

Panasonic®



Installation Manual

AIR-TO-WATER HYDROMODULE + TANK

ADC0916H9E8

Required tools for Installation Works

1 Philips screw driver	5 Pipe cutter	9 Megameter	58.8 N•m (5.8 kgf•m)
2 Level gauge	6 Reamer	10 Multimeter	65 N•m (6.5 kgf•m)
3 Electric drill	7 Knife	11 Torque wrench	117.6 N•m (11.8 kgf•m)
4 Spanner	8 Measuring tape	42 N•m (4.2 kgf•m)	

SAFETY PRECAUTIONS

- Read the following "SAFETY PRECAUTIONS" carefully before installation of Air-To-Water Hydromodule + Tank (here after referred to as "Tank Unit").
- Electrical works and water installation works must be done by licensed electrician and licensed water system installer respectively. Be sure to use the correct rating and main circuit for the model to be installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation due to ignorance or negligence of the instructions will cause harm or damage, and the seriousness is classified by the following indications.
- Please leave this installation manual with the unit after installation.

	WARNING	This indication shows the possibility of causing death or serious injury.
	CAUTION	This indication shows the possibility of causing injury or damage to properties only.

The items to be followed are classified by the symbols:

	Symbol with white background denotes item that is PROHIBITED from doing.
	Symbol with dark background denotes item that must be carried out.

- Carry out test run to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.
- If there is any doubt about the installation procedure or operation, always contact the authorized dealer for advice and information.

WARNING

	Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.
	Do not tie up the power supply cord into a bundle by band. Abnormal temperature rise on power supply cord may happen.
	Keep plastic bag (packaging material) away from small children, it may cling to nose and mouth and prevent breathing.
	Do not use pipe wrench to install refrigerant piping. It might deform the piping and cause the unit to malfunction.
	Do not purchase unauthorized electrical parts for installation, service, maintenance and etc.. They might cause electrical shock or fire.
	Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury etc.
	Do not use the hot water produced by the Tank Unit for drinking or food preparation. It may cause illness to the user.
	Do not place containers with liquids on top of the Tank Unit. It may cause Tank Unit damage and/or fire could occurs if they leak or spill onto the Tank Unit.
	Do not use joint cable for Tank Unit / Outdoor Unit connection cable. Use specified Tank Unit / Outdoor Unit connection cable, refer to instruction CONNECT THE CABLE TO THE TANK UNIT and connect tightly for Tank Unit / Outdoor Unit connection. Clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat up or fire at the connection.
	For electrical work, follow local wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.
	For water circuit installation work, follow to relevant European and national regulations (including EN61770) and local plumbing and building regulation codes.
	Engage dealer or specialist for installation. If installation done by the user is defective, it will cause water leakage, electrical shock or fire.
	<ul style="list-style-type: none"> • This is a R410A model, when connecting the piping, do not use any existing (R22) pipes and flare nuts. Using such same may cause abnormally high pressure in the refrigeration cycle (piping), and possibly result in explosion and injury. Use only R410A refrigerant. • Thickness for copper pipes used with R410A must be 0.8 mm or more. Never use copper pipes thinner than 0.8 mm. • It is desirable that the amount of residual oil is less than 40 mg/10 m.

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⚠	When install or relocate Tank Unit, do not let any substance other than the specified refrigerant, eg. air etc mix into refrigerant cycle (piping). Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
⚠	Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire.
⚠	Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
⚠	This equipment is strongly recommended to be installed with Residual Current Device (RCD) on-site according to the respective national wiring rules or country-specific safety measures in terms of residual current.
⚠	During installation, install the refrigerant piping properly before run the compressor. Operation of compressor without fixing refrigeration piping and valves at opened condition will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
⚠	During pump down operation, stop the compressor before remove the refrigeration piping. Removal of refrigerant piping while compressor is operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.
⚠	Tighten the flare nut with torque wrench according to specified method. If the flare nut is over tightened, after a long period, the flare may break and cause refrigerant gas leakage.
⚠	After completion of installation, confirm there is no leakage of refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.
⚠	Ventilate the room if there is refrigerant gas leakage during operation. Extinguish all fire sources if present. It may cause toxic gas when the refrigerant contacts with fire.
⚠	Only use the supplied or specified installation parts, else, it may causes unit vibrate loose, water leakage, electrical shock or fire.
⚠	If there is any doubt about the installation procedure or operation, always contact the authorized dealer for advice and information.
⚠	Select a location where in case of water leakage, the leakage will not cause damage to other properties.
⚠	When installing electrical equipment at wooden building of metal lath or wire lath, in accordance with electrical facility standard, no electrical contact between equipment and building is allowed. Insulator must be installed in between.
⚠	Any work carried out on the Tank Unit after removing any panels which is secured by screws, must be carried out under the supervision of authorized dealer and licensed installation contractor.
⚠	This system is multi supply appliance. All circuits must be disconnected before accessing the unit terminals.
⚠	For cold water supply has a backflow regulator, check valve or water meter with check valve, provisions for thermal expansion of water in the hot water system must be provided. Otherwise it will cause water leakage.
⚠	The piping installation work must be flushed before Tank Unit is connected to remove contaminants. Contaminants may damage the Tank Unit components.
⚠	This installation may be subjected to building regulation approval applicable to respective country that may require to notify the local authority before installation.
⚠	The Tank Unit must be shipped and stored in upright condition and dry environment. It may laid on its back when being moved into the building.
⚠	Work done to the Tank Unit after remove the front plate cover that secured by screws, must be carried out under the supervision of authorized dealer, licensed installation contractor, skilled person and instructed person.
⚠	This unit must be properly earthed. The electrical earth must not be connected to a gas pipe, water pipe, the earth of lightning rod or a telephone. Otherwise there is a danger of electrical shock in the event of an insulation breakdown or electrical earth fault in the Tank Unit.
⚠ CAUTION	
⊘	Do not install the Tank Unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
⊘	Do not release refrigerant during piping work for installation, re-installation and during repairing a refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
⊘	Do not install this appliance in a laundry room or other high humidity location. This condition will cause rust and damage to the unit.
⊘	Make sure the insulation of power supply cord does not contact hot part (i.e. refrigerant piping, water piping) to prevent from insulation failure (melt).
⊘	Do not apply excessive force to water pipes that may damage the pipes. If water leakage occurs, it will cause flooding and damage to other properties.
⊘	Do not transport the Tank Unit with water inside the unit. It may cause damage to the unit.
⚠	Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
⚠	Select an installation location which is easy for maintenance.
⚠	Power supply connection to Tank Unit. <ul style="list-style-type: none"> ● Power supply point should be in easily accessible place for power disconnection in case of emergency. ● Must follow local national wiring standard, regulation and this installation instruction. ● Strongly recommended to make permanent connection to a circuit breaker. <ul style="list-style-type: none"> - Power Supply 1: Use approved 20A 4-poles circuit breaker with a minimum contact gap of 3.0mm. - Power Supply 2: Use approved 20A 4-poles circuit breaker with a minimum contact gap of 3.0mm.
⚠	Ensure the correct polarity is maintained throughout all wiring. Otherwise, it will cause electrical shock or fire.
⚠	After installation, check the water leakage condition in connection area during test run. If leakage occurs, it will cause damage to other properties.
⚠	If the Tank Unit not operates for long time, the water inside the Tank Unit should be drained.
⚠	Installation work. It may need three or more people to carry out the installation work. The weight of Tank Unit might cause injury if carried by one person.

