

Air to Water Heat Pump System

Quick Setup Guide

[Model Name]

Hydrobox: ERSF-NM6E

Outdoor unit: WUZ-SA24NMZ

WUZ-SA36NMZ

WUZ-SA48NMZ



ecodan®
Renewable Heating Technology



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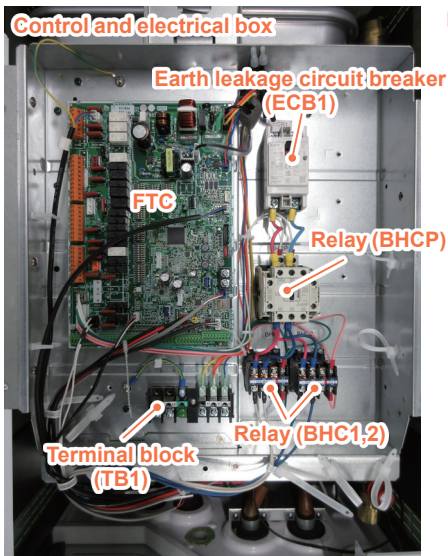
This Quick Setup Guide extracts the points for installing devices, connection examples on major water circuit, and remote controller settings. Be sure to read the installation manual for safety precautions and any contents related to regulations.

Included parts for Hydrobox

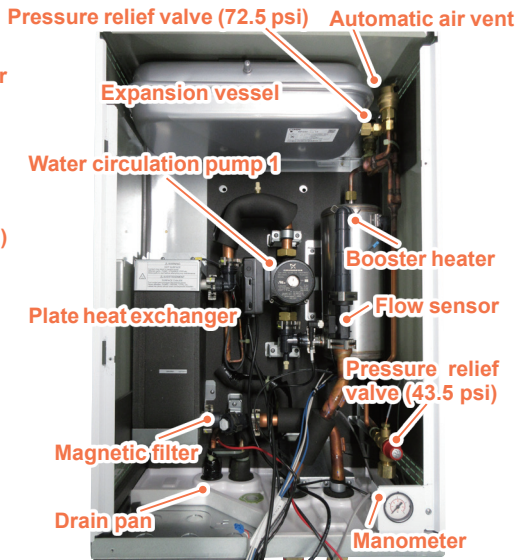


Operation manual		Installation manual		Quick setup guide	
					
Qty. 1		Qty. 1		Qty. 1	
Back plate				Screw M5 × 8	
					
Qty. 1				Qty. 2	
Thermistor					
Zone (THW6)	Zone (THW7)	Boiler (THWB1)	Tank (THWSB)		
					
Qty. 1	Qty. 1	Qty. 1	Qty. 1		

Key components

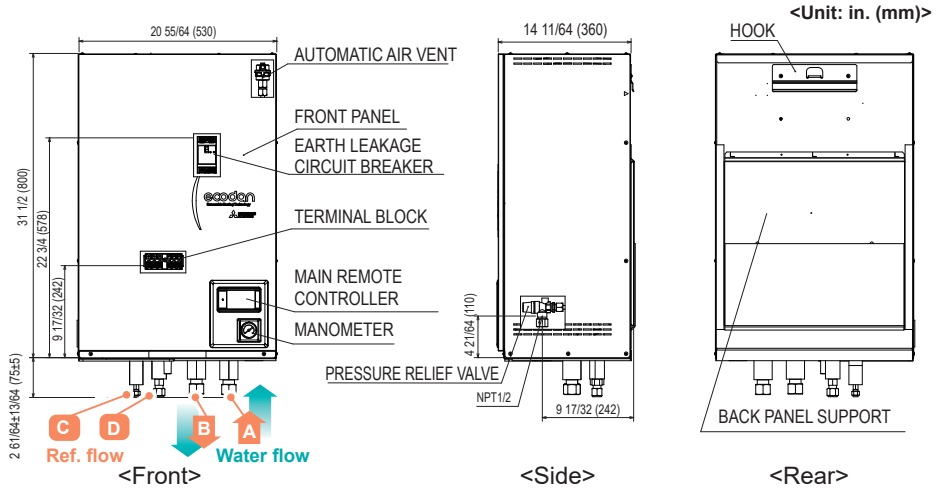


<With control and electrical box>



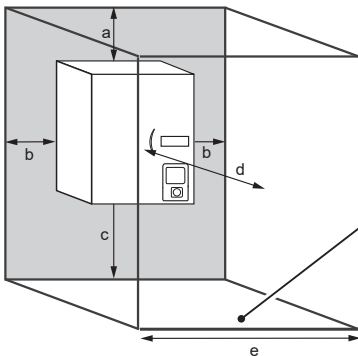
<Without control and electrical box>

Dimensional drawing



Letter	Pipe description	Size [in. (mm)] / Type
A	Space heating/Indirect DHW tank (primary) Return connection	1" NPT Female
B	Space heating/Indirect DHW tank (primary) Supply connection	1" NPT Female
C	Refrigerant (Liquid)	1/4 (6.35) / Flare
D	Refrigerant (Gas)	5/8 (15.88) / Flare

Installation requirements



Parameter	Dimension [in. (mm)]
a	7 7/8 (200) or more
b	5 29/32 (150) or more
c	39 3/8 (1000) or more
d	30 (762) or more
e	30 (762) or more

■ Minimum floor area

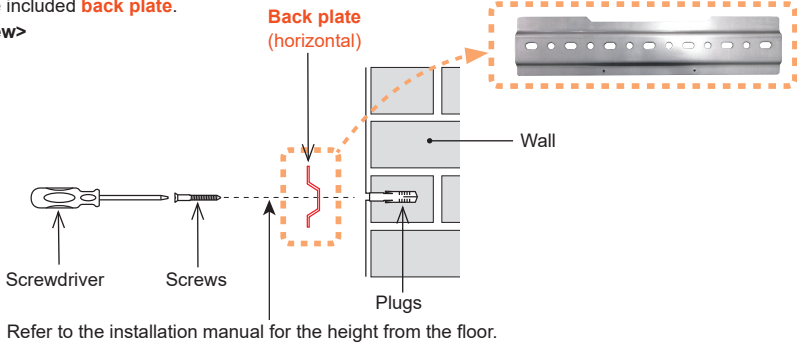
R32 refrigerant [lbs (kg)]	Minimum floor area [ft² (m²)]		
	c = 3.28 ft (1 m)	> 3.28 ft - < 5.58 ft (> 1 m - < 1.7 m)	c = 5.58 ft (1.7 m)
< 3.75 (1.7)	74.3 (6.9)	*	36.6 (3.4)
≥ 3.75 - < 5.29 (≥ 1.7 - < 2.4)	*	*	*
5.29 (2.4)	191.6 (17.8)	*	100.2 (9.3)

*Please refer to the installation manual for more details.

