE CHANGES**



* The main unit is the unit to which an external water temperature sensor is connected.

Multiple Unit - Dip Switches (Circles signify required changes) **N.B. POWER OFF ALL UNITS TO MAKE CHANGES**

Sub unit (MAIN circuit) **Sub unit (SUB circuit)**



Follow these steps

MAIN circuit

1. Set dip switch SW2-9 to ON

2. Set the MAIN circuit addresses with the rotary switches. Set the 10's digit with SWU1 and set the 1's digit with SWU2
Assign sequential addresses to the MAIN circuit on all sub units starting with 2

SUB circuit

3. Set dip switch SW2-6 to OFF. (power supply to communications circuit)

4. Set the SUB circuit address with the rotary switches
Set the 10's digit with SWU1 and set the 1's digit with SWU2
Assign sequential addresses to the SUB circuit on all sub units starting with 52

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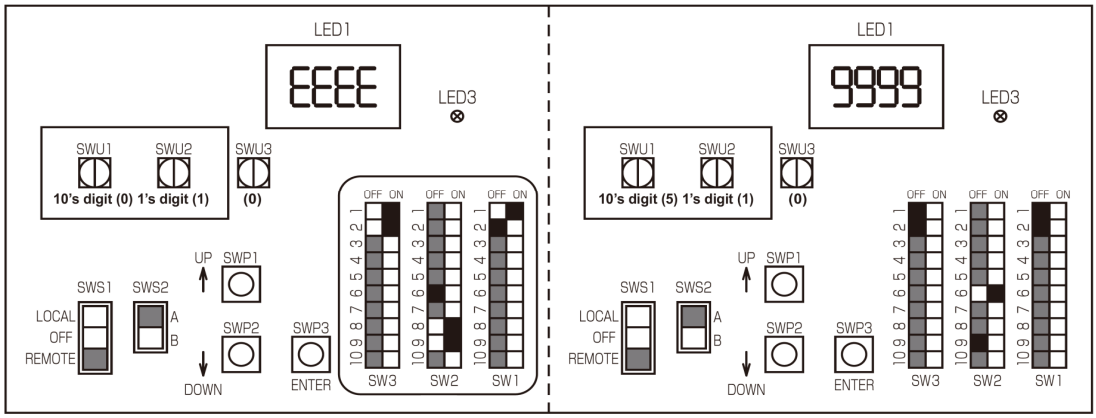
Multiple Unit - LED Display will show

N.B - POWER ON TO ALL UNITS

Main unit (MAIN circuit) **Main unit (SUB circuit)**



Follow these steps MAIN UNIT

When power is switched on {**EEEE**} will appear on LED1 in the MAIN circuit board.
{**9999**{ will appear in the SUB circuit board on the main unit an SUB circuits on the SUB units

1. Press - SWP3 ENTER MAIN circuit board {**EEEE**} will disappear

2. Display will show -  Press - SWP3 ENTER 4 times until display shows - 

3. Press - UP SWP1

4. The display will now show -  Press - UP SWP1 until the display show the total number of units to be controlled

E.g. 11 units 

5. Press - SWP3 ENTER to save the settings

6. The rotary switch should now be set to "F" SWU3 (F) Now Press - SWP3 ENTER for 1 second or longer. This will initialise the system ready for operation

Whilst the system is starting up {**9999**} will appear

When start-up is complete a control property {**0012**} will appear

Then five seconds later {**FFFF**} will appear

7. The rotary switch should now be set to "0" SWU3 (0) Set up complete

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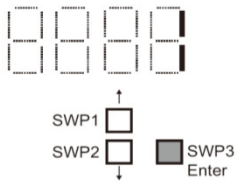
<1> Making the settings

Use the LED display and the three push switches (SWP1 (↑), SWP2 (↓), and SWP3 (Enter)) to change the current settings on the circuit board and to monitor various monitored values.

