"EEE Yönetmeliğine Uygundur"
"This EEE is compliant with RoHS"

MIM-E03✳

SAMSUNG CONTROL KIT
installation manual

Planet First 100% Recycled Paper

This manual is made with 100% recycled paper.

imagine the possibilities

Thank you for purchasing this Samsung product.
To receive more complete service, please register your product at

www.samsung.com/register

ⒺⓈⒻⒾⓅⒹ DB98-34413A(2)

SAMSUNG

Contents

Safety precautions 3
Product specifications 4
Main components 4
Installing the unit 5
Wiring works 8
Wiring schematics 28
Setting option switches and function of keys 29
Test operation 32
Before running the system 33
Troubleshooting 34
Error codes 35

Safety precautions

Carefully follow the precautions listed as below because they are essential to guarantee the safety of SAMSUNG product.

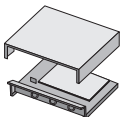
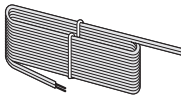
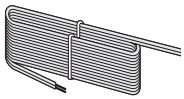
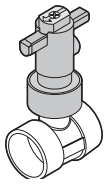
WARNING

- Always disconnect a power supply of Air-Water Heat Pump before servicing it or accessing components inside the unit.
- Verify that installation and testing operations shall be performed by qualified personnel.
- To prevent serious damage on the system and injuries to users, precautions and other notices shall be observed.

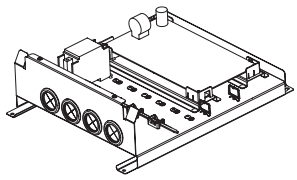
Warning

- Carefully read the contents of this manual before installing the control kit and store the manual in a safe place in order to be able to use it as reference after installation.
- For maximum safety, installers should always carefully read the following warnings.
- Store the manual in a safe location and remember to hand it over to the new owner if the kit is sold or transferred.
- The kit is compliant with the requirements of the Low Voltage Directive (72/23/EEC), the EMC Directive (89/336/EEC) and the Directive on pressurized equipment (97/23/EEC).
- The manufacturer shall not be responsible for damage originating from unauthorized changes or the improper connection of electric and hydraulic lines. Failure to comply with these instructions or to comply with the requirements set forth in the "Operating limits" table, included in the manual, shall immediately invalidate the warranty.
- Do not use the units if you see some damages on the units and recognize something bad such as loud noisy, smell of burning.
- In order to prevent electric shocks, fires or injuries, always stop the unit, disable the protection switch and contact SAMSUNG's technical support if the unit produces smoke, if the power cable is hot or damaged or if the unit is very noisy.
- Always remember to inspect the unit, electric connections, and protections regularly. These operations shall be performed by qualified personnel only.
- The unit contains various electric parts, which should be kept out of the reach of children.
- Do not attempt to repair, move, alter or reinstall the unit by unauthorized personnel, these operations may cause product damage, electric shocks and fires.
- Do not place containers with liquids or other objects on the unit.
- All the materials used for the manufacture and packaging of the air to water heat pump are recyclable.
- The packing materials must be disposed of in accordance with local regulations.
- Wear protective gloves to unpack, move, install, and service the unit to avoid your hands being injured by the edge of the parts.
- Do not touch the internal parts while running the units.
- Inspect the product shipped and check if damaged during transport. If the product has some damages, DO NOT INSTALL and immediately discuss about the damages with the carrier or retailer (if the installer or the authorized technician has collected the material from the retailer.)
- Our units shall be installed in compliance with the spaces described in the installation manual, to ensure accessibility from both sides and allow repairs or maintenance operations to be carried out. If the units installed without complying with procedures described in manual, additional expenses can be asked because special harnesses, ladders, scaffolding or any other elevation system for repair service will NOT be considered part of the warranty and will be charged to the end customer.
- When service works required, make sure to disconnect the power supply at least 1 minute to prevent electric shocks.
  - Always check the voltage at the terminals of main PCB before trying to touch.
- Use electric wires which manual designated. Connections between wires and terminals shall be assembled without any tension. If the assembly works is not implemented well, it can lead to have product damages and fires.
- After wiring works, terminal block cover shall be fixed firmly. Without cover, it can cause to have product damage and fire.

Product specifications

Item	Description
	MIM-E03A
	Wired remote controller
	Temperature sensor (Thermistor / 2EA)
	Remote controller cable (1EA)
	Smart Grid cable (1EA)
	Flow Switch (1EA)

Main components

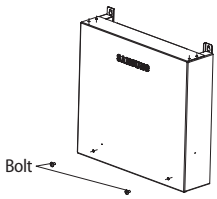
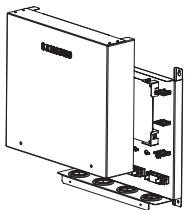
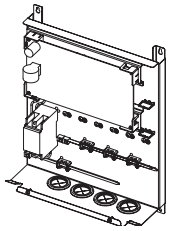
Model name	MIM-E03A		
Detail components		Parts	Qty.
		Main PBA	1
		ELCB(30A)	1
		Wire holder	Total 7EA (2 type)
		PCB support	4
		Grounding screw	8
		Rubber	4
		Base plate	1
		Top cover plate	1
		Case screw	2
Weight (Net)	3.5kg		
Packing size (W x H x D)	329mm x 439mm x 168mm		

Installing the unit

Deciding on where to install the unit

- Install the unit in indoor and do not install it outside. The unit is designed only for indoor.
- Direct heat can make the kit have some failures in operation.
- Choose locations that are dry and sunny, but not exposed to direct sunlight or strong winds.
- Choose location where pipes and cables can be easily connected to the indoor unit.
- Avoid locations where flammable elements and explosive chemicals are stored.
- Choose a specific wall which can withstand the weight of unit and an external force.

Mounting the unit

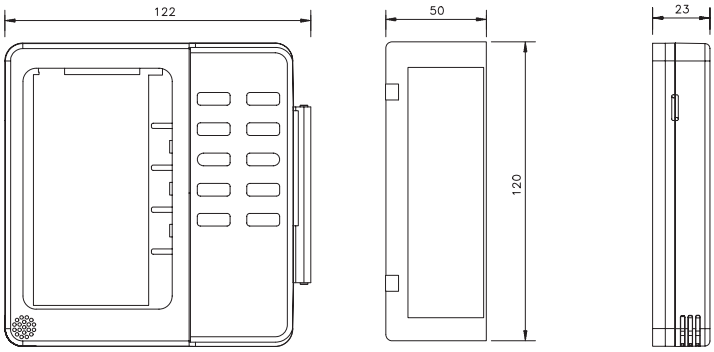
Procedure	Remark
1. Remove 2 bolts from the unit.	
2. Open the top cover and install 4 screws on the wall.	
3. Close the top cover and install 2 bolts again into the unit.	

Installing the unit

Installing the remote controller

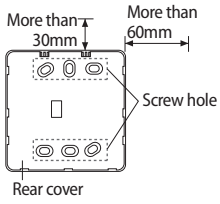
Dimension

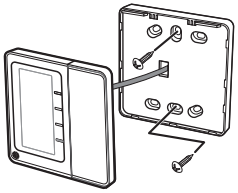
(Unit : mm)

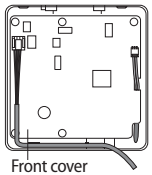


Installation

1. Open the wired remote controller by pushing up the top cover of the remote controller while holding the rear cover firmly. The wired remote controller opens in the way of slide.
2. Install the rear cover of the wired remote controller on the wall with the supplied screws. After that, arrange the power cables on rear side of the front cover.





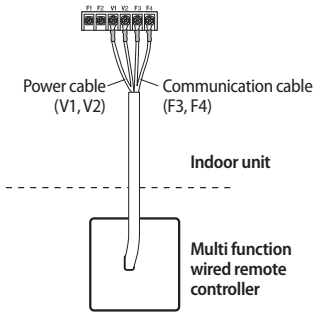


✻ Before fixing the rear cover, clear 30mm of space on the top and 60mm on the right side.

✻ Fasten the screw in the screw hole.

3. Connect the orange and brown wires from the wired remote controller to the power cable (V1, V2) of indoor unit.
   Connect the red and black wires to the communication cable (F3, F4) of indoor unit.