Mounting procedure

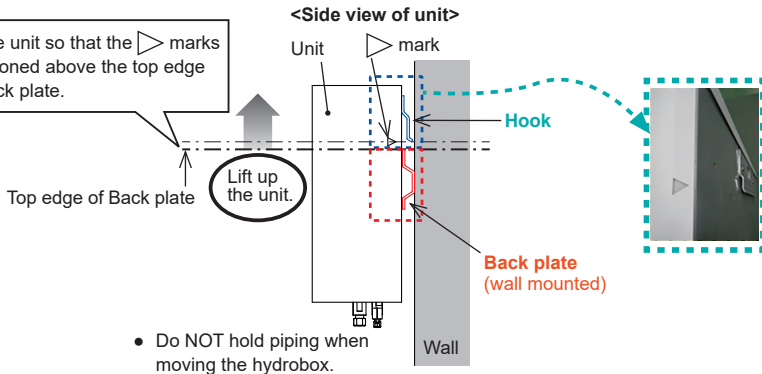
1. Install the included **back plate**.

<Side view>



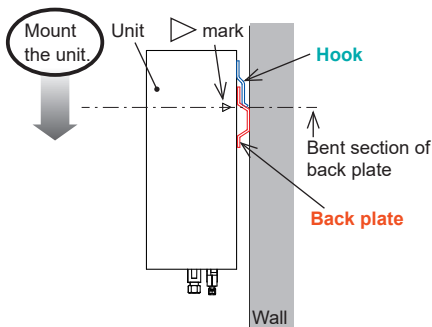
2. Insert the **hook** on the back of the hydrobox behind the notch of the **back plate**.

Lift up the unit so that the marks are positioned above the top edge of the back plate.

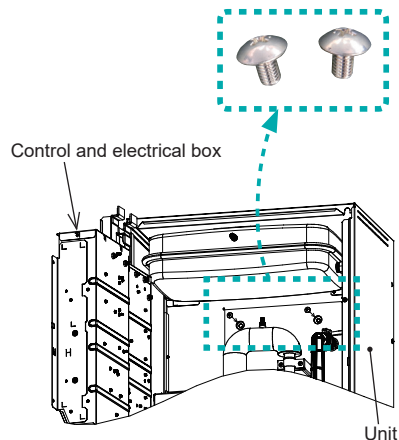


3. Check and ensure that the marks are positioned and properly engaged at the bent section level on the **back plate** as shown below.

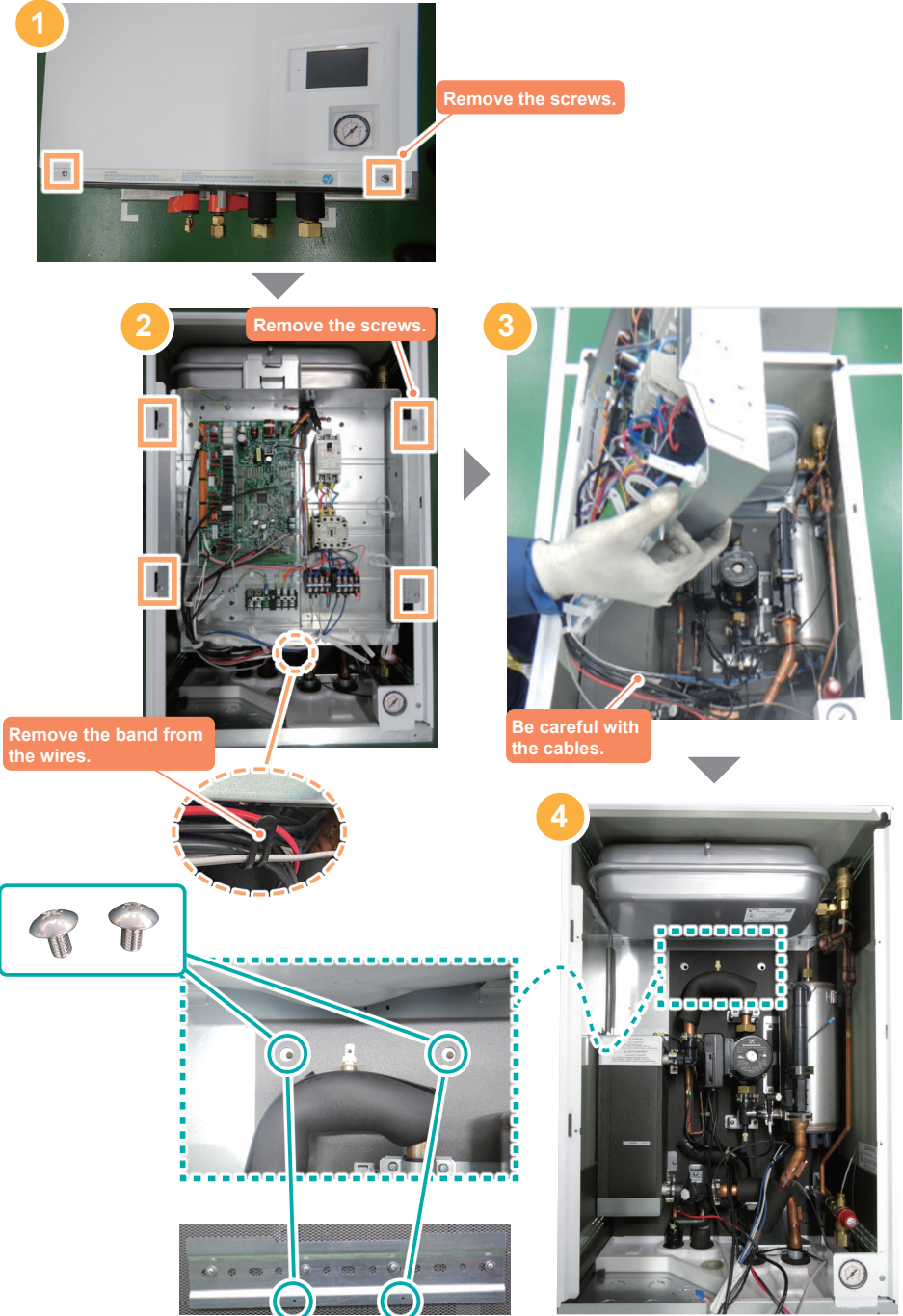
<Side view of unit>



4. Fix the unit to the **back plate** using the included **2 screws**.



■ How to access the location to use the 2 screws



Electrical connection

Power and communication for the hydrobox is supplied from the outdoor unit.