(1) Setting procedures

Take the following steps to set the push switches SWP1 through SWP3. These switches must be set after the dip switches SW2 and SW3 have been set.

①

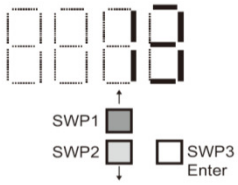


Normally an item code appears on the display.
(The figure at left shows the case where item code 1 is displayed.) Press SWP3 (Enter) to advance the item code.

↓

Press SWP3 (Enter) until the item code appears that corresponds to the item to change or monitor its value.

** ②

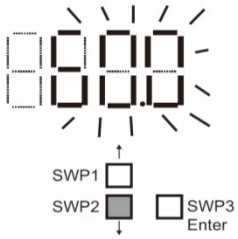


The left figure shows a display example (Code 13 Built-in thermistor temperature setting 2).

↓

Press either SWP1 (↑) or SWP2 (↓) to display the value that corresponds to the selected item.

③

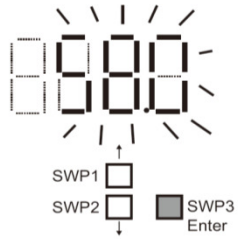


The current setting value will blink.

↓

The left figure shows that the current setting value is "60.0."
To decrease this value to 58.0, for example, press SWP2 (↓).
Press SWP1 (↑) to increase the value.

④



<To change the settings>

When the desired value is displayed (58.0 in the example at left), press SWP3 (Enter).

↓

The displayed value will stop blinking and stay lit.
A lit LED indicates that the new setting has been saved.

*Pressing SWP1 (↑) or SWP2 (↓) will change the blinking setting value, but the change will not be saved until SWP3 (Enter) is pressed.
If SWP3 is not pressed within one minute, the change will not be saved and the display will return to the item code display mode.
Press and hold SWP1 (↑) or SWP2 (↓) for one second or longer to fast forward through the numbers.

<To view the monitored data>

Press SWP3 (Enter) while the LED display is blinking (see step 3 above) to stop the blinking.

*The values of the items that can only be monitored will not change when SWP1 (↑) or SWP2 (↓) is pressed.

The display will stop blinking and stay lit after a minute, and the display will automatically return to the item code display regardless of the type of values displayed.

To change the values of other items, repeat the steps from step 2 above.

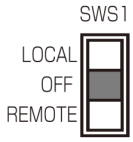
** IMPORTANT INFORMATION; When a code is selected the screen goes blank until you use SWP1 or SWP2 to make the adjustments

Water Temperature Setting - Main unit, Main Board (address 01)

N.B - POWER ON TO ALL UNITS

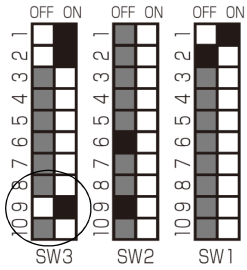
1. Switch SWS1 to OFF

Switch SWS1 should be moved back to REMOTE when finished



2. Move dip switch SW3-9 to ON

Dip switch SW3-9 should be moved back to OFF when settings are complete



3. Press 

to scroll through the different codes and setup as below

Using the same procedure for selecting and saving settings as in the initial setup procedure the following settings need to be made
IMPORTANT INFORMATION: When a code is selected the screen goes blank until you use SWP1 or SWP2 to make the adjustments