▶ Terminal type cable connection



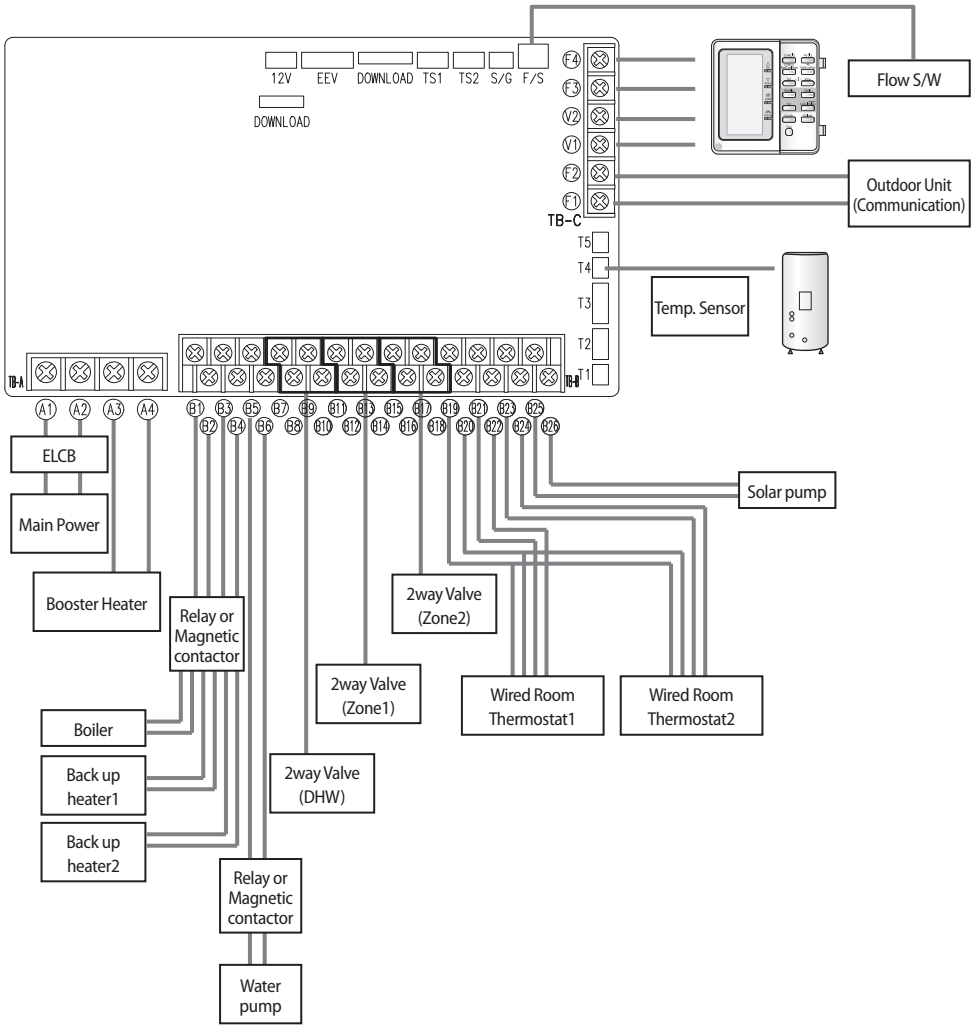
4. Reassemble the wired remote controller.
   When you reassemble the wired remote controller, match the grooves on the left side.

CAUTION

- When using an extension cable, make sure that the communication cable and the power cable is installed separately. (If not, it may cause malfunction of the wired remote controller.)
- Power cable of the wired remote controller(V1,V2) should be connected to the one indoor unit only.

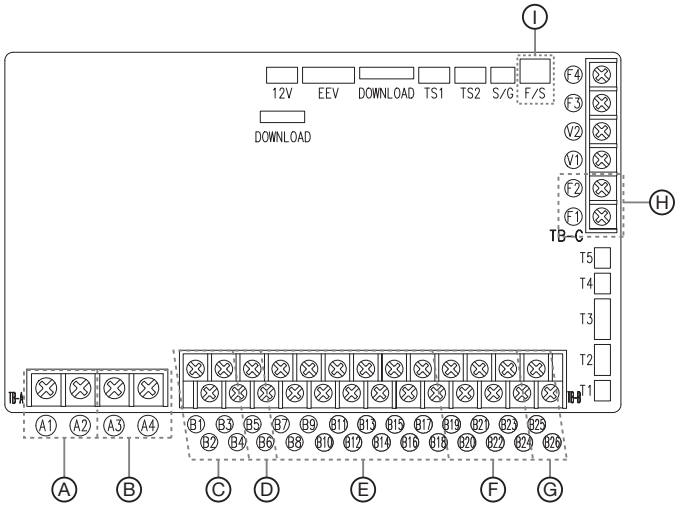
Wiring works

Overall schematics



NOTE

- ELCB : Earth leakage circuit breaker



▶ Output

Description		PORT No.	AC/DC	Maximum running current
A	Main power supply	A1, A2	AC	30A
B	Booster heater	A3, A4	AC	20A
C	Backup heater & boiler (relay or magnetic contactor control)	B1, B2, B3, B4	AC	0.5A
D	Water pump	B5, B6	AC	2A
E	2way valve	B7~B18	AC	0.5A
F	Room thermostat	B19, B20	AC	0.5A

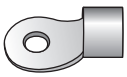
▶ Input

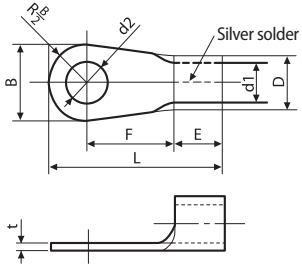
Description		PORT No.	AC/DC	Maximum running current
F	Room thermostat	B21~B24	AC	10mA
G	Solar pump	B25,B26	AC	10mA
H	Communication line(RS485)	F1,F2	DC	10mA
I	Flow switch	F/S	DC	1mA

Wiring works

electing solderless ring terminal

- Select a solderless ring terminal of a connecting power cable based on a nominal dimensions for cable.
- Cover a solderless ring terminal and a connector part of the power cable and then connect it.





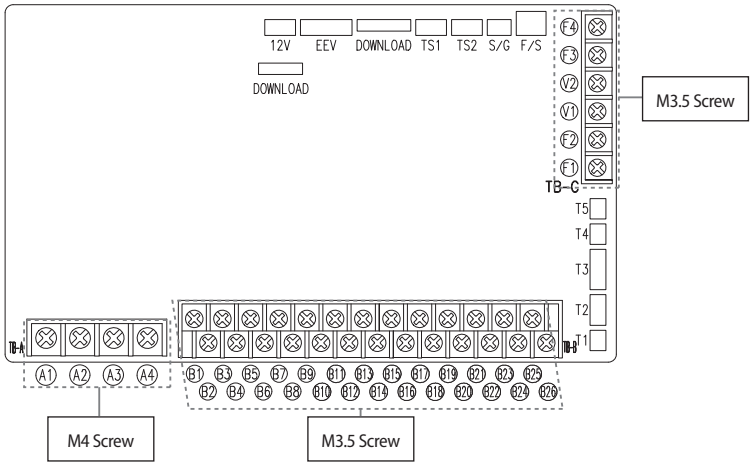
Nominal dimensions for cable (mm²)		1.5	2.5	4/6		10	16	25		35		50	70
Nominal dimensions for screw (mm)		4	4	4	8	8	8	8	8	8	8	8	8
B	Standard dimension (mm)	8	9.5	9.5	15	15	16	12	16.5	16	22	22	24
	Allowance (mm)	±0.2	±0.2	±0.2		±0.2	±0.2	±0.3		±0.3		±0.3	±0.4
D	Standard dimension (mm)	3.4	4.2	5.6		7.1	9	11.5		13.3		13.5	17.5
	Allowance (mm)	+0.3 -0.2	+0.3 -0.2	+0.3 -0.2		+0.3 -0.2	+0.3 -0.2	+0.5 -0.2		+0.5 -0.2		+0.5 -0.2	+0.5 -0.4
d1	Standard dimension (mm)	1.7	2.3	3.4		4.5	5.8	7.7		9.4		11.4	13.3
	Allowance (mm)	±0.2	±0.2	±0.2		±0.2	±0.2	±0.2		±0.2		±0.3	±0.4
E	Min.	4.1	4.1	6		7.9	9.5	11		12.5		17.5	18.5
F	Min.	6	7	5	9	9	13	15	13	13	13	14	20
L	Max.	16	17.5	20	28.5	30	33	34		38	43	50	51
d2	Standard dimension (mm)	4.3	5.3	4.3	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
	Allowance (mm)	+0.2 0	+0.2 0	+0.2 0	+0.4 0	+0.4 0	+0.4 0	+0.4 0		+0.4 0		+0.4 0	+0.4 0
t	Min.	0.7	0.8	0.9		1.15	1.45	1.7		1.8		1.8	2.0

Selection for the power and booster heater wire terminal

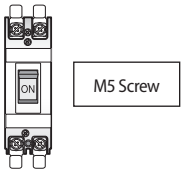
- Connect the cables to the terminal board using the solderless ring terminal.
- Use certified and verified cables.
- Connect using a driver which is able to apply the rated torque to the screws.
- If the terminal is loose, fire may occur caused by arc.
  If the terminal is connected too firmly, the terminal may be damaged.
- External force should not be applied to the terminal block and wires.
- The cable ties to fasten the wire should be an incombustible material, V0 or above.
  (The cable ties should be used to fasten the power wire and they are supplied with the unit.)