Recommended breaker size for the outdoor unit:

- 30A for WUZ-SA24NMZ
- 35A for WUZ-SA36NMZ
- 40A for WUZ-SA48NMZ

If using the booster heater that is built into the hydrobox, please provide a separate power supply to the booster heater at the connection points as shown on the wiring diagram.

Recommended breaker size for the booster heater: 35A



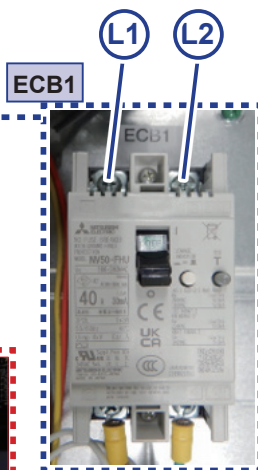
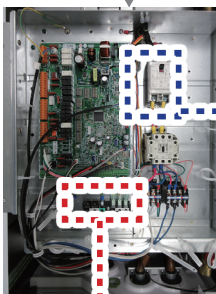
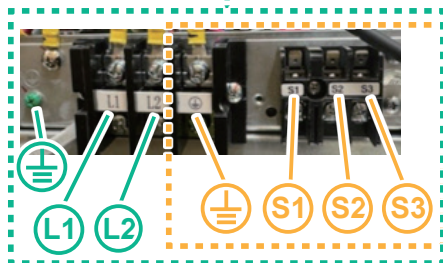
Outdoor unit



Hydrobox

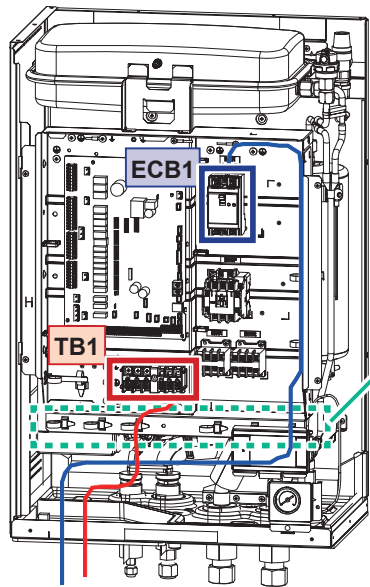


Note: Booster heater power supply is not required if not using the booster heater. If so, SW1-5 must be turned OFF. (Refer to page 18 and 19.)

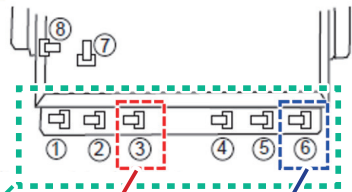


■ How to connect 2 power lines

Breaker abbreviation	Meaning
ECB1	Earth leakage circuit breaker for booster heater
TB1	Terminal block



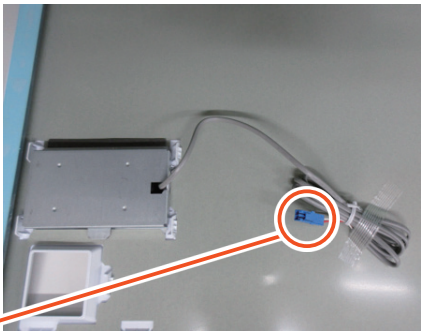
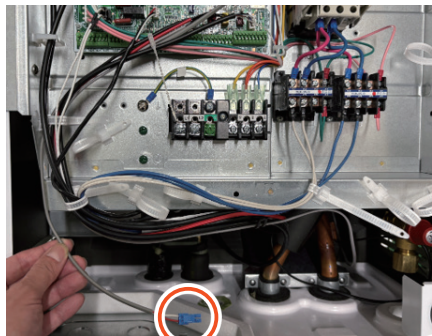
• The wires should be fixed with the cable straps as below.



Power line for Booster heater

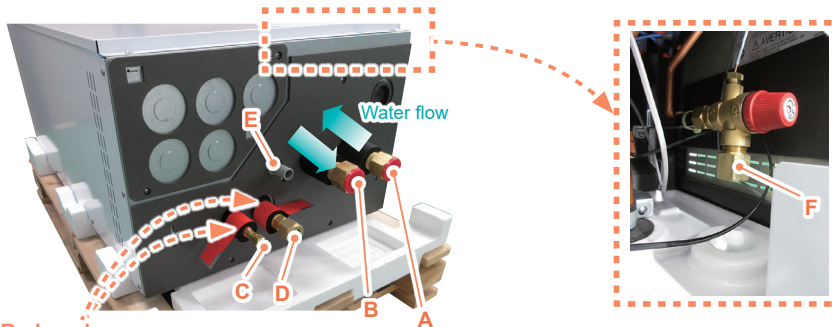
Hydrobox -Outdoor unit wire
(Power supply from Outdoor unit)

■ How to connect the main remote controller line



Before closing the front panel, connect the each blue connector shown above for the main remote controller.

Piping installation and configurations

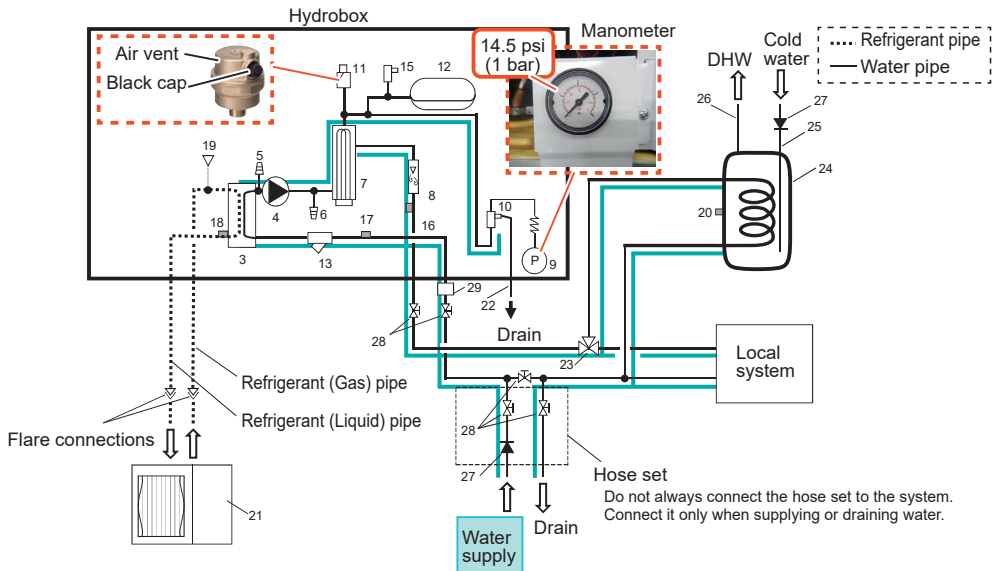


Red markers

Do not remove the red markers near the pipe connection part as they are required for A2L refrigerants as stipulated by SNAP (Significant New Alternatives Policy Program) of 40CFR Part 82.