Attached accessories

No.	Accessory part	Qty.	No.	Accessory part	Qty.
1	Adjustable Feet	4	3	Packing	1
2	Drain Elbow	1	4	Remote Controller Cover	1

Optional Accessories

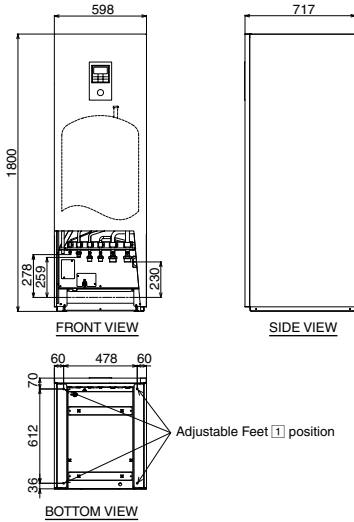
No.	Accessories part	Qty.
5	Optional PCB (CZ-NS4P)	1
6	Network Adaptor (CZ-TAW1) and Extension Cable (CZ-TAW1-CBL)	1

Field Supply Accessories (Optional)

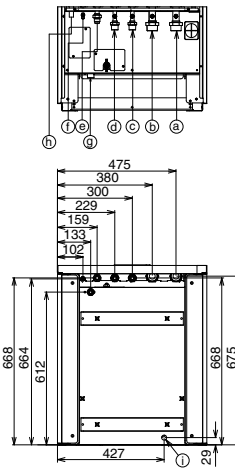
No.	Part	Model	Specifications	Maker	
i	2-way valve kit *Cooling model	Electromotoric Actuator	SFA21/18	AC230V	Siemens
		2-port Valve	VVI46/25		Siemens
ii	Room thermostat	Wired	PAW-A2W-RTWIRED	AC230V	-
		Wireless	PAW-A2W-RTWIRESLESS		
iii	Mixing valve	-	167032	AC230V	Caleffi
iv	Pump	-	Yonos 25/6	AC230V	Wilo
v	Buffer tank sensor	-	PAW-A2W-TSBU	-	-
vi	Outdoor sensor	-	PAW-A2W-TSOD	-	-
vii	Zone water sensor	-	PAW-A2W-TSHC	-	-
viii	Zone room sensor	-	PAW-A2W-TSRT	-	-
ix	Solar sensor	-	PAW-A2W-TSSO	-	-

■ It is recommended to purchase the field supply accessories listed in above table.

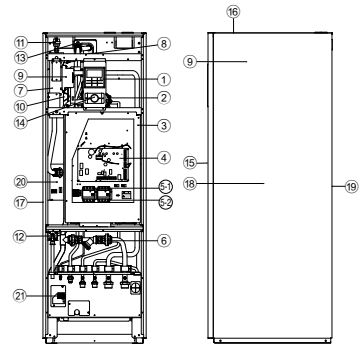
Dimension Diagram



Tube Position Diagram



Main Components Diagram



- ① Remote Controller
- ② Water Pump
- ③ Control Board Cover
- ④ Main PCB
- ⑤ Three Phase RCCB (Main Power)
- ⑥ Three Phase RCCB (Backup Heater)
- ⑦ Water Filter Set
- ⑧ Heater Assembly
- ⑨ 3-Way Valve (Not Visible)
- ⑩ Overload Protector (Not Visible)
- ⑪ Expansion Vessel (Not Visible)
- ⑫ Air Purge Valve
- ⑬ Pressure Relief Valve
- ⑭ Flow Sensor
- ⑮ Water Pressure Gauge
- ⑯ Front Plate
- ⑰ Top Plate
- ⑱ Right Plate
- ⑲ Left Plate
- ⑳ Rear Plate
- ㉑ Tank Sensor (Not Visible)
- ㉒ Safety Relief Valve

Tube Connector	Function	Connector Size
ⓐ	Water Inlet (From Space Heating/Cooling)	R 1 1/4"
ⓑ	Water Outlet (To Space Heating/Cooling)	R 1 1/4"
ⓒ	Cold Water Inlet (Domestic Hot Water Tank)	R 3/4"
ⓓ	Hot Water Outlet (Domestic Hot Water Tank)	R 3/4"
ⓔ	Refrigerant Gas	7/8-14UNF
ⓕ	Refrigerant Liquid	5/8-18UNF
ⓖ	Domestic Hot Water Tank Discharge (Drain Tap) Type: Ball Valve	Rc 1/2"
ⓗ	Pressure Relief Valve Drainage	---
Ⓢ	Drain Water Hole	---

Model	Capacity (L)	Weight (kg)	
		Empty	Full
ADC0916H9E8	185	126	311

1 SELECT THE BEST LOCATION

- Install the Tank Unit in indoors with frost free weather proof location only.
- Must install on a flat horizontal and solid hard surface.
- There should not be any heat source or steam near the Tank Unit.
- A place where air circulation in the room is good.
- A place where drainage can be easily done (e.g. Utility room).
- A place where Tank Unit's operation noise will not cause discomfort to the user.
- A place where Tank Unit is far from door way.

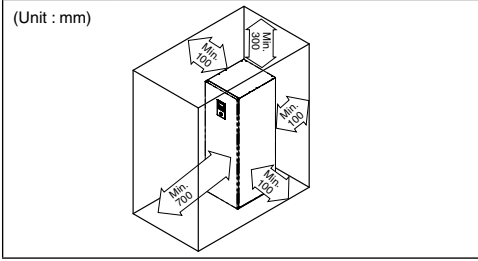
- A place where accessible for maintenance.
- Ensure to keep minimum distance of spaces as illustrated below from wall, ceiling, or other obstacles.
- A place where flammable gas leaking might not occur.
- Secure the Tank Unit to prevent it being knocked over accidentally or during earthquakes.

Please avoid installations which expose the Tank Unit to any of the following conditions:

- Extraordinary environment conditions; installation in frost or exposure to unfavorable weather conditions.
- Voltage input exceeding the specified voltage.