Tightening Torque(kgf•cm)		
M3.5	8 ~ 10	Wired remote controller, Communication(F1,F2)
M4	12 ~ 15	1 phase AC power : backup heater, water pump, valve, room controller, solar pump
M5	20 ~ 25	1 phase AC power, heater out, ELCB AC power

- Main PCB



- ELCB



ENGLISH

Wiring works

Grounding work

▶ Grounding must be done by a qualified installer for your safety.

Grounding the power cable

▶ The standard of grounding may vary according to the rated voltage and installation place of the air conditioner.

▶ Ground the power cable according to the following.

Installation place / Power condition	High humidity	Average humidity	Low humidity
Electrical potential of lower than 150V		Perform the grounding work 3. Note 1)	Perform the grounding work 2 if possible for your safety. Note 2)
Electrical potential of higher than 150V	Must perform the grounding work 3. Note 1) (In case of installing circuit breaker)		

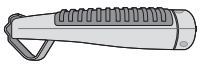
Note 1) Grounding work 3

- Grounding must be done by your installation specialist.
- Check if the grounding resistance is lower than 100Ω. When installing a circuit breaker that can cut the electric circuit in case of a short circuit, the allowable grounding resistance can be 30~500Ω.

Note 2) Grounding at dry place

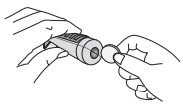
- The grounding resistance is should be lower than 100Ω. (It should not be higher than 250Ω)

✻ **Examples to use cable striper**



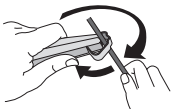
<Cable striper>

1. Adjust the blade position by coin(the controller is at the bottom side of the tool). Fix the blade position according to the outer sheath thickness of the power cable.

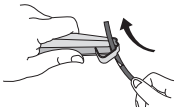


2. Fix the power cable and tool by using the hook at the top side of the tool.

3. Cut out the outer sheath of the power cable by revolving the tool in the direction of the arrow, two or three times.

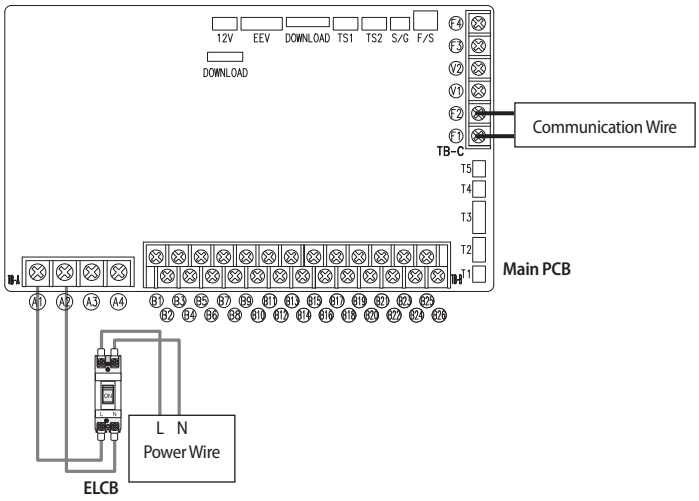


4. At this situation, cut out the outer sheath of the power cable by moving the tool toward the arrow direction expressed.



5. Slightly bend the wire and pull out the cut part of the outer sheath.

Power and communication with outdoor unit



CAUTION

- Be careful when connecting L, N.

Connecting the power wire

1. Connect 'Live' and 'Neutral' power line with 'L, N' of a ELCB.
2. Connect 'L,N' of a ELCB with 'A1 and A2' in TB-A.
3. Connect 'Protective Earth' line with 'Earth screw' In case.

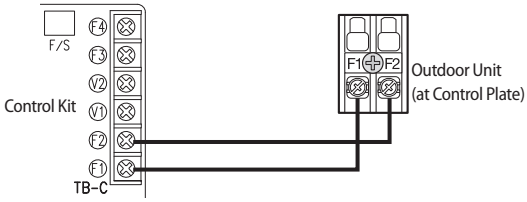
Recommended wire specification

Load	Power Supply	Power Cable	Max. Length	Type GL
		mm^2, wires	m	A
Do NOT use Heater (Water Pump, Valve, Wired RMC)	1Ø, 220-240V, 50Hz	1.5 / 3	L < 10m	10~
		2.5 / 3	10m < L	10~
Use Booster Heater (3kw)		4.0 / 3	L < 10m	30
		6.0 / 3	10m < L	30

- The power cable is not supplied with air conditioner
- This equipment with "IEC 61000-3-12".
- Supply cords of parts of appliances for control kit use shall not be lighter than polychloroprene sheathed flexible cord (Code designation IEC:60245 IEC 57 / CENELEC:H05RN-F)

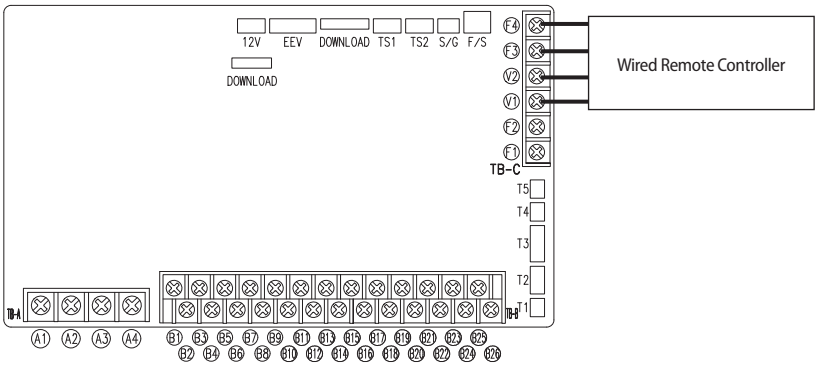
Connecting the communication wire

- Connect 'outdoor unit's F1&F2' with 'control kit's F1&F2 in TB-C' by 2 core cable.



Wiring works

Communication with a wired remote controller



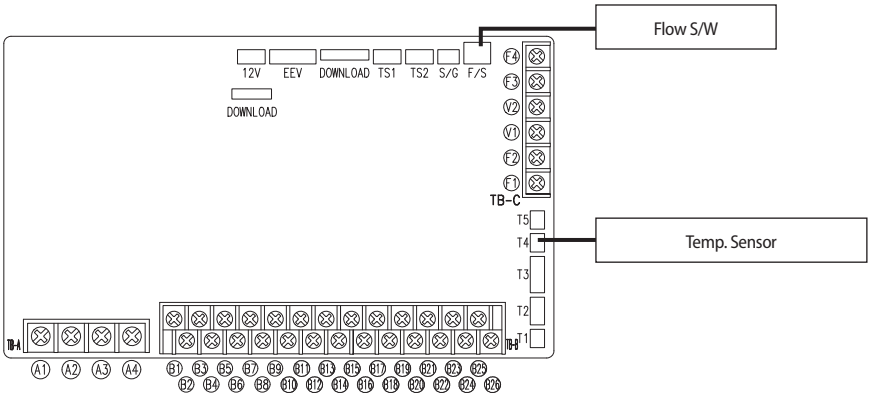
Connecting a wired remote controller

1. Connect 'V1, V2, F3, F4' of TB-C kit with 'V1, V2, F3, F4' of a wired remote controller.

► 2 units (wired remote controllers) are able to be installed on TB-C.

► When 2 units are installed, either one shall has "Master" setting and another one shall have "Slave" settings on a wired remote controller.

Temp. Sensor for DHW and a water Flow S/W



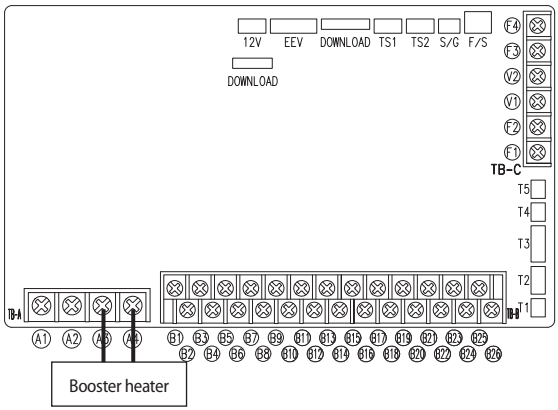
Connecting a temperature sensor wire into a Tank unit

1. Put the sensor side of a temperature sensor wire into the designated location in a tank unit.
2. Connect the other side of the line at T4.

Connecting a flow switch

1. Install a flow switch in water line.
2. Connect a wire of a flow switch into 'F/S' connector.

Booster heater



Connecting a booster heater (in the case of a resistor heater which is under 3kw)

1. Directly connect a 'Booster heater' with 'A3 and A4 ' in TB-A.

► If you use separated 'Thermal fuse', connect 'Thermal fuse' with 'HEATER THERMO' connector.