Letter	Pipe description	Size / Type
A	Space heating/Indirect DHW tank (primary) Return connection	1" NPT Female
B	Space heating/Indirect DHW tank (primary) Supply connection	1" NPT Female
C	Refrigerant (Liquid)	1/4 in. (6.35 mm) / Flare
D	Refrigerant (Gas)	5/8 in. (15.88 mm) / Flare
E	Drain socket	Outside diameter: 25/32 in. (20 mm)
F	Discharge to drain (from pressure relief valve)	1/2" NPT Female

Water supply



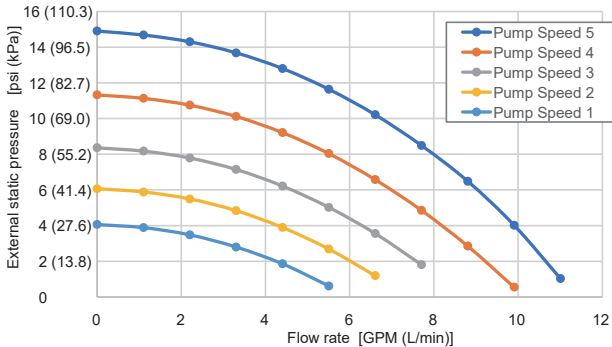
Notes:

- The blue lines indicate the water flow at air purge when supplying water.
- Refer to the installation manual for full water flow diagram and legend.
- Pressurise system indicated by the manometer is 14.5 psi (1 bar)
- When purging air, open the black cap of the air vent.

Water circulation pump characteristics

Pump speed can be selected by main remote controller setting.

Adjust the pump speed setting so that the flow rate in the primary circuit is appropriate for the installed outdoor unit.



Outdoor heat pump unit		Water flow range		Recommend flow	
		L/min	gallon/min	L/min	gallon/min
Split model WUZ series	WUZ-SA24NMZ	7.2 - 22.9	1.9 - 6.1	14.3	3.8
	WUZ-SA36NMZ	7.2 - 28.7	1.9 - 7.6	17.9	4.7
	WUZ-SA48NMZ	10.0 - 34.4	2.6 - 9.1	25.1	6.6

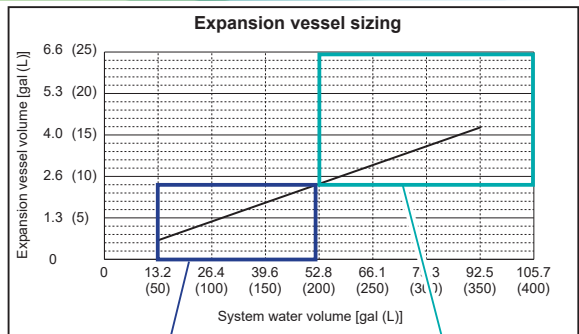
Notes:

1. If the water flow rate is less than the minimum flow rate setting of the flow sensor (default 1.4 GPM [5.0 L/min]), the flow rate error will be activated.
2. If the water flow rate exceeds 9.7 GPM (36.9 L/min), the flow speed will be greater than 6.6 ft/s (2.0 m/s), which could erode the pipes.

Sizing expansion vessels

Please add an additional expansion vessel if the system water volume is over 52.8 gal (200 L).

1. The hydrobox is equipped with an expansion vessel
2. Nominal volume is 3.2 gal (12 L) but the effective volume is 2.4 gal (9 L).
3. If needed, add an additional expansion vessel according to the graph on the right.



Formula: Minimum volume of expansion vessel

$$V_t = \frac{(0.00041T - 0.0466)V_s}{\left(\frac{P_a}{P_f} - \left(\frac{P_a}{P_o}\right)\right)}$$

V_t : Minimum volume of expansion vessel (gal)

V_s : Volume of system, not including expansion vessel (gal)

T : Average operating temperature of water circuit system (°F)

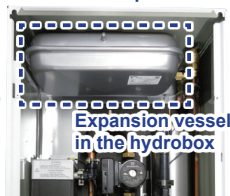
P_a : Atmospheric pressure (psi)

P_f : Fill pressure (psi)

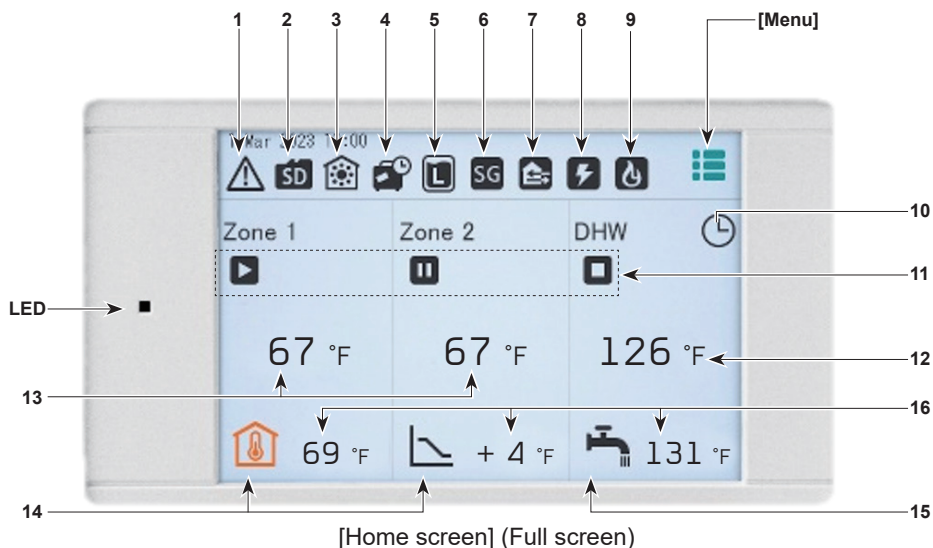
P_o : Maximum operating pressure (psi)

Additional expansion vessel is not required.

Additional expansion vessel is required.