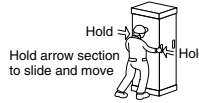
Required space for installation

(Unit : mm)



Transport and Handling

- Be careful during transporting the unit so that it is not damaged by impact.
- Only remove the packaging material once it has reached its desired installation location.
- It may need three or more people to carry out the installation work. The weight of Tank Unit might cause injury if carried by one person.
- The Tank Unit can be transported either in vertical or horizontal.
 - If transported in horizontal, make sure Front of packaging material (printed with "FRONT") must facing upwards.
 - If it transported in vertical, use the hand holes on sides, slide and move to the desired location.
- Fix the Adjustable Feet ①, if the Tank unit installed on a uneven surface.



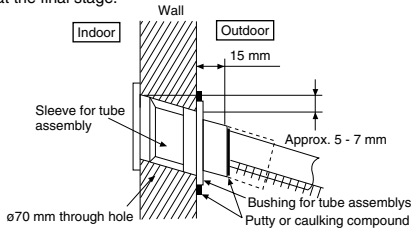
2 TO DRILL A HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING

1. Make a $\varnothing 70$ mm through hole.
2. Insert the piping sleeve to the hole.
3. Fix the bushing to the sleeve.
4. Cut the sleeve until it extrudes about 15 mm from the wall.

CAUTION

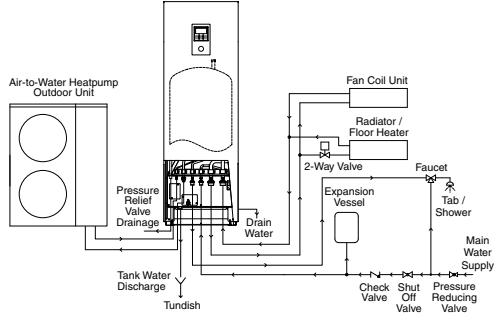
When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connection cable.

5. Finish by sealing the sleeve with putty or caulking compound at the final stage.



3 PIPING INSTALLATION

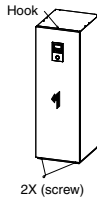
Typical Piping Installation



Access to Internal Components

WARNING

This section is for authorized and licensed electrician/water system installer only. Work behind the front plate secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.



2X (screw)

CAUTION

Open or close the Front Plate carefully. The heavy Bottom Front Plate may injures the fingers.

Open and Close Front Plate ⑮

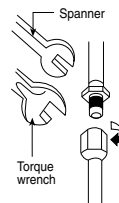
1. Remove the 2 mounting screws of Bottom Front Plate ⑮.
2. Slide it upwards to unhook the Bottom Front Plate ⑮ hook.
3. Reverse above steps 1-2 for close it.

Refrigerant Piping Installation

This Tank Unit is designed for combination with Panasonic Air-to-Water Heat Pump Outdoor Unit. If Outdoor Unit from other manufacturer are being used in combination with Panasonic Tank Unit, optimum operation and reliability of the system is not guaranteed. Thus warranty cannot be given in such case.

1. Connect Tank Unit to Air-to-Water Heatpump Outdoor Unit with correct piping size.

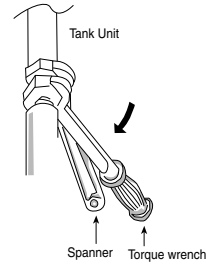
Model		Piping size (Torque)	
Tank Unit	Outdoor Unit	Gas	Liquid
ADC0916H9E8	WH-UX09HE8 / WH-UX12HE8 / WH-UX16HE8 / WH-UD09HE8 / WH-UD12HE8 / WH-UD16HE8	$\varnothing 15.88\text{mm}$ (5/8") [65 N•m]	$\varnothing 9.52\text{mm}$ (3/8") [42 N•m]



CAUTION

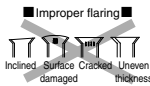
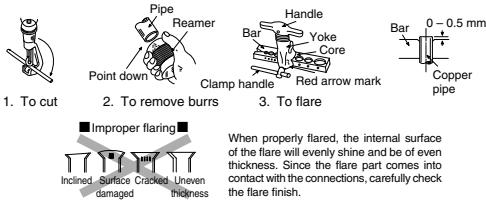
Do not overtighten, overtightening may cause gas leakage.

- Please make flare after inserting flare nut (located at joint portion of tube assembly) onto the copper pipe. (In case of using long piping)
- Do not use pipe wrench to open refrigerant piping. Flare nut may be broken and cause leakage. Use proper spanner or ring wrench.
- Connect the piping:
 - Align the centre of piping and sufficiently tighten the flare nut with fingers.
 - Further tighten the flare nut with torque wrench in specified torque as stated in the table.



CUTTING AND FLARING THE PIPING

- Please cut using pipe cutter and then remove the burrs.
- Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.
- Please make flare after inserting the flare nut onto the copper pipes.



When properly flared, the internal surface of the flare will evenly shine and be of even thickness. Since the flare part comes into contact with the connections, carefully check the flare finish.

CAUTION

Do not overtighten, overtightening may cause water leakage.

- Make sure to insulate the water circuit pipes to prevent reduction of heating capacity.
- After installation, check the water leakage condition in connection area during test run.
- Failure to connect the tube appropriately might cause the Tank Unit malfunction.
- Protection From Frost: If the Tank Unit is being exposed to frost while power supply failure or pump operating failure, drain the system. When water is idle inside the system, freezing up is very likely to happen which could damage the system. Make sure the power supply is turned off before draining. Heater Assembly ⑥ may be damaged under dry heating.
- Corrosion Resistance: Duplex stainless steel is naturally corrosion resistant to mains water supply. No specific maintenance is required to maintain this resistance. However, please note that Tank Unit is not guaranteed for use with a private water supply.
- It is recommended to use a tray (field supply) to collect water from the Tank Unit if water leakage occur.

Water Piping Installation

- Avoid to use abnormally aggressive water which does not conform to EN 98/83 EC, hereunder Chloride content (maximum 250 mg/litre), Sulphate content (maximum 250 mg/litre) and combination of Chloride / Sulphate content (maximum 300 mg/litre in total).
- Please engage a licensed water circuit installer to install this water circuit.
- This water circuit must comply with relevant European and national regulations (including EN61770), and local building regulation codes.
- Ensure the components installed in the water circuit could withstand water pressure during operation.
- Do not use worn out tube.
- Do not apply excessive force to pipes that may damage the pipes.
- Choose proper sealer which can withstand the pressures and temperatures of the system.
- Make sure to use two spanners to tighten the connection. Further tighten the nuts with torque wrench in specified torque as stated in the table.
- Cover the pipe end to prevent dirt and dust when inserting it through a wall.
- Choose proper sealer which can withstand the pressures and temperatures of the system.
- If non-brass metallic piping is used for installation, make sure to insulate the pipes to prevent galvanic corrosion.
- Do not connect galvanised pipes, this will cause galvanic corrosion.
- Use correct nut for all Tank Unit tube connections and clean all tubes with tap water before installation. See Tube Position Diagram for detail.