NOTE
- Wire spec : 4.0 mm²
- Code designation IEC : 60245 IEC 57 / CENELEC : H05RN-F
- Circuit breaker spec : 30A

Connecting a booster heater (in the case of a PTC Heater which is under 3kw)

1. Directly connect a 'Booster heater' with 'A3 and A4 ' in TB-A.

► If you use separated 'Thermal Fuse', connect 'Thermal Fuse' with 'HEATER THERMO' connector.

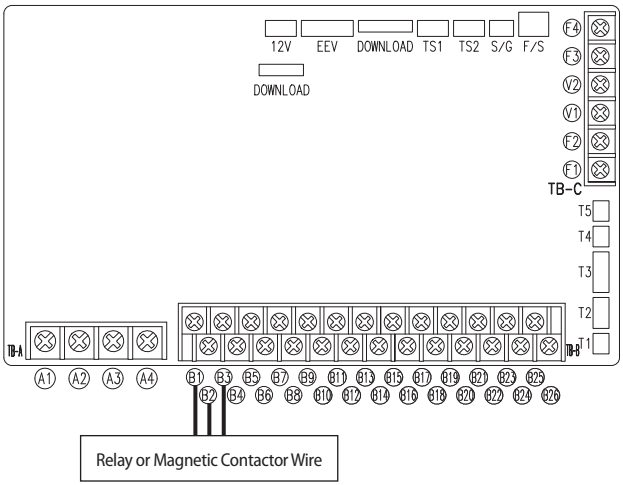
NOTE
- Wire spec : 6.0 mm²
- Code designation IEC : 60245 IEC 57 / CENELEC : H05RN-F
- Circuit breaker spec : 30A

Specification table

Part	Specification
Terminal Block (output)	A3, A4 of TB-A
Connection load	Direct connection a booster heater
Output (A3, A4)	AC 230V (MAX 20A)

Wiring works

Backup heater



Connecting a relay or a magnetic contactor for a backup heater (Not Directly Connect a Backup Heater)

1. Connect a 'relay or a magnetic contactor' to 'B1, B2 and B3' in TB-B.

▶ When a backup heater mode is "ON" at 1st step, a control signal of AC230V goes through B1 and B2.

▶ When a backup heater mode is "ON" at 2nd step, a control signal of AC230V goes through B1 and B3.

NOTE

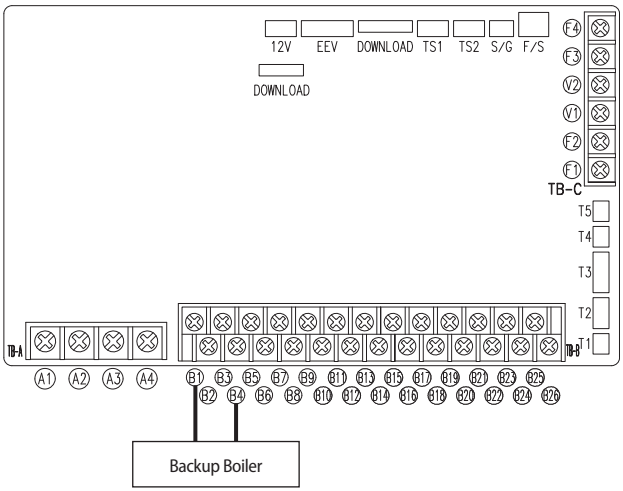
Maximum Power

This port can NOT supply enough power for driving a backup heater.
It's just for providing a ON/OFF control signal.
Maximum power is 0.5A.

Specification table

Part	Specification
Terminal Block (output)	Step1 : B1, B2 of TB-B Step2 : B1, B3 of TB-B
Connection load	Relay or Magnetic contactor for a control signal
Output (B1, B2 or B1,B3)	AC 230V (MAX 0.5A)

Backup boiler



Connecting a backup boiler

1. Connect 'Operation signal wire for a backup boiler' with 'B1, B4' in TB-B.

▶ When a backup heater mode is "ON", a control signal of AC230V goes through B1 and B4.

NOTE

Maximum Power

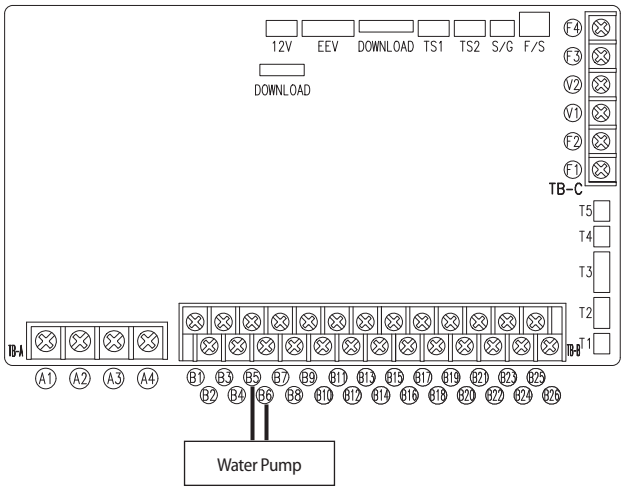
This port can NOT supply enough power for driving a backup boiler.
It's just for providing a ON/OFF control signal.
Maximum power is 0.5A.

Specification table

Part	Specification
Terminal Block (output)	B1, B4 of TB-B
Connection load	Relay or Magnetic contactor for a control signal
Output (B1, B4)	AC 230V (MAX 0.5A)

Wiring works

Water pump



Connecting a water pump

1. Directly connect a 'Water Pump' with 'B5, B6' in TB-B.

► AC230V goes through B5 and B6 to turn a water pump on.

NOTE

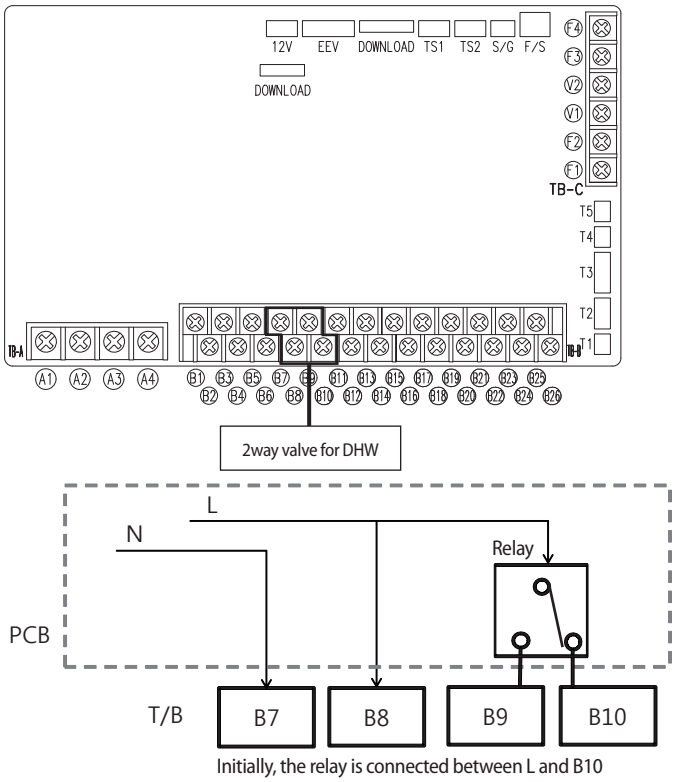
Maximum Power

This port can supply power for small-medium sized water pump.
Maximum power is 2A (Total power consumption must be under 2A)
(If total power consumption is over 2A, use a relay or a magnetic contactor between TB and a water pump)

Specification table

Part	Specification
Terminal block (output)	B5, B6
Connection load	Water pump (under 2A) Relay or Magnetic contactor (over 2A)
Output (B5, B6)	AC 230V (MAX 2A)

2way valve for DHW



ENGLISH

Connecting a 2way valve (for DHW)

1. Directly connect a '2way valve for DHW' with 'B7, B8, B9 and B10' in TB-B.

NOTE

Maximum Power
This port can supply power for small-medium sized valve.
Maximum power is 0.5A
(If total power consumption is over 2A, use a relay or a magnetic contactor)

Specification table

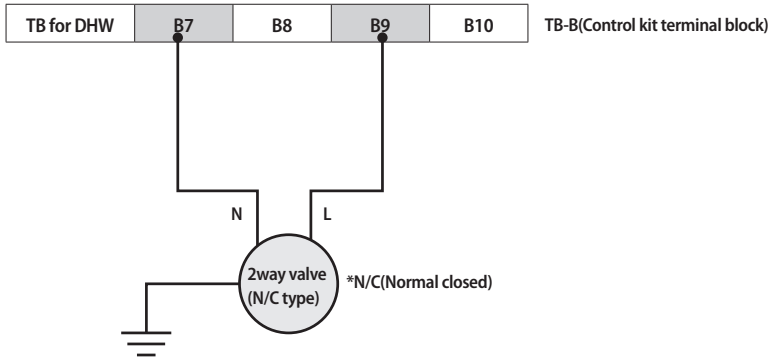
Part	Specification
Terminal block (Output)	B7 : Output Power N B8 : Output Power L B9 : Output Power L (switched) B10 : Output Power L (switched)
Connection load	Direct connect 2way valves (under 0.5A)
Output (B7~B10)	AC 230V (MAX 0.5A / 120W)