Main remote controller



■ Legend for Icons

No.	Icons	Description
1		Alert Error codes are displayed.
2		SD card is inserted. Normal operation
		SD card is inserted. Abnormal operation
3		Heating mode
		Cooling mode
4		Vacation schedule is activated.
5		Legionella prevention mode is running.
6		Smart grid ready is running. (Europe only)
		Compressor is running.
		Compressor is running and defrosting.
		Compressor is running in quiet mode.
		Emergency heating
8		Electric heater is running.
		Boiler is running.
9		Buffer tank control is running.

No.	Icons	Description
		Schedule
10		Prohibited
		Cloud control
11		Operation
		Standby
		Stop
12	-	Current DHW tank temperature
13	-	Current room temperature or current flow temperature
		Weather compensation curve (Heating/Cooling function)
14		Auto Adaptation (Heating/Cooling function)
		Flow temperature (Heating/Cooling function)
15		DHW icon is displayed when DHW is enabled.
16	-	Target temperature

Quick start settings

Language & Date/Time

- Select language.
- Set Date / Time.

Language

English Český 1/3

Dansk Deutsch

Eesti Español

Français Hrvatski

Date / Time

Date 01 02 2025 +

Time 13 : 50 -

(24h)

System configuration

- Check the system configuration before commissioning.

System configuration

Boiler Off

DHW On

Wireless sensors Off

Cooling On

Pair wireless sensors

Begin quick start?

Skip Yes

Flow rate & pump speed

Please set the Min/Max flow rate according to the water flow range of the connecting outdoor unit. (See the table below.)

Outdoor heat pump unit		Water flow range	
		L/min	gallon/min
Split model WUZ series	WUZ-SA24NMZ	7.2 - 22.9	1.9 - 6.1
	WUZ-SA36NMZ	7.2 - 28.7	1.9 - 7.6
	WUZ-SA48NMZ	10.0 - 34.4	2.6 - 9.1

Flow rate & pump speed

Min flow rate 1.4 GPM +

Max flow rate 9.6 GPM

Pump speed 5

Pump speed DHW 5

Electric booster heater use

- If using the booster heater, no change is recommended.

Electric booster heater use

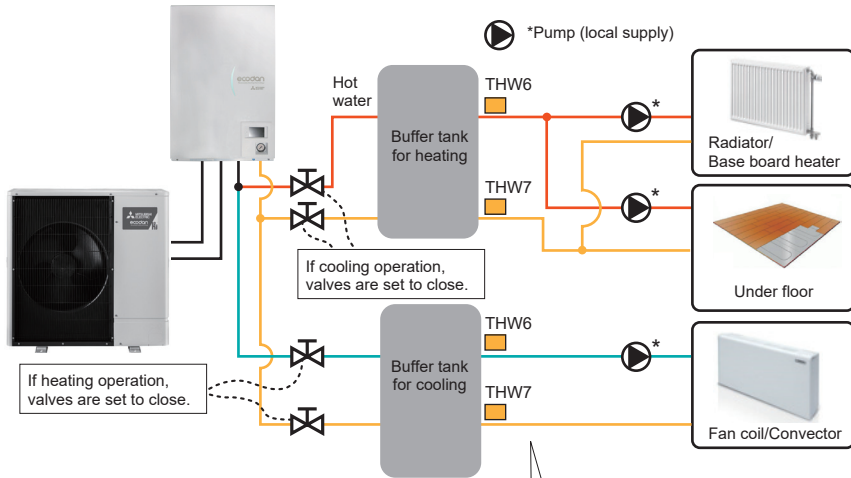
Capacity Max

Once set, can not be set again

Common configurations with settings - example A

■ Heating only, Cooling only or Heating/Cooling

Note: Heating and/or cooling is possible. Please note, this system is not capable of simultaneous heating and cooling.
[Water circuit diagram without DHW tank]

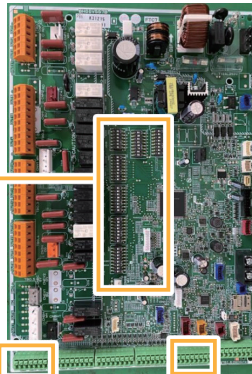
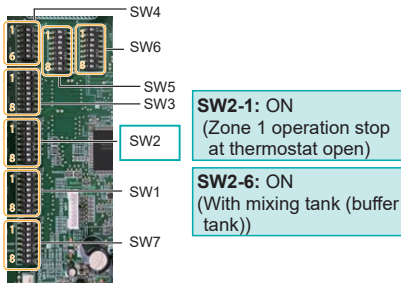


Note:

- Need to fix the thermistors (THW6, THW7) on the pipe and insulate around them.
- When using two buffer tanks, follow one of the procedures below as only one set of THW6/THW7 is supplied:
 (a) Relocate THW6 and THW7 to the buffer tank used for cooling or heating operation.
 (b) If not using THW6 and THW7, turn SW2-6 to OFF.

■ Wiring connection & DIP switch settings

DIP switch



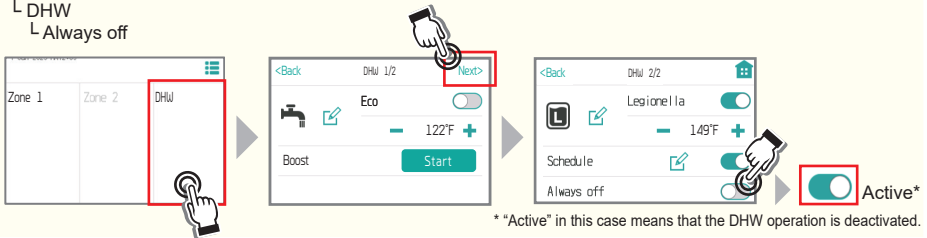
Thermistor connections



■ Main remote controller settings

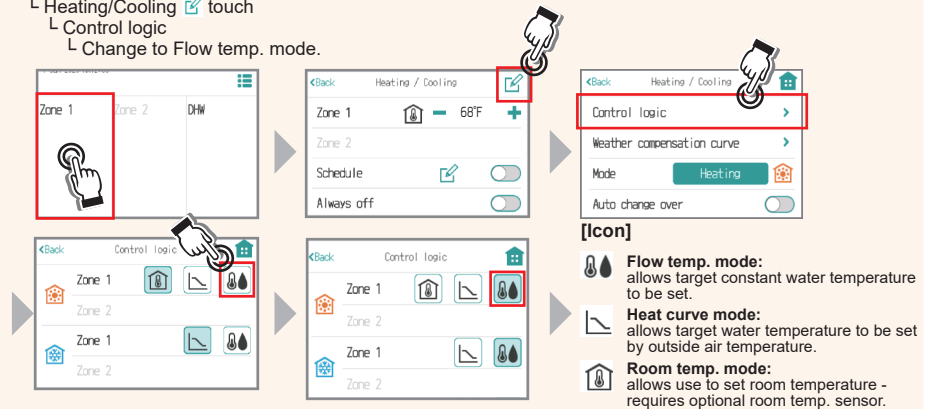
When not using DHW function

- Home screen
 - └ DHW
 - └ Always off



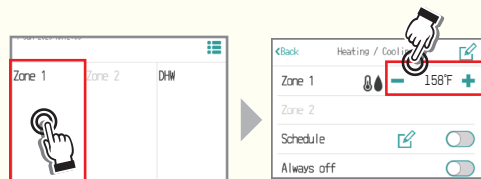
How to change to Flow temp. mode (Heating/Cooling)

- Home screen
 - └ Zone 1
 - └ Heating/Cooling touch
 - └ Control logic
 - └ Change to Flow temp. mode.