Tube Connector	Nut Size	Torque
Ⓐ & Ⓑ	RP 1 1/4"	117.6 N•m
Ⓒ & Ⓓ	RP 3/4"	58.8 N•m

(A) Space Heating/Cooling Pipework

- Connect Tank Unit Tube Connector Ⓐ to outlet connector of Panel/Floor heater.
- Connect Tank Unit Tube Connector Ⓑ to inlet connector of Panel/Floor heater.
- Failure to connect the tube appropriately might cause the Tank Unit malfunction.
- Refer below table for the rated flow rate of each particular Outdoor Unit.

Tank Unit	Model	Rated Flow Rate (l/min)	
		Cool	Heat
ADC0916H9E8	WH-UX09HE8	20.1	25.8
	WH-UX12HE8	28.7	34.4
	WH-UX16HE8	35.0	45.9
	WH-UD09HE8	20.1	25.8
	WH-UD12HE8	28.7	34.4
	WH-UD16HE8	35.0	45.9

(B) Domestic Hot Water Tank Pipework

- It's strongly recommended to install an expansion vessel (field supply) in the Domestic Hot Water Tank circuit. Refer Typical Piping Installation section to locate the expansion vessel.
 - Recommended pre-charge pressure of the expansion vessel (field supply) = 0.35MPa (3.5 bars)
- In high water pressure or water supply is above 500kPa, please install the Pressure Reducing Valve for water supply. If the pressure higher than that, it might damage the Tank Unit.
- A Pressure Reducing Valve (field supply) with below specification is strongly advised to be installed along the line of the tube connector Ⓒ of Tank Unit. Refer Typical Piping Installation section to locate both of these valves.
 - Recommended Pressure Reducing Valve specifications:
 - Set pressure: 0.35 MPa (3.5 bars)
- Must connect a faucet to Tank Unit Tube Connector Ⓐ and main water supply, in order to supply water with appropriate temperature for shower or tap usage. Failure to do so might cause scalding.
- Failure to connect the tube appropriately might causing the Tank Unit malfunction.

(C) Pressure Relief Valve Drainage Pipework

- Connect a drain hose to the Pressure Relief Valve hose outlet ⑥.
- The hose must be installed in a continuously downward direction and left open to the frost-free atmosphere.
- If drain hose is long, use a metal support fixture along the way to eliminate the wavy pattern of drain tube.
- The water may drip from this discharge hose. Therefore must guide the hose without close or block the outlet of the hose.
- Do not insert this hose into sewage hose or cleaning hose that may generate ammonia gas, sulphuric gas etc.
- If necessary, use a hose clamp to tighten the hose at drain hose connector to prevent it from leaking.
- Guide the drain hose to outdoor as illustrated at the right figure.

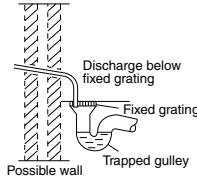


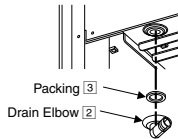
Illustration of guide drain hose to outdoor

(D) Domestic Hot Water Tank Discharge (Drain Tap) and Safety Relief Valve Pipework

- Safety Relief Valve 0.8MPa (8 bars) incorporated in Domestic Hot Water Tank.
- Drain Tap and Safety Relief Valve discharge fittings share the same drainage outlet.
- Use R½" male connector for this drainage outlet connection (Tube connector ④).
- Piping must always be installed in a continuously downward direction. It must not be longer than 2m, with no more than 2 elbows, and must not allow condensation to build up or freezing to occur.
- The pipe from this drainage outlet fitting must not be shut off. The discharge must be freed.
- The end of this pipework must be in such a way so that the outlet is visible and can not cause any damage. Keep away from electrical components.
- It is recommended to fit a tundish into this ④ pipework. Tundish should be visible and positioned away from frost environment and electrical components.

(E) Drain Elbow and Hose Installation

- Fix the Drain Elbow ② and Packing ③ to the bottom of Drain Water Hole ①.
- Use inner diameter 17 mm drain hose in the market.
- This hose must be installed in a continuously downward direction and in a frost-free environment. Improper drain piping may cause water leakage hence damage the furnitures.
- Guides this hose outlet to outdoor only.
- Do not insert this hose into sewage or drain pipe that may generate ammonia gas, sulphuric gas, etc.
- If necessary, use hose clamp to further tighten the hose at drain hose connector to prevent leakage.
- Water will drip from this hose, therefore the outlet of this hose must be installed in an area where the outlet cannot become blocked.



4 CONNECT THE CABLE TO THE TANK UNIT

⚠ WARNING

This section is for authorized and licensed electrician only. Work behind the Control Board Cover ③ secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.

Fixing of Power Supply Cable and Connecting Cable

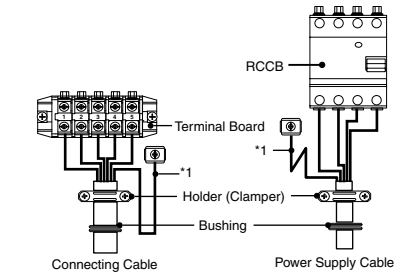
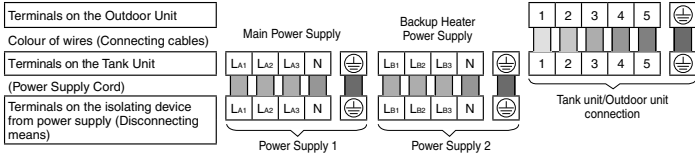
1. Connecting cable between Tank Unit and Outdoor Unit shall be approved polychloroprene sheathed flexible cord, type designation 60245 IEC 57 or heavier cord. See below table for cable size requirement.

Model		Connecting Cable Size
Tank Unit	Outdoor Unit	
ADC0916H9E8	WH-UX09HE8 / WH-UX12HE8 / WH-UX16HE8 / WH-UD09HE8 / WH-UD12HE8 / WH-UD16HE8	6 x 1.5 mm ²

- Ensure the colour of wires of Outdoor Unit and the terminal no. are the same to the Tank Unit respectively.
 - Earth wire shall be longer than the other wires as shown in the figure for the electrical safety in case of the slipping out of the cord from the Holder (Clamper).
2. An isolating device must be connected to the power supply cable.
 - Isolating device (disconnecting means) should have minimum 3.0 mm contact gap.
 - Connect the approved polychloroprene sheathed power supply 1 cord and power supply 2 cord and type designation 60245 IEC 57 or heavier cord to the terminal board, and to the other end of the cord to isolating device (Disconnecting means). See below table for cable size requirement.