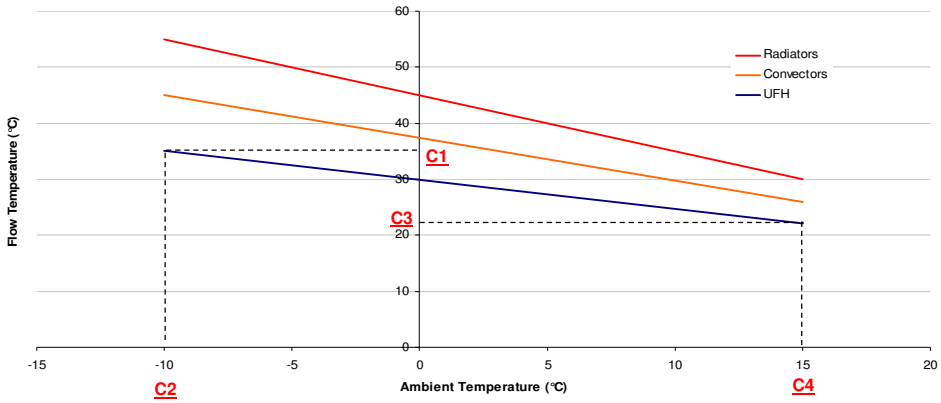
Items that can be set	Item code	Initial value	Unit	Setting		
				Increments	Lower limit	Upper limit
Water temp. setting A (Heating mode)	11	60	°C	0.1°C	25	70
Water temp. setting B (Hot water mode)	13	65	°C	0.1°C	25	70
Heating Eco mode/ Water temp. setting C1	22	60	°C	0.1°C	25	70
Heating Eco mode/ Outside temp. setting C2	23	0	°C	0.1°C	-20	50
Heating Eco mode/ Water temp. setting C3	24	35	°C	0.1°C	25	70
Heating Eco mode/ Outside temp. settingC4	25	25	°C	0.1°C	-20	50

Suggested / Example Set Up
Consult design conditions for project set up

Mode	Code	Set to
Heating	11	45°C
Hot water	13	60°C
Weather Comp	22	35°C
Weather Comp	23	-10°C
Weather Comp	24	25°C
Weather Comp	25	15°C

N.B - FAILURE TO ADJUST THE ABOVE TEMPERATURES TO THOSE SUGGESTED ABOVE WILL RESULT IN POOR EFFICIENCY

EXAMPLE - Weather compensation (Heating Eco) temperatures (The heating system design should be consulted for project specific temperatures)



4. The rotary switch should now be set to "F" 

Now Press - 

for 1 second or longer. This will soft reset the system ready for operation

5. The rotary switch should now be set to "0" 

Switch SWS1 back to REMOTE **Dip switch SW3-9 back to OFF** Set up complete

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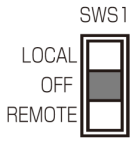
External Thermistor Setup - Main unit, Main Board (address 01)

N.B - POWER ON TO ALL UNITS

N.B - Site supplied thermistors are required on multiple unit applications and optional on individual unit applications

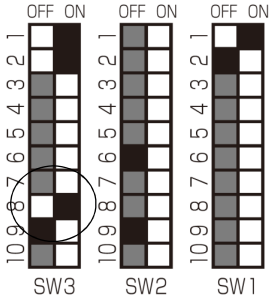
1. Switch SWS1 to Off

Switch SWS1 should be moved back to REMOTE when finished



2. Move dip switch SW3-8 to ON

Dip switch SW3-8 should be moved back to OFF when settings are complete



3. Press 

to scroll through the different codes

Using the same procedure for selecting and saving settings as in the initial setup procedure the following settings need to be made

Items that can be set	Item code	Initial value	Unit	Setting		
				Increments	Lower limit	Upper limit
Preset temp. 1 (Heating)	1215	14	TH	1	14	15
Preset temp. 1 (Hot Water)	1216	14	TH	1	14	15
Preset temp. 1 (Heating ECO)	1217	14	TH	1	14	15

The modes of operation should be set up as follows -

Mode	Code	Set to
Heating	1215	**TH14**
Hot Water	1216	**TH15**
Heating Eco / Weather compensation	1217	**TH14**