How to change the set flow temp. of Heating/Cooling

- Home screen
 - └ Zone 1
 - └ Heating/Cooling



How to change the mode from Heating to Cooling

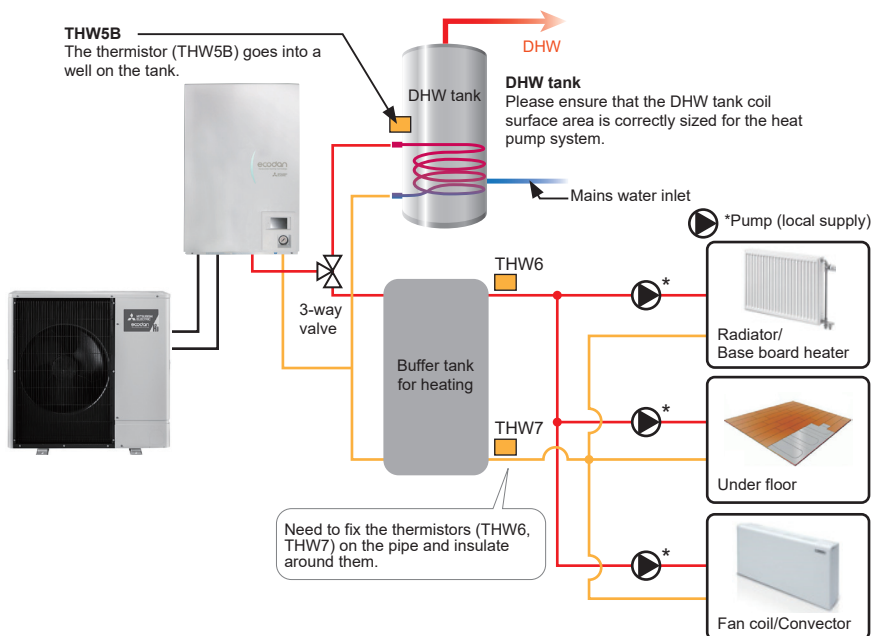
- Home screen
 - └ Zone 1
 - └ Heating/Cooling touch



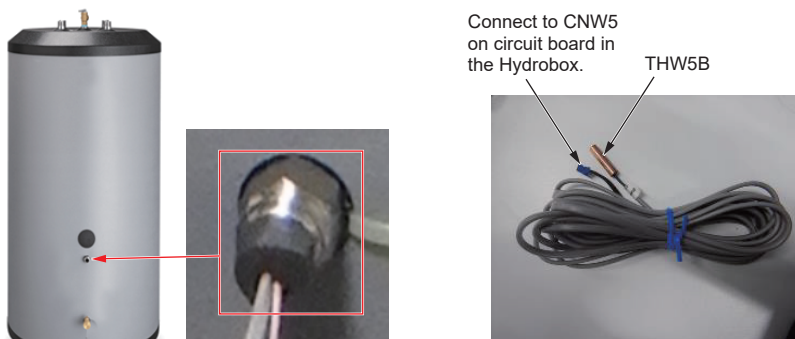
Common configurations with settings - example B

■ Heating, Cooling + Domestic Hot Water

Water circuit diagram with DHW tank



■ How to connect THW5B (DHW tank temperature thermistor)



Thermistor (THW5B) must be installed in a well on the tank.

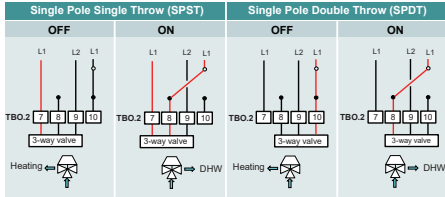
■ How to connect THW5B (DHW tank temperature thermistor)

Valve connections

How to connect 3-wire 3-way valve

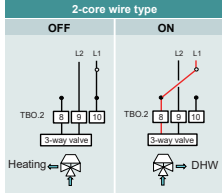
208/230 V is supplied from PCB

SPST: TBO.2 7,8,& 9
SPDT: TBO.2 8,9,& 10



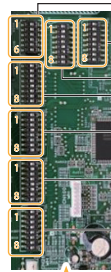
How to connect 2-wire 3-way valve

208/230 V is supplied from PCB



TBO.2 8-9

DIP switch



SW4

SW6

SW5

SW3

SW2

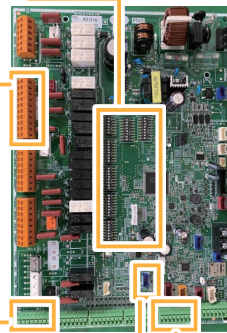
SW1

SW7

SW2-1: ON
(Zone 1 operation stop
at thermostat open)

SW2-6: ON
(With mixing tank
(buffer tank))

SW1-3: ON
(With DHW tank)



Thermistor connections

TBI.1 7-8



Room
thermostat

Connect the room thermostat to prevent malfunction due to overfunctioning of the outdoor unit when the room temperature is comfortable.