Model		Power Supply Cord	Cable Size	Isolating Devices	Recommended RCD
Tank Unit	Outdoor Unit				
ADC0916H9E8	WH-UX09HE8 / WH-UX12HE8 / WH-UX16HE8 /	1	5 x 1.5 mm ²	20A	30mA, 4P, type A
	WH-UD09HE8 / WH-UD12HE8 / WH-UD16HE8	2	5 x 1.5 mm ²	20A	30mA, 4P, type AC

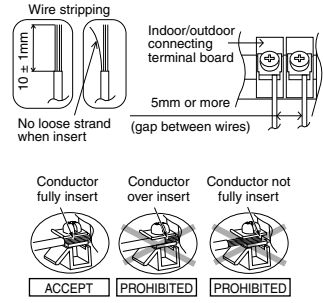
3. To avoid the cable and cord being damaged by sharp edges, the cable and cord must be passed through a bushing (located at the bottom of Control Board) before terminal board. The bushing must be used and must not be removed.



Terminal screw	Tightening torque cN•m (kgf•cm)
M4	157~196 (16~20)
M5	196~245 (20~25)

*1 - Earth wire must be longer than other cables for safety reasons

WIRE STRIPPING AND CONNECTING REQUIREMENT



CONNECTING REQUIREMENT

- For Tank Unit with UX09HE8 / UX12HE8 / UX16HE8 / UD09HE8 / UD12HE8 / UD16HE8
- The equipment's power supply 1 complies with IEC/EN 61000-3-2.
 - The equipment's power supply 1 complies with IEC/EN 61000-3-3 and can be connected to current supply network.
 - The equipment's power supply 2 complies with IEC/EN 61000-3-2.
 - The equipment's power supply 2 complies with IEC/EN 61000-3-3 and can be connected to current supply network.

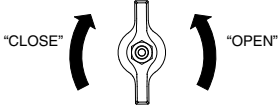
5 CHARGING AND DISCHARGING THE WATER

- Make sure all the piping installations are properly done before carry out below steps.

CHARGE THE WATER

For Domestic Hot Water Tank

1. Set the Domestic Hot Water Tank Discharge (Drain Tap) ④ to "CLOSE".

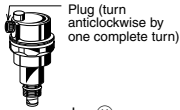


Domestic Hot Water Tank Discharge (Drain Tap) ④

2. Set all Tap / Shower "OPEN".
3. Start filling water to the Domestic Hot Water Tank via Tube Connector ③.
After 20~40min, water should flow out from Tap / Shower.
Else, please contact your local authorized dealer.
4. Check and make sure no water leaking at the tube connecting points.
5. Set the Domestic Hot Water Tank Discharge (Drain Tap) ④ to "OPEN" for 10 seconds to release air from this pipeline. Then set it "CLOSE".
6. Turn the Safety Relief Valve knob counterclockwise slightly and hold for 10 seconds to release air from this pipeline. Then recover the knob to original position.
7. Ensure Step 5 & 6 is carried out each time after charging water to Domestic Hot Water Tank.
8. To prevent back pressure from happening to the Safety Relief Valve, do turn the Safety Relief Valve knob counterclockwise.

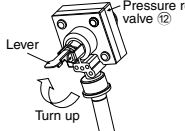
For Space Heating / Cooling

1. Turn the plug on the Air Purge Valve ⑪ outlet anticlockwise by one complete turn from fully closed position.



Air purge valve ⑪

2. Set the Pressure Relief Valve ⑫ level "DOWN".



Pressure relief valve ⑫

3. Start filling water (with pressure more than 0.1 MPa (1 bar)) to the Space Heating / Cooling circuit via Tube Connector ③. Stop filling water if the free water flow through Pressure Relief Valve Drainage ⑥.
4. Turn ON the Tank Unit and make sure Water Pump ② is running.
5. Check and make sure no water leaking at the tube connecting points.

DISCHARGE THE WATER**For Domestic Hot Water Tank**

1. Turn OFF power supply.
2. Set the Domestic Hot Water Tank Discharge (Drain Tap) ⑨ to "OPEN".
3. Open Tap / Shower to allow air inlet.
4. Turn the Safety Relief Valve knob counterclockwise slightly and hold it until all air is released from this pipeline. Then recover the knob to original position after ensured the pipeline is emptied.
5. After discharge, set Domestic Hot Water Tank Discharge (Drain Tap) ⑨ to "CLOSE".

6 RECONFIRMATION**⚠ WARNING**

Be sure to switch off all power supply before performing each of the below checkings.

CHECK WATER PRESSURE *(0.1 MPa = 1 bar)

Water pressure should not lower than 0.05 MPa (with inspects the Water Pressure Gauge ⑭). If necessary add water into Tank Unit (via Tube Connector ③).

CHECK PRESSURE RELIEF VALVE ⑫

- Check for correct operation of Pressure Relief Valve ⑫ by turning on the lever to become horizontal.
- If you do not hear a clacking sound (due to water drainage), contact your local authorized dealer.
- Push down the lever after finish checking.
- In case the water keep on draining out from the Tank Unit, switch off the system, and then contact your local authorized dealer.

EXPANSION VESSEL ⑩ PRE PRESSURE CHECKING**For Space Heating / Cooling**

- Expansion Vessel ⑩ with 10 L air capacity and initial pressure of 1 bar is installed in this Tank Unit.
- Total amount of water in system should be below 200 L. (Inner volume of Tank Unit's piping is about 5 L)
- If total amount of water is over 200 L, please add another expansion vessel. (field supply)
- Please keep the installation height difference of system water circuit within 10 m.

CHECK RCCB

Ensure the RCCB set to "ON" condition before check RCCB. Turn on the power supply to the Tank Unit.

This testing could only be done when power is supplied to the Tank Unit.

⚠ WARNING

Be careful not to touch parts other than RCCB test button when the power is supplied to Tank Unit. Else, electrical shock may happen.

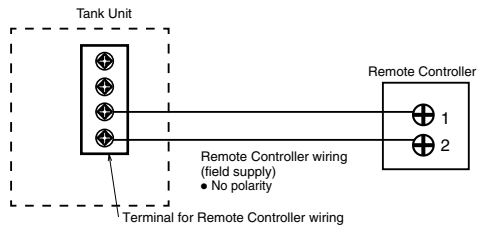
- Push the "TEST" button on the RCCB. The lever would turn down and indicate "0", if it functions normal.
- Contact authorized dealer if the RCCB malfunction.
- Turn off the power supply to the Tank Unit.
- If RCCB functions normal, set the lever to "ON" again after testing finish.

7 INSTALLATION OF REMOTE CONTROLLER AS ROOM THERMOSTAT

- Remote Controller ① mounted to the Tank Unit can be moved to the room and serve as Room Thermostat.