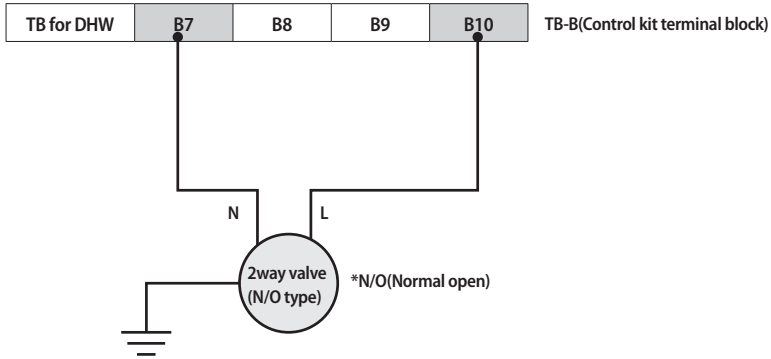
Wiring works

Wiring a 2way valve for DHW

1. Using the appropriate cable, connect a valve control cable to the TB-B(refer to wiring diagram)

▶ Initial status of the valve for DHW has to be **closed. (no flow)**





WARNING

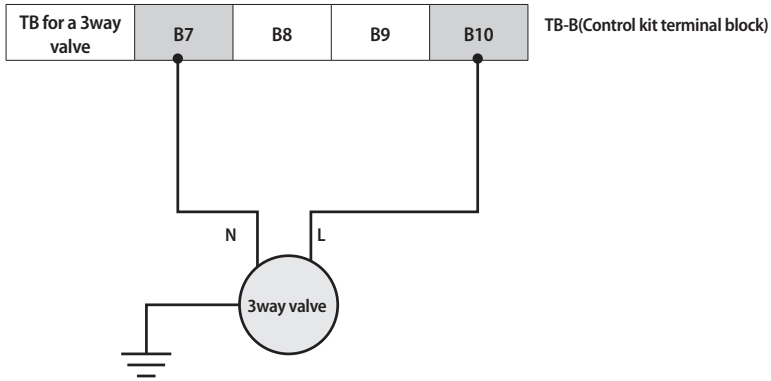
• Wiring is different for a N/C(normal closed) valve and a N/O(normal open) valve.

2. Fix the cables with cable ties to the cable tie mountings to ensure strain relief.

Wiring a 3way valve

1. Using the appropriate cable, connect the valve control cable to the TB-B(refer to wiring diagram)

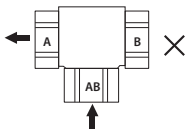
▶ Initial status of a valve for DHW has to be **closed.(no flow)**



▶ If there are many wires which have to be connected with L line in a 3 way valve, Connect all of them to B10.

WARNING

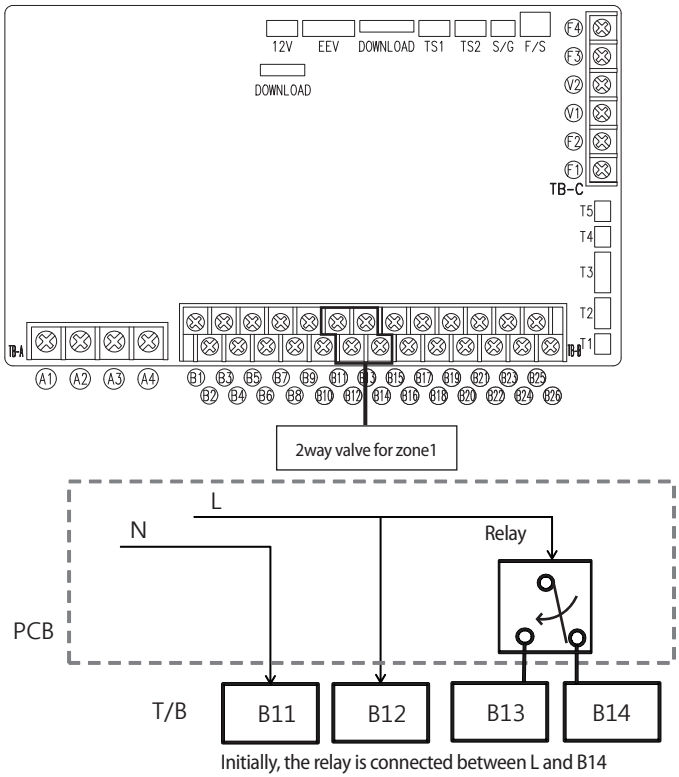
• Before completing installation of 3 way valve, check the direction of the opened port.



ENGLISH

Wiring works

2way valve for zone 1



Connecting a 2way valve (for Zone1)

1. Directly connect a '2way valve for ZONE.1' with 'B11, B12, B13 and B14 ' in TB-B.

NOTE

Maximum Power
This port can supply power for small-medium sized valve.
Maximum power is 0.5A
(If total power consumption is over 2A, use a relay or a magnetic contactor)

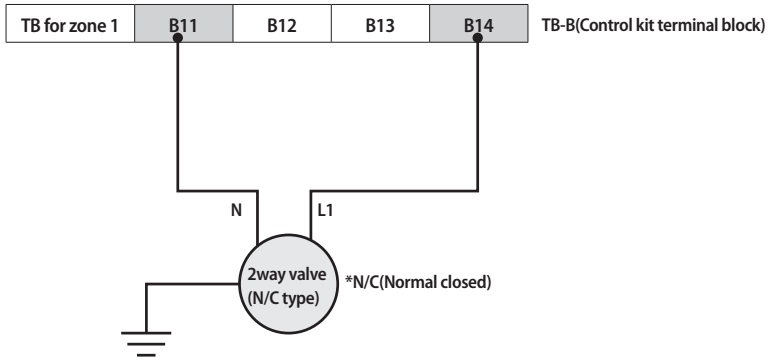
Specification table

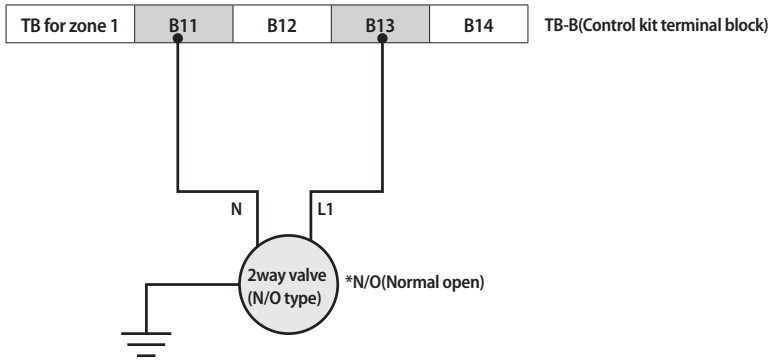
Part	Specification
Terminal block (Output)	B11 : Output Power N B12 : Output Power L B13 : Output Power L (switched) B14 : Output Power L (switched)
Connection load	Direct connect 2way valves (under 0.5A)
Output (B11~B14)	AC 230V (MAX 0.5A / 120W)
Condition for operation	(NOT Define)

Wiring a 2way valve for zone1

1. Using the appropriate cable, connect a valve control cable to the TB-B(refer to wiring diagram)

▶ Initial status of a valve for zone1 has to be **opened.(flow)**





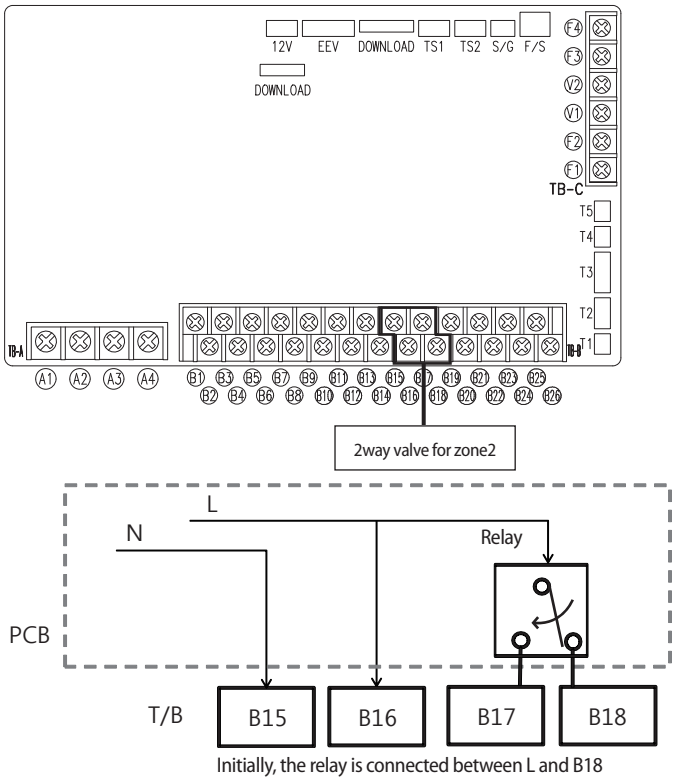
WARNING

- Wiring is different for a N/C(normal closed) valve and a N/O(normal open) valve.