CNW5



THW5B

TBI.5 7-8

TBI.5 5-6



THW6

THW7

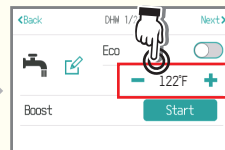
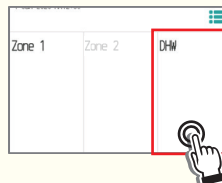
■ Main remote controller settings

How to change the set temperature of DHW tank

Home screen

└ DHW

└ DHW target temperature



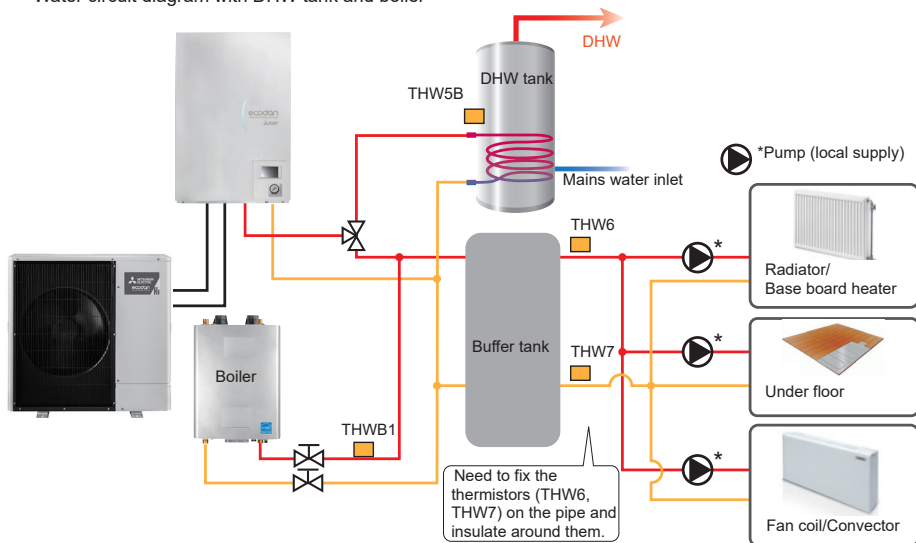
Note:

- Refer to p. 13 for Heating/Cooling settings.

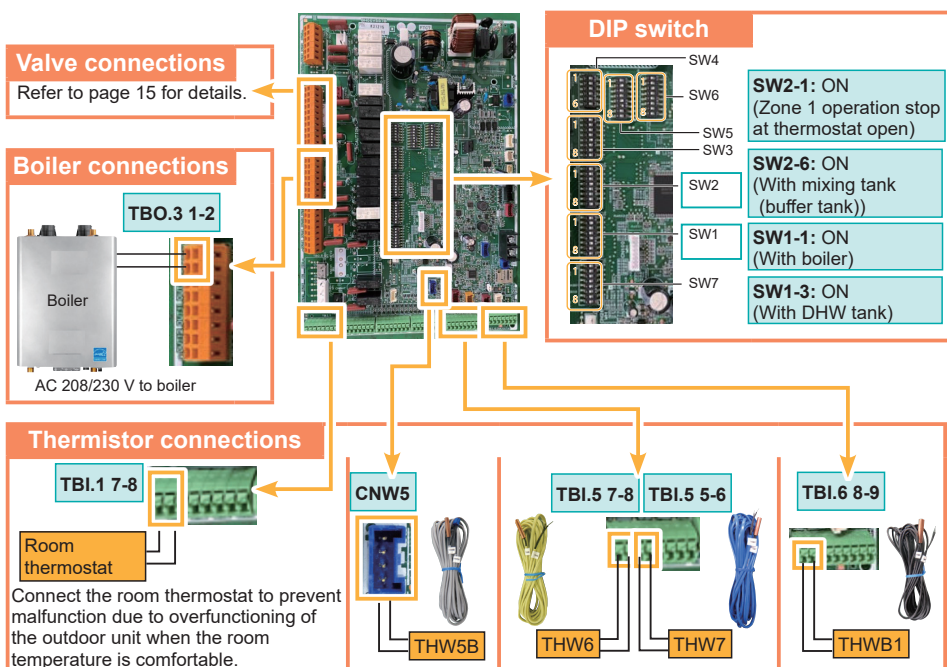
Common configurations with settings - example C

■ Heating, Cooling + Domestic Hot Water + Boiler

Water circuit diagram with DHW tank and boiler



■ Wiring connection & DIP switch settings



■ Main remote controller settings

How to set the ambient temperature for switching between heat pump and boiler operation

Home screen → Menu

Service

Heat source settings

Operation settings

Default : [Standard]

Standard / Heater / Boiler / **Hybrid**

Boiler settings

Hybrid settings

Priority

Outdoor ambient temperature

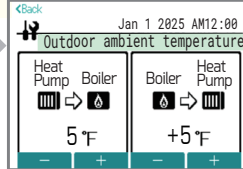
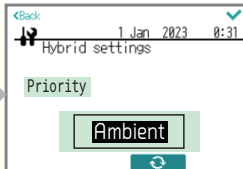
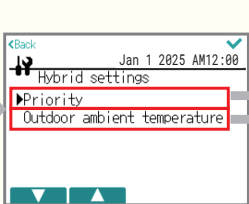
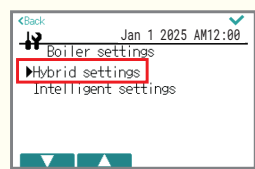
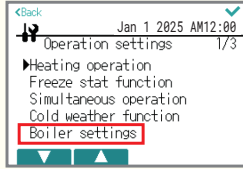
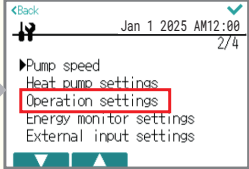
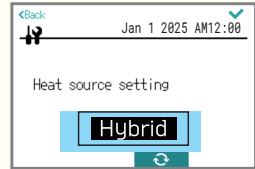
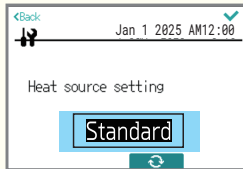
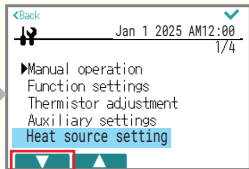
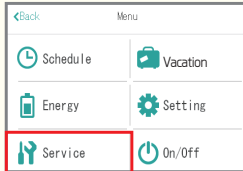
Intelligent settings

Default : [Ambient]

Ambient / Cost / CO2

Default : Heat Pump → Boiler 5°F,

Boiler → Heat Pump +5°F (i.e. 10°F)



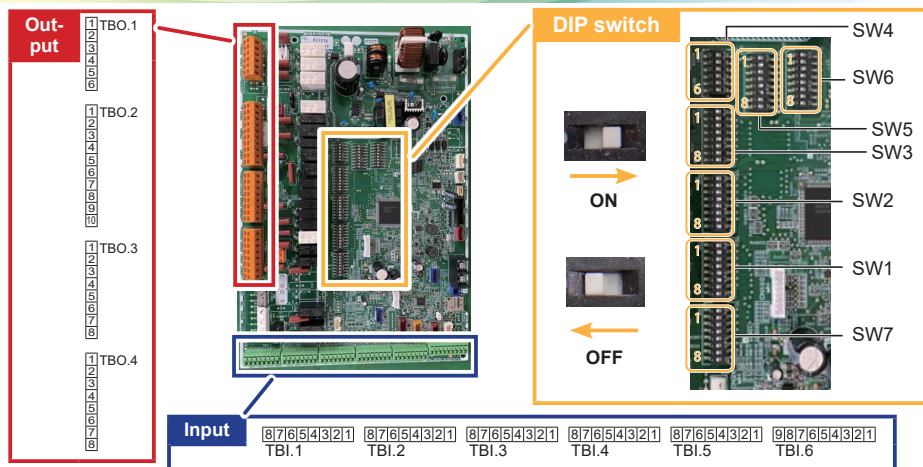
• Set the ambient temperature at which the system switches from heat pump to boiler operation (default = 5°F)

• Set the delta from the ambient set above at which the system switches from boiler to heat pump operation (default = +5°F, this means that the heat pump will operate when the ambient is 10°F).