Installation Location

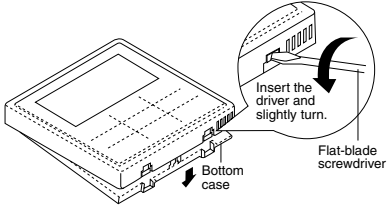
- Install at the height of 1 to 1.5 m from the floor (Location where average room temperature can be detected).
- Install vertically against the wall.
- Avoid the following locations for installation.
 1. By the window, etc. exposed to direct sunlight or direct air.
 2. In the shadow or backside of objects deviated from the room airflow.
 3. Location where condensation occurs (The Remote Controller is not moisture proof or drip proof.)
 4. Location near heat source.
 5. Uneven surface.
- Keep distance of 1 m or more from the TV, radio and PC. (Cause of fuzzy image or noise)

Remote Controller Wiring

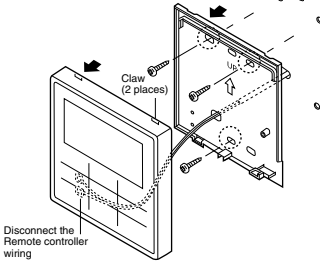
- Remote Controller cable shall be (2 x min 0.3 mm²), of double insulation PVC-sheathed or rubber sheathed cable. Total cable length shall be 50 m or less.
- Be careful not to connect cables to other terminals of Tank Unit (e.g. power source wiring terminal). Malfunction may occur.
- Do not bundle together with the power source wiring or store in the same metal tube. Operation error may occur.

Remove The Remote Controller From Tank Unit

1. Remove the top case from the bottom case.

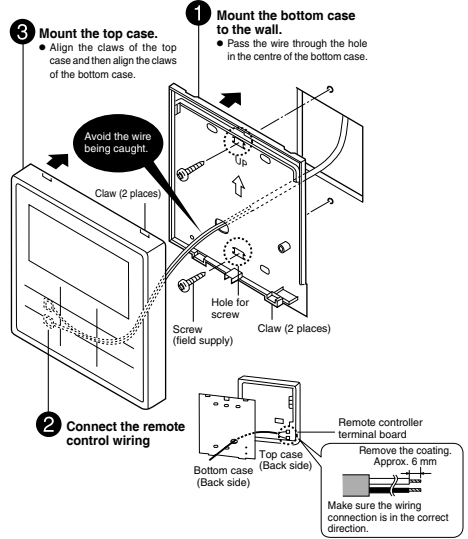


2. Remove the wiring between Remote controller and Tank Unit terminal.



For embedded type

Preparation: Make 2 holes for screws using a driver.

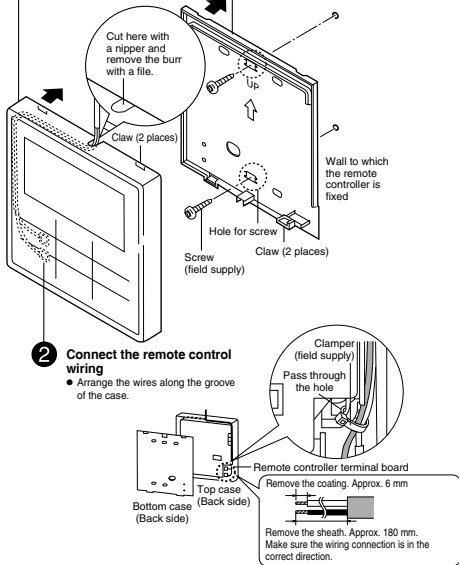


Mounting The Remote Controller

For exposed type

Preparation: Make 2 holes for screws using a driver.

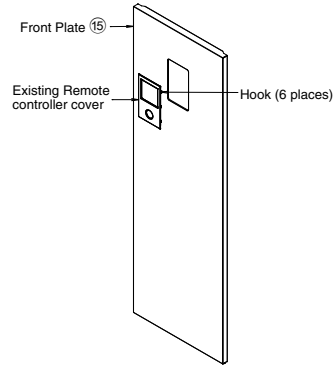
3. Mount the top case.
 - Align the claws of the top case and then align the claws of the bottom case.
1. Mount the bottom case to the wall.



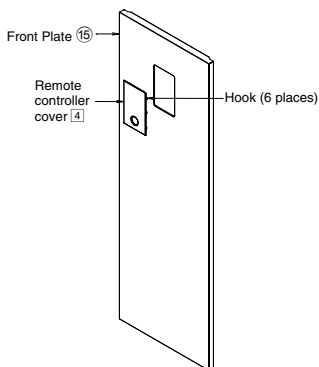
Replace The Remote Controller Cover

- Replace the existing Remote controller cover with Remote controller cover (4) to close the hole left after remove the Remote controller.

1. Release the Remote controller cover's hooks from behind the Front Plate (15).



- Press from front to fix the Remote controller cover ④ on the front plate.



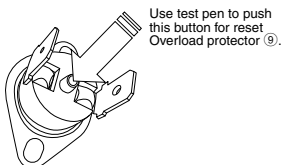
8 TEST RUN

- Before test run, make sure below items have been checked:
 - Pipework are properly done.
 - Electric cable connecting work are properly done.
 - Tank Unit is filled up with water and trapped air is released.
 - Please turn on the power supply after filling the tank until full.
 - In order to check whether the tank is full, switch heater once for about 10 min.
- Switch ON the power supply of the Tank Unit. Set the Tank Unit RCCB to "ON" condition. Then, please refer to the Operation Instruction for operation of Remote Controller ①.
- For normal operation, Water Pressure Gauge ④ reading should be in between 0.05 MPa and 0.3 MPa. If necessary, adjust the Water Pump ② SPEED accordingly to obtain normal water pressure operating range. If adjust Water Pump ② SPEED cannot solve the problem, contact your local authorized dealer.
- After test run, please clean the Water Filter Set ⑥. Reinstall it after finish cleaning.

RESET OVERLOAD PROTECTOR ⑨

Overload Protector ⑨ serves the safety purpose to prevent the water over heating. When the Overload Protector ⑨ a trip at high water temperature, take below steps to reset it.

- Take out the cover.
- Use a test pen to push the centre button gently in order to reset the Overload Protector ⑨.
- Fix the cover to the original fixing condition.



9 MAINTENANCE

- In order to ensure safety and optimal performance of the Tank Unit, seasonal inspections on the Tank Unit, functional check of RCCB, field wiring and piping have to be carried out at regular intervals. This maintenance should be carried out by authorized dealer. Contact dealer for scheduled inspection.

Maintenance for Water Filter Set ⑥

- Turn OFF power supply.
- Set the two valves for the Water Filter Set ⑥ to "CLOSE".
- Take off the clip, then gently pull out the mesh. Beware of small amount water drain out from it.
- Clean the mesh with warm water to remove all the stain. Use soft brush if necessary.
- Reinstall the mesh to the Water Filter Set ⑥ and set back the clip on it.
- Set the two valves for the Water Filter Set ⑥ to "OPEN".
- Turn ON power supply.