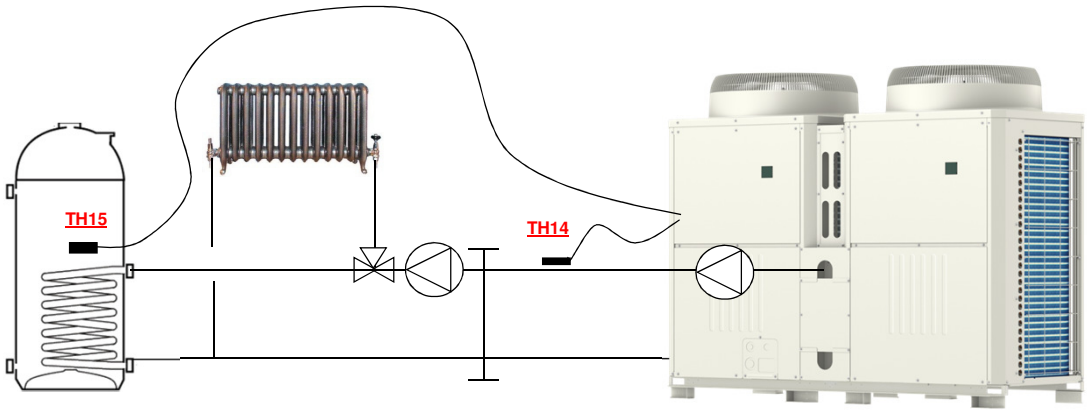
4. The rotary switch should now be set to "F" 

Now Press - 

for 1 second or longer. This will soft reset the system ready for operation

5. The rotary switch should now be set to "0" 

Switch SWS1 back to REMOTE **Dip switch SW3-8 back to OFF** Set up complete



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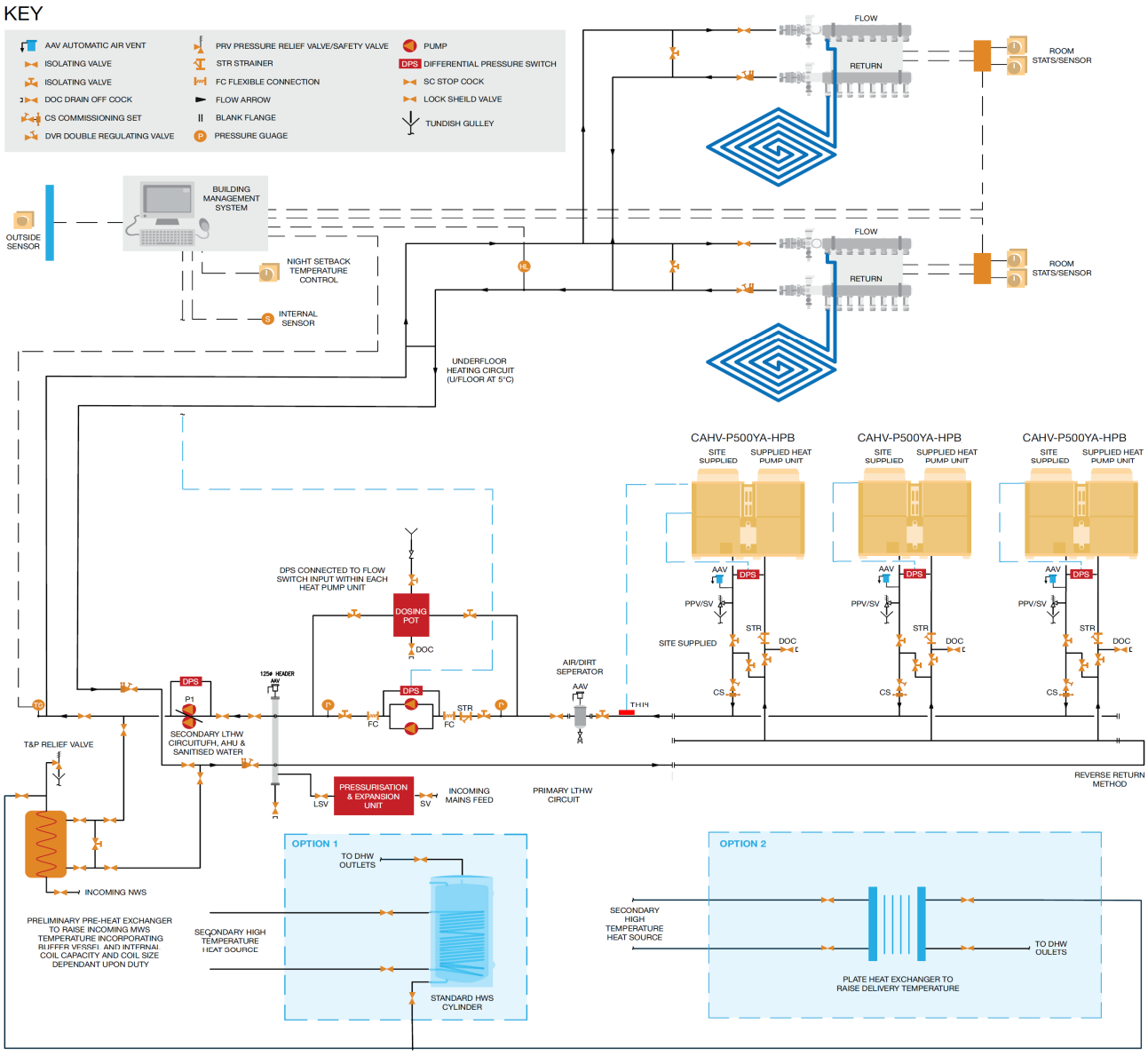
Example Hydraulic Setup