2. Fix the cables with cable ties to the cable tie mountings to ensure strain relief.

Wiring works

2way valve for zone 2



Connecting a 2way valve (for Zone2)

1. Directly connect a '2way valve for ZONE.2' with 'pin B15, B16, B17 and B18' in TB-B.

NOTE

Maximum Power
This port can supply power for small-medium sized valve.
Maximum power is 0.5A
(If total power consumption is over 2A, use a relay or a magnetic contactor)

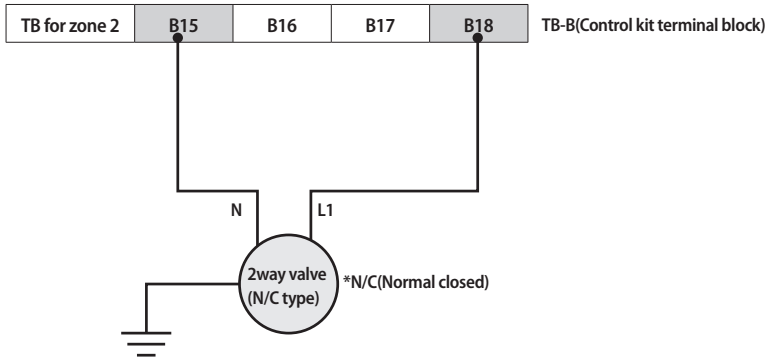
Specification table

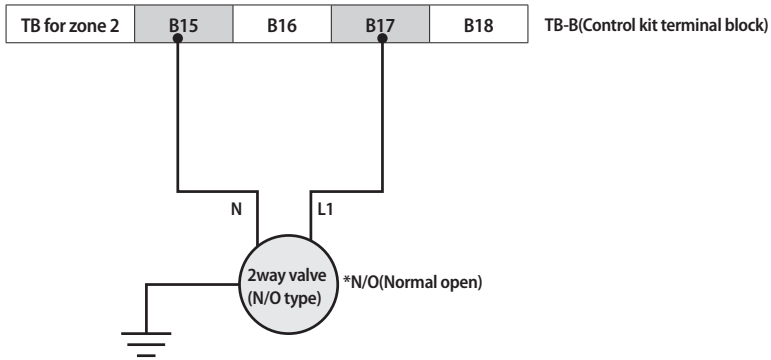
Part	Specification
Terminal block (Output)	B15 : Output power N B16 : Output Power L B17 : Output Power L (switched) B18 : Output Power L (switched)
Connection load	Direct connect 2way valves (under 0.5A)
Output (B15~B18)	AC 230V (MAX 0.5A / 120W)
Condition for operation	(NOT Define)

Wiring a 2way valve for zone2

1. Using the appropriate cable, connect the valve control cable to the TB-B(refer to wiring diagram)

▶ Initial status of a valve for zone1 has to be **opened.(flow)**





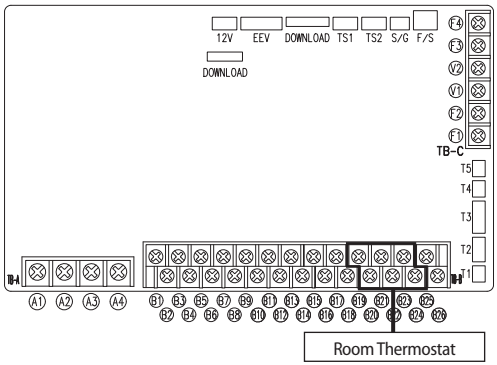
WARNING

• Wiring is different for a N/C(normal closed) valve and a N/O(normal open) valve.

2. Fix the cables with cable ties to the cable tie mountings to ensure strain relief.

Wiring works

Wired room thermostat



Connecting wired room thermostat (On/Off Controller)

1. Connect a 'Wired room thermostat' with 'B19, B20, B21, B22, B23 and B24' in TB-B.

- ▶ If B19 & B21 get AC230V, control kit is operated for Cooling at Zone1
- ▶ If B19 & B22 get AC230V, control kit is operated for Heating at Zone1
- ▶ If B19 & B23 get AC230V, control kit is operated for Cooling at Zone2
- ▶ If B19 & B24 get AC230V, control kit is operated for Heating at Zone2

NOTE **Maximum Consumption Power**
Each port use under 10mA

Specification table

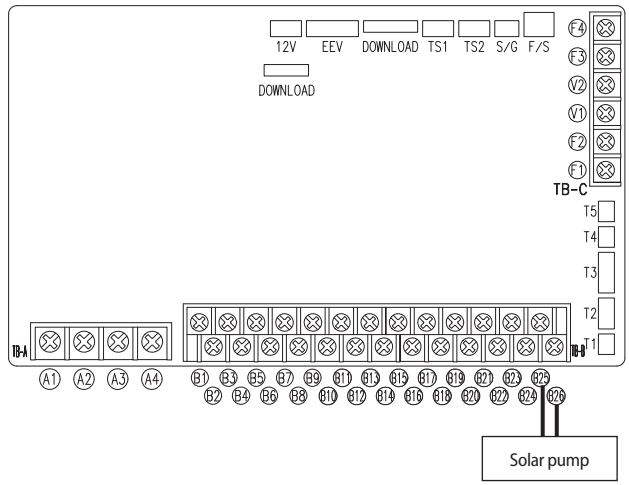
Part	Specification
Terminal block (output)	B19 : Output Power N (power supplying port for Thermostat) B20 : Output Power L (power supplying port for Thermostat)
Terminal block (input)	B21 : Detecting switched L line for cooling mode for zone1 B22 : Detecting switched L line for heating mode for zone1 B23 : Detecting switched L line for cooling mode for zone2 B24 : Detecting switched L line for heating mode for zone2
Connection load	Connect Room On/Off Controller
Output (B19, B20)	AC230V (Max 0.5A)
Input (B21, B22, B23, B24)	AC230V (Max 10mA)
Condition for operation	B21 detects L line, a valve for Zone1 will be opened & outdoor unit will operate for cooling mode. B22 detects L line, a valve for Zone1 will be opened & outdoor unit will operate for heating mode. B23 detects L line, a valve for Zone2 will be opened & outdoor unit will operate for cooling mode. B24 detects L line, a valve for Zone2 will be opened & outdoor unit will operate for heating mode.

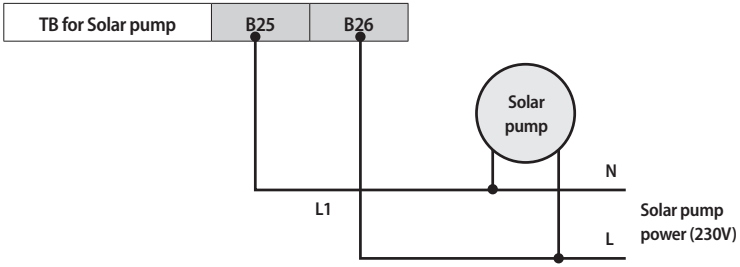
Example

Target zone	Zone 1
Thermostat on/off controller's output signal;	Only Heat

- ▶ Connect a thermostat on/off controller's power to B19, B20 and connect output of a thermostat on/off controller to B21.