Maintenance for Safety Relief Valve ⑫

- It is strongly recommended to operate the valve by turn the knob counter clockwise to ensure free water flow through discharge pipe at regular intervals to ensure it is not blocked and to remove lime deposit.

PROPER PUMP DOWN PROCEDURE

⚠ WARNING

Strictly follow the steps below for proper pump down procedure. Explosion may occur if the steps are not followed as per sequence.

- When the Tank Unit is not in operation (standby), enter the Service setup menu in the Remote Controller and select Pump down operation to turn it ON. (See APPENDIX for detail)
- After 10~15 minutes, (after 1 or 2 minutes in case very low ambient temperatures (< 10°C)), fully close 2 way valve on Outdoor Unit.
- After 3 minutes, fully close 3 way valve on Outdoor Unit.
- Press the "OFF/ON" switch on the Remote Controller ① to stop pump down operation.
- Remove the refrigerant piping.

CHECK ITEMS

- Is the Tank Unit properly installed on the concrete floor?
- Is there any gas leakage at flare nut connections?
- Has the heat insulation been carried out at flare nut connection?
- Is the Pressure Relief Valve ⑫ operation normal?
- Is water pressure higher than 0.05 MPa?
- Is the water drainage work properly done?
- Is the power supply voltage within the rated voltage range?
- Is the cables being fixed to RCCB and terminal board firmly?
- Is the cables being clamped firmly by holder (clammer)?
- Is the earth wire connection properly done?
- Is the RCCB operation normal?
- Is the Remote Controller ① LCD operation normal?
- Is there any abnormal sound?
- Is the heating operation normal?
- Is the Tank unit water leak free on test run?
- Is the Safety Relief Valve knob turned for releasing air?

APPENDIX

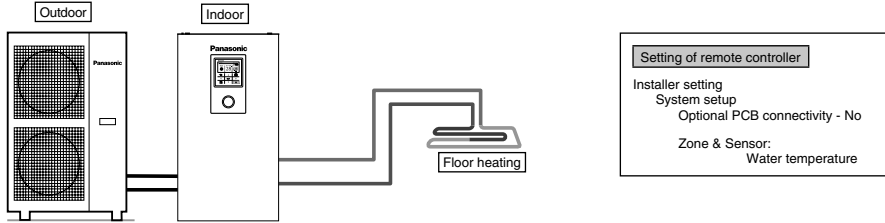
1 Variation of system

This section introduces variation of various systems using Air-To-Water Heatpump and actual setting method.

1-1 Introduce application related to temperature setting.

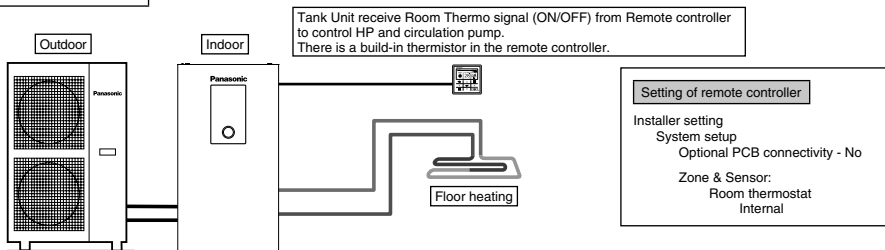
Temperature setting variation for heating

1. Remote Controller



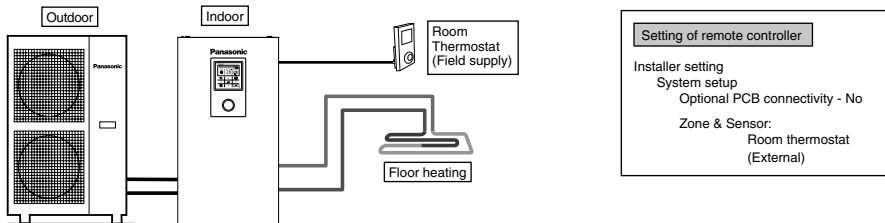
Connect floor heating or radiator directly to the Tank Unit.
Remote controller is installed on Tank Unit.
This is the basic form of the most simple system.

2. Room Thermostat



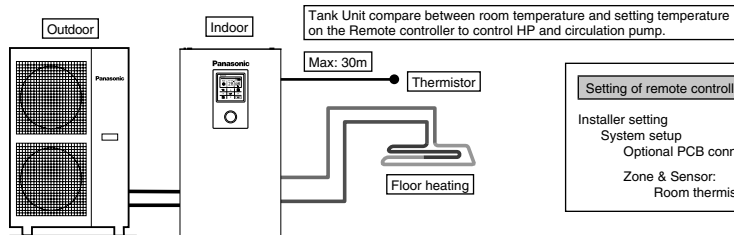
Connect floor heating or radiator directly to the Tank Unit.
Remove remote controller from Tank Unit and install it in the room where floor heating is installed.
This is an application that uses remote controller as Room Thermostat.

3. External Room Thermostat



Connect floor heating or radiator directly to Tank Unit.
Remote controller is installed on Tank Unit.
Install separate external Room Thermostat (field supply) in the room where floor heating is installed.
This is an application that uses external Room Thermostat.

4. Room Thermistor



Setting of remote controller

Installer setting
 System setup
 Optional PCB connectivity - No

Zone & Sensor:
 Room thermistor

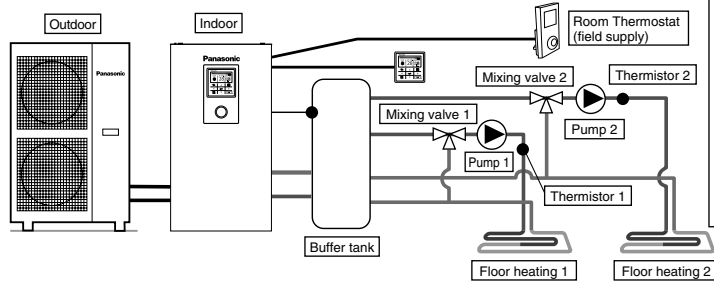
Connect floor heating or radiator directly to Tank Unit.
 Remote controller is installed on Tank Unit.
 Install separate external room thermistor (specified by Panasonic) in the room where floor heating is installed.
 This is an application that uses external room thermistor.

There are 2 kinds of circulation water temperature setting method.
 Direct: set direct circulation water temperature (fixed value)
 Compensation curve: set circulation water temperature depends on outdoor ambient temperature
 In case of Room thermo or Room thermistor, compensation curve can be set.
 In this case, compensation curve is shifted according to the thermo ON/OFF situation.