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When the settings for the items below have been changed, the system will require re-initialization.

- Dip switch SW2-8 (use or non-use of an external water temperature sensor) (Re-initialization is required only for the Multiple system.)
- Dip switch SW2-9 (multiple unit control)
- Dip switch SW3-3 (water temperature control method)
- External signal input setting [107] (total number of units in the system)
- Rotary switches (SWU1 and SWU2) (unit address)

Take the following steps to re-initialize the system:

(1) Set the rotary switch SWU3 to "F."
[FFFF] will appear in the LED1.

(2) Press and hold the push switch SWP3 for one second or longer.

- While the system is starting up [9999] will appear on LED1.
- When start-up is complete, a control property [0012] will appear.
- Then, five seconds later, [FFFF] will appear.

(3) Press and hold the push switch SWP3 again for one second or longer.

- While the system is starting up [9999] will appear on LED1.
- When start-up is complete, a control property [0012] will appear.
- Then, five seconds later, [FFFF] will appear.

(4) Set the rotary switch SWU3 back to "0."

5) Resetting the system (MAIN and SUB circuits)

Take the following steps to reset the system. An error can also be reset by taking the steps below.
Note that the errors on the MAIN unit must be reset through the MAIN circuit, and the errors on the sub unit must be reset through the SUB circuit.
When an error on the MAIN unit is reset, all sub units will stop.

(1) Set the rotary switch SWU3 to "F."
[FFFF] will appear in the LED1.

(2) Press and hold the push switch SWP3 for one second or longer.

- While the system is starting up [9999] will appear on LED1.
- When start-up is complete, a control property [0012] will appear.
- Then, five seconds later, [FFFF] will appear.

(3) Set the rotary switch SWU3 back to "0."

Commissioning sticker information

Commercial Heating

Heating Only Heat Pumps for Commercial Buildings

Comissioning Details

Comissioing Date	
Job Name	
Job Number	
Product Model Name	
Application (UFH/Rad/DHW)	

Details	Design Condition		Actual Condition (on day of test)	
Flow Rate		l/s		l/s
Flow Temperature		℃		℃
Ambient Temperature		℃		℃
Capacity		kW		kW
Glycol	Yes/No		Yes/No	
Circuit Size		litres		litres
Low Loss Header	Yes/No		Yes/No	
Buffer Vessel	Yes/No		Yes/No	
Flow Switch	Yes/No		Yes/No	
Pump Operation Output Utilised	Yes/No		Yes/No	