Solar Pump





Connecting solar pump

1. Connect a 'Solar pump power line' with 'B25, B26 ' in TB-B.

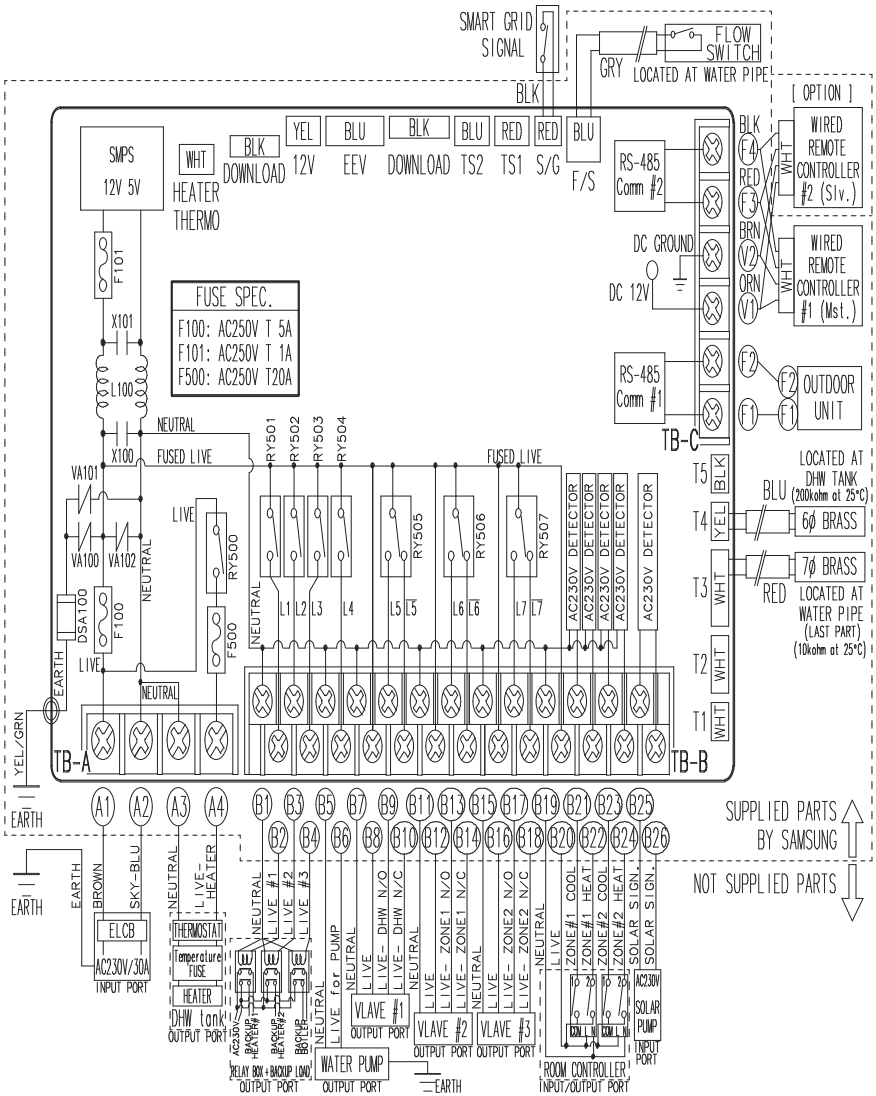
NOTE **Maximum Consumption Power**
- Each port use under 10mA
- B25, B26 ports are an input port for detection and they do NOT supply power to a solar pump.

Specification table

Part	Specification
Terminal block (input)	B25 : input for detection Power N B26 : input for detection Power L
Connection load	Direct connect from solar pump (AC230V)
Input (B25~B26)	AC 230V (MAX 10mA)
Condition for operation	(NOT Define)

Wiring schematics

Wiring diagram



Setting option switches and function of keys

Field setting mode

Field Setting Value(FSV) Table

- Code 10✳✳ : Upper and lower temperature limits of each operation mode of wired remote controller Heating(Water Out, Room), Cooling(Water Out, Room), DHW(Tank)
- Code 20✳✳ : Water law design and external room thermostat Heating(2 WL's for floor & FCU), Cooling(2 WL's for floor & FCU), WL & Thermostat types

Field Setting Value								
Main Menu & Code	**Sub Menu Function**	**Description**	**Sub Code**	**Default**	**Min**	**Max**	**Step**	**Unit**
Remote Controller Setting Range Code 10✳✳	Water Out Temp for Cooling	Max	✳✳11	25	18	25	1	˚C
		Min	✳✳12	16	5	18	1	˚C
	Room Temp for Cooling	Max	✳✳21	30	24	30	1	˚C
		Min	✳✳22	18	18	22	1	˚C
	Water Out Temp for Heating	Max	✳✳31	55	37	55	1	˚C
		Min	✳✳32	25	15	37	1	˚C
	Room Temp for heating	Max	✳✳41	30	24	30	1	˚C
		Min	✳✳42	16	16	22	1	˚C
	DHW Tank Temp	Max	✳✳51	50	50	70	1	˚C
		Min	✳✳52	40	30	40	1	˚C
Water Law Code 20✳✳	Outdoor Temp for Water Law (Heating)	Point ①	✳✳11	-10	-20	5	1	˚C
		Point ②	✳✳12	15	10	20	1	˚C
	Water Out Temp for WL1 Heating (WL1-Floor)	Point ①	✳✳21	40	40	55	1	˚C
		Point ②	✳✳22	25	17	37	1	˚C
	Water Out Temp for WL2 Heating (WL2-Fan Coil Unit)	Point ①	✳✳31	50	40	55	1	˚C
		Point ②	✳✳32	35	17	37	1	˚C
	Heating Water Law for Auto Mode	WL Type	✳✳41	1(WL1)	1	2(WL2)	-	-
	Outdoor Temp for Water Law (Cooling)	Point ①	✳✳51	30	25	35	1	˚C
		Point ②	✳✳52	40	35	45	1	˚C
	Water Out Temp for WL1 Cooling (WL1-Floor)	Point ①	✳✳61	25	18	25	1	˚C
		Point ②	✳✳62	18	5	18	1	˚C
	Water Out Temp for WL2 Cooling (WL2-Fan Coil Unit)	Point ①	✳✳71	18	18	25	1	˚C
		Point ②	✳✳72	5	5	18	1	˚C
	Cooling Water Law for Auto Mode	WL Type	✳✳81	1(WL1)	1	2(WL2)	-	-
	External Thermostat Application	#1(Floor)	✳✳91	0(No)	0	1(Yes)	-	-
		#2(FCU)	✳✳92	0(No)	0	1(Yes)	-	-

Setting option switches and function of keys

- Code 30✳✳ : User's options for domestic hot water(DHW) tank heating
  - 3011 : Application of DHW tank in user's system
  - 302✳ : Heat pump variables for tank temp. control and combination with booster heater
  - 303✳ : Booster heater variables for combination with heat pump
  - 304✳ : Periodical disinfection heating of water tank
  - 305✳ : Off timer for power DHW mode by hot key of wired remote controller
  - 3061 : Combination of external field solar panel for with heat pump for DHW heating
  - 307✳ : Default direction of the DHW valve or Zone #1, #2 valve

Field Setting Value								
Main Menu & Code	**Sub Menu Function**	**Description**	**Sub Code**	**Default**	**Min**	**Max**	**Step**	**Unit**
DHW Code 30✳✳	Domestic Hot Water Tank	Application	✳✳11	0(No)	0	1(Yes)	-	-
	Heat Pump	Max Temp	✳✳21	50	45	55	1	˚C
		Stop	✳✳22	2	2	10	1	˚C
		Start	✳✳23	5	1	20	1	˚C
		Min Operation	✳✳24	5	0	20	1	min
		Max Operation	✳✳25	30	5	95	5	min
		Interval	✳✳26	3	0	10	0.5	hour
	Booster Heater	Application	✳✳31	1(On)	0(OFF)	1	-	-
		Delay Time	✳✳32	20	20	95	5	min
		Overshoot	✳✳33	0	0	4	1	˚C
		Compensation Temp	✳✳34	10	0	20	1	˚C
	Disinfection	Application	✳✳41	1(On)	0(OFF)	1	-	-
		Interval	✳✳42	Fri	Mon	Sun	1(All)	day
		Start Time	✳✳43	23	0	23	1	o'clock
		Target Temp	✳✳44	70	40	70	5	˚C
		Duration	✳✳45	10	5	60	5	min
	Power DHW by User Input	Timer OFF Function	✳✳51	0(Off)	0	1(On)	-	-
		Timer Duration	✳✳52	60	30	300	10	min
	Solar Panel	H/P Combination	✳✳61	0	0	1(Yes)	-	-
	3-way Valve	Default direction	✳✳71	0(Room)	0	1(Tank)	-	-
	Direction of the valves	DHW valve or 3-way valve	✳✳71	0(Tank)	0	1(Room)	-	-
		Zone #1	✳✳72	1(Room)	0	1	-	-
		Zone #2	✳✳73	1(Room)	0	1	-	-

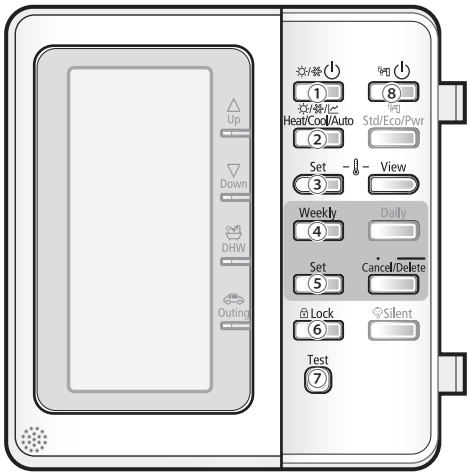
- Code 40✳✳ : User's options for heating devices including internal backup heater and external boiler
  - 401✳ : Space/DHW heating priority and control variables
  - 402✳ : Backup/Booster heater priority and control variables
  - 403✳ : Additional backup boiler operating variables
- Code 50✳✳ : User's options for extra functions
  - 501✳ : New target temperatures of each mode by "Outgoing" hot key of remote controller
  - 5021 : Temperature difference between before & after values in "Economic" DHW mode
  - 503✳ : Time-division multi(TDM) variables for combining operation b/w A2A and A2W