- (Example) If room temperature increasing speed is;
 very slow → shift up the compensation curve
 very fast → shift down the compensation curve

Examples of installations

Floor heating 1 + Floor heating 2



Setting of remote controller

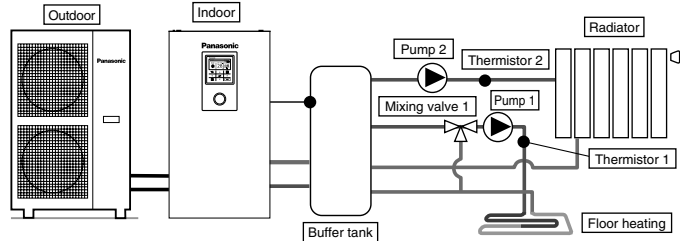
Installer setting
 System setup
 Optional PCB connectivity - Yes

Zone and Sensor - 2 Zone system
 Zone 1: Sensor
 Room thermostat
 Internal

Zone 2: Sensor
 Room
 Room thermostat
 (External)

Connect floor heating to 2 circuits through buffer tank as shown in the figure.
 Install mixing valves, pumps and thermistors (specified by Panasonic) on both circuits.
 Remove remote controller from Tank Unit, install it in one of the circuit and use it as Room Thermostat.
 Install external Room Thermostat (field supply) in another circuit.
 Both circuits can set circulation water temperature independently.
 Install buffer tank thermistor on buffer tank.
 It requires connection setting of buffer tank and ΔT temperature setting at heating operation separately.
 This system requires Optional PCB (CZ-NS4P).

Floor heating + Radiator



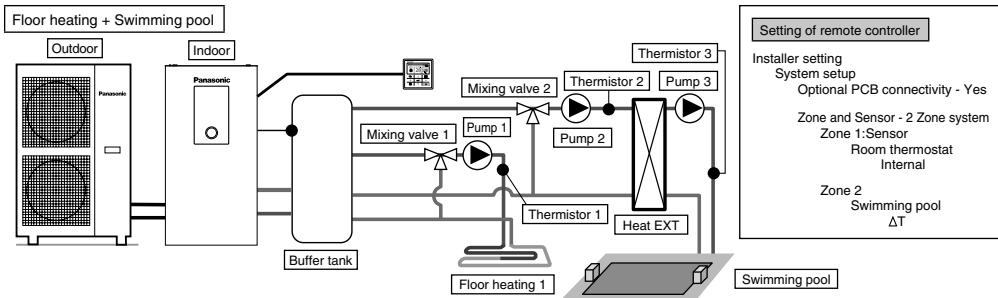
Setting of remote controller

Installer setting
 System setup
 Optional PCB connectivity - Yes

Zone and Sensor - 2 Zone system
 Zone 1: Sensor
 Water temperature

Zone 2: Sensor
 Room
 Water temperature

Connect floor heating or radiator to 2 circuits through buffer tank as shown in figure.
 Install pumps and thermistors (specified by Panasonic) on both circuits.
 Install mixing valve in the circuit with lower temperature among the 2 circuits.
 (Generally, if install floor heating and radiator circuit at 2 zones, install mixing valve in floor heating circuit.)
 Remote controller is installed on Tank Unit.
 For temperature setting, select circulation water temperature for both circuits.
 Both circuits can set circulation water temperature independently.
 Install buffer tank thermistor on buffer tank.
 It requires connection setting of buffer tank and ΔT temperature setting at heating operation separately.
 This system requires the Optional PCB (CZ-NS4P).
 Mind that if there is no mixing valve at the secondary side, the circulation water temperature may get higher than setting temperature.



Setting of remote controller

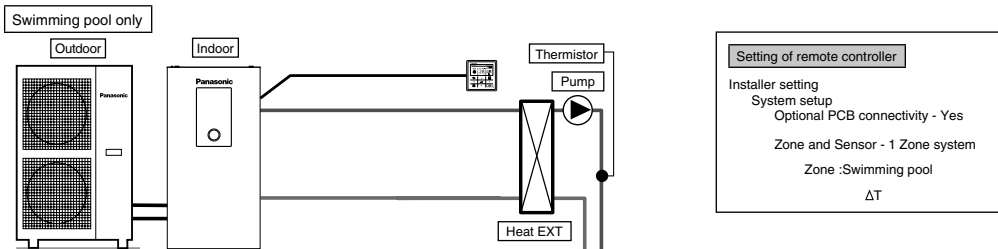
Installer setting
System setup
Optional PCB connectivity - Yes

Zone and Sensor - 2 Zone system
Zone 1: Sensor
Room thermostat
Internal

Zone 2
Swimming pool
ΔT

Connect floor heating and swimming pool to 2 circuits through buffer tank as shown in figure.
Install mixing valves, pumps and thermistors (specified by Panasonic) on both circuits.
Then, install additional pool heat exchanger, pool pump and pool sensor on pool circuit.
Remove remote controller from Tank Unit and install in room where floor heating is installed. Circulation water temperature of floor heating and swimming pool can be set independently.
Install buffer tank sensor on buffer tank.
It requires connection setting of buffer tank and ΔT temperature setting at heating operation separately. This system requires the Optional PCB (CZ-NS4P).

‡ Must connect swimming pool to "Zone 2".
If it is connected to swimming pool, operation of pool will stop when "Cooling" is operated.



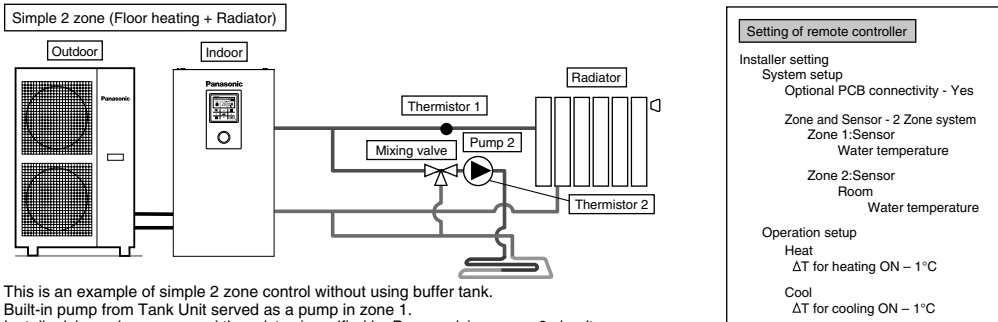
Setting of remote controller

Installer setting
System setup
Optional PCB connectivity - Yes

Zone and Sensor - 1 Zone system
Zone :Swimming pool
ΔT

This is an application that connects to the swimming pool only.
Connects pool heat exchanger directly to Tank Unit without using buffer tank.
Install pool pump and pool sensor (specified by Panasonic) at secondary side of the pool heat exchanger.
Remove remote controller from Tank Unit and install in room where floor heating is installed.
Temperature of swimming pool can be set independently.
This system requires the Optional PCB (CZ-NS4P).

In this application, cooling mode cannot be selected. (not display on remote controller)



Setting of remote controller

Installer setting
System setup
Optional PCB connectivity - Yes

Zone and Sensor - 2 Zone system
Zone 1: Sensor
Water temperature

Zone 2