Notes:

- Refer to p.13 for Heating/Cooling settings.
- Refer to p.15 for DHW operation settings.

Signal input/output and DIP switch



■ Signal input

Name	Terminal block	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	Room thermostat 1 input	Refer to SW2-1.	
IN2	TBI.1 5-6	Flow switch 1 input	Refer to SW2-2.	
IN3	TBI.1 3-4	Flow switch 2 input (Zone 1)	Refer to SW3-2.	
IN4	TBI.1 1-2	Demand control input	Normal	Heat source OFF/ Boiler operation
IN5	TBI.2 7-8	Outdoor thermostat input	Standard	Heater operation/ Boiler operation
IN6	TBI.2 5-6	Room thermostat 2 input	Refer to SW3-1.	
IN7	TBI.2 3-4	Flow switch 3 input (Zone 2)	Refer to SW3-2.	
IN8	TBI.3 7-8	Electric energy meter 1	Refer to the installation manual.	
IN9	TBI.3 5-6	Electric energy meter 2		
IN10	TBI.2 1-2	Heat meter		
IN13	TBI.4 3-4	Forced cooling mode	Refer to SW7-2.	
IN15	TBI.4 1-2	Cooling limit temp.	Refer to SW7-3.	

■ Signal output

Name	Terminal block	Item	OFF	ON	Voltage/Max. current
OUT2	TBO.1 3-4	Water circulation pump 2 output (Space heating/cooling for Zone 1)	OFF	ON	230 VAC 1.0 A Max. (Inrush current 40 A Max.)
OUT3	TBO.1 5-6	Water circulation pump 3 output (Space heating/cooling for Zone 2)	OFF	ON	230 VAC 1.0 A Max. (Inrush current 40 A Max.)
OUT4	TBO.2 7-9	2-way valve 2b output	Heating	DHW	230 VAC 0.1 A Max.
	TBO.2 8-10	3-way valve SPST (2-way valve 1) output			
OUT5	TBO.2 1-2	Zone 2 mixing valve output	Stop	Close	230 VAC 0.1 A Max.
	TBO.2 2-3			Open	
OUT8	TBO.4 7-8	Cooling signal output	OFF	ON	230 VAC 0.5 A Max.
OUT10	TBO.3 1-2	Boiler output	OFF	ON	<u>Dry contact (Non-voltage)</u>
OUT11	TBO.3 5-6	Error output	Normal	Error	230 VAC 0.5 A Max.
OUT12	TBO.3 7-8	Defrost output	Normal	Defrost	230 VAC 0.5 A Max.
OUT13	TBO.4 3-4	2-way valve 2a output	OFF	ON	230 VAC 0.1 A Max.
OUT15	TBO.4 1-2	Comp ON signal	OFF	ON	230 VAC 0.5 A Max.
OUT16	TBO.3 3-4	Heating/Cooling thermostat ON signal	OFF	ON	<u>Dry contact (Non-voltage)</u>
OUT18	TBO.2 4-5	Zone 1 mixing valve output	Stop	Close	230 VAC 0.1 A Max.
	TBO.2 5-6			Open	
OUTA1	TBI.6 1-2	Analog output	0 V - 10 V		0 - 10 VDC 5 mA max.

■ DIP switch settings reference table

DIP switch		Function	OFF	ON
SW1	SW1-1	Boiler	WITHOUT Boiler	WITH Boiler
	SW1-3	DHW tank	WITHOUT DHW tank	WITH DHW tank
	SW1-5	Booster heater	WITHOUT Booster heater	WITH Booster heater
	SW1-6	Booster heater function	For heating only	For heating and DHW
	SW1-7	Outdoor unit type	Split type	Packaged type
SW2	SW2-1	Room thermostat1 input (IN1) logic change	Zone 1 operation stop at thermostat short	Zone 1 operation stop at thermostat open
	SW2-2	Flow switch1 input (IN2) logic change	Failure detection at short	Failure detection at open
	SW2-3	Booster heater capacity restriction	Inactive	Active
	SW2-4	Cooling mode function	Inactive	Active
	SW2-5	Automatic switch to backup heat source operation (When outdoor unit stops by error)	Inactive	Active
	SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank
	SW2-7	2-zone temperature control	Inactive	Active
	SW2-8	Flow sensor	WITHOUT Flow sensor	WITH Flow sensor
SW3	SW3-1	Room thermostat 2 (IN6) input logic change	Zone 2 operation stop at thermostat short	Zone 2 operation stop at thermostat open
	SW3-2	Flow switch 2 and 3 input logic change	Failure detection at short	Failure detection at open
	SW3-4	Electric energy meter	WITHOUT Electric energy meter	WITH Electric energy meter
	SW3-6	2-zone valve ON/OFF control	Inactive	Active
	SW3-8	Heat meter	WITHOUT Heat meter	WITH Heat meter
SW4	SW4-4	Indoor unit only operation (during installation work)	Inactive	Active
	SW4-5	Emergency mode (Heater only operation)	Normal	Emergency mode (Heater only operation)
	SW4-6	Emergency mode (Boiler operation)	Normal	Emergency mode (Boiler operation)
SW5	SW5-2	Advanced auto adaptation	Inactive	Active
SW6	SW6-3	Pressure sensor	Inactive	Active
	SW6-4	Analog output	Inactive	Active
SW7	SW7-1	Mixing valve setting	Only Zone 2	Zone 1 and Zone 2
	SW7-2	Forced cooling mode input (IN13) logic change	Active at short	Active at open
	SW7-3	Cooling limit temp. input (IN15) logic change	Active at short	Active at open

Installer/Housing Association Contact

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