Field Setting Value								
Main Menu & Code	**Sub Menu Function**	**Description**	**Sub Code**	**Default**	**Min**	**Max**	**Step**	**Unit**
Heating Code 40✳✳	Heat Pump	Heating/DHW Priority	✳✳11	0(DHW)	0	1(Heating)	-	-
		Outdoor Temp for Priority	✳✳12	0	-15	20	1	˚C
		Heating Off	✳✳13	25	14	35	1	˚C
		Overshoot	✳✳14	2	1	4	1	˚C
	Backup Heater	Application	✳✳21	1(On)	0(Off)	1	-	-
		BUH/BSH Priority	✳✳22	0(Both)	0	2(BSH)	1	-
		For back-up use only	✳✳23	1(On)	0(Off)	1	-	-
		Threshold Temp	✳✳24	0	-15	35	1	˚C
	Backup Boiler	Application	✳✳31	0(No)	0	1(Yes)	-	-
		Boiler Priority	✳✳32	0(Off)	0	1(On)	-	-
		Threshold Temp	✳✳33	-15	-20	5	1	˚C
Others Code 50✳✳	Outing	Water Out Temp for Cooling	✳✳11	25	5	25	1	˚C
		Room Temp for Cooling	✳✳12	30	18	30	1	˚C
		Water Out Temp for Heating	✳✳13	25	15	55	1	˚C
		Room Temp for Heating	✳✳14	16	16	30	1	˚C
		Auto Cooling WL1 Temp	✳✳15	25	5	25	1	˚C
		Auto Cooling WL2 Temp	✳✳16	25	5	25	1	˚C
		Auto Heating WL1 Temp	✳✳17	15	15	55	1	˚C
		Auto Heating WL2 Temp	✳✳18	15	15	55	1	˚C
		Target Tank Temp	✳✳19	30	30	70	1	˚C
	DHW Saving Mode	Temp Difference	✳✳21	5	0	40	1	˚C
	TDM Variable	A2A Max Operation Time	✳✳31	30	5	60	5	min
		A2W Min Operation Time	✳✳32	3	0	10	1	min
	Power Peak Control	Application	✳✳41	0(No)	0	1(Yes)	-	-
		Select forced off parts	✳✳42	1	0	3	-	-
		Using input voltage	✳✳43	1(High)	0(Low)	1	-	-

- Code 5042

[D-00]	Compressor	Back up heater	Booster heater
0 (Default)	Forced off	Forced off	Forced off
1	Forced off	Forced off	Permitted
2	Forced off	Permitted	Forced off
3	Forced off	Permitted	Permitted

Test operation



Set – View	Enter the Self test mode
Cancel/Delete	Quit the Self test Mode / Make the function "Off"
View	Read the temperature sensors
	Water Pump
Heat/Cool/Auto	Back up Heater 1st state
Set	Back up Heater 2nd state
Weekly	Booster Heater
Set	Back up Boiler
Lock	DHW valve
Test	Zone #1 Valve
	Zone #2 Valve
	Not available

1. Self test mode

▶ To enter the Self test mode
- Self test mode is implemented ignoring outdoor unit communication error.
- This mode is activated after setting DIP #5 "ON" and resetting power.
- Press both "Set" and "View" buttons over 3 sec. to enter the self test mode.
- Some buttons have different functions from the normal mode.

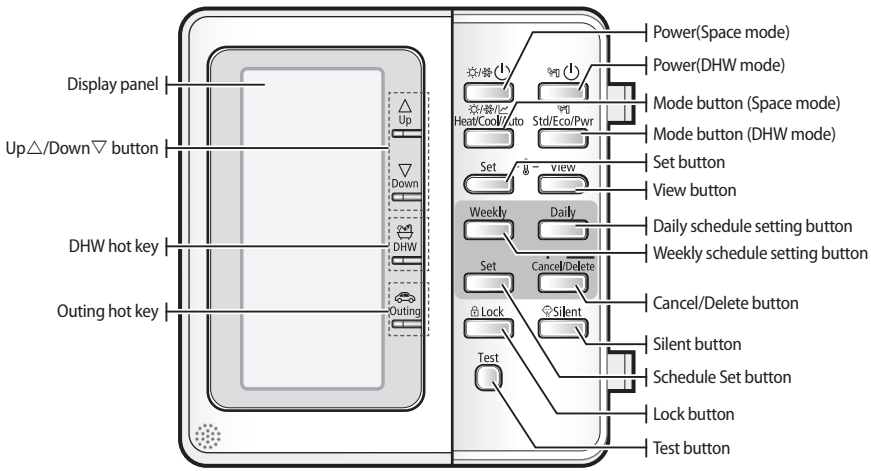
▶ To quit the self test mode
- Press "Cancel " button over 3 sec.

2. How to use
- #1~#8, View and Cancel buttons are available in the self test mode. Inputs by other buttons are ignored and "Not available" icon pops up.
- All the functions' default states are "OFF"
- Pressing the button (#1~#8) makes its function "On" and Cancel button makes all the functions "OFF"
- Back up Heater 1(button#2) and 2(button#3) are not available when the Water Pump (button #1) is not "On"
- Each Zone Valve (Button #7, #8) and DHW Valve (button #6) cannot be "On" simultaneously.
- Every time you press the View button, it shows temperature read by sensor in order. TW1 (water in) → TW2(water out) →TW3(after Backup Heater) → Water Tank → Room. It goes back to the previous state when there is no View input for 5 sec.

Before running the system

Make sure to confirm if refrigerant leakage, looseness of power cords and electric wires after completing installation of kit and heat pump systems.

Control panel



Troubleshooting

This page is showing the useful technical information for diagnosing and making error correction for various troubles which may occur in the system. Before contacting your local installers, read this page carefully and implement visual inspections of the whole system.

Possible causes	Actions
Heating or cooling performance are not good	• Check the temperature adjustment in the controller • Check if the water is filled in the system fully • Check the water flow rate
Loud noise from water pump	• Check air purge valve (Make it open and close) • Check if the water is filled in the system fully • Check if strainer is full of foreign materials
System does not work even power source does not have problem	• Check if wiring connections are installed well • Check if water flow rate is low (system will not work in condition of below 16 LPM)
Solar pump is not working	• Check TB-B and wire connections
Remote controller cannot be set	• Check if it has the mode of master or slave • If there are 2 controllers, either one shall have slave mode.

CAUTION

- Always make sure to turn off the system before implementing the visual checking or disassemble for detail checks.

WARNING

- Incorrect handling of thermostat, safety valve or other valves may lead to tank rupture. When servicing the unit follow instructions carefully:
  - Always turn off main power supply when water supply is being shut off.
  - Test the free operation of the safety valve regularly by opening the valve ensuring the water flows freely.
  - Electrical connection and all servicing of the electrical components should only be carried out by an authorized electrician.
  - Fitting and all servicing of plumbing fixtures should only be carried out by an authorized installer.
  - When replacing the thermostat, safety valve or any other valve or part supplied with this unit, use only approved parts of the same specification.

Error codes

If the unit has some problem to work properly, the LED on hydro unit will flash and some error codes will be displayed on the controller. The following table described the explanation of error codes on the LCD display.

Thermistor

- Check its resistance. 10kΩ@24℃ (Outdoor unit), 220kΩ@24℃ (DHW Tank, Solar)
- Check its location as shown at the diagram.
- Check its contact status with pipe.
- Final solution is to change parts.

Display	Explanation
122	EVA inlet thermistor SHORT or OPEN
123	EVA outlet thermistor SHORT or OPEN
653	Wired remote controller thermistor SHORT or OPEN
654	FRAM Read/Write Error (Wired remote controller data error)
901	Water inlet (PHE) thermistor SHORT or OPEN
902	Water outlet (PHE) outlet thermistor SHORT or OPEN
903	Water outlet (Back up Heater) thermistor SHORT or OPEN
904	Water tank thermistor SHORT or OPEN
601	Abnormal communication between wired remote controller and hydro unit
604	Communication tracking error between wired remote controller and hydro unit
654	FRAM Read/Write error (Wired remote controller data error)
911	Flow switch 'OFF' error (Condition: Flow switch signal is off during 10 seconds when the water pump signal is ON)
912	Flow switch 'ON' error (Condition: Flow switch signal is on during 10 seconds when the water pump signal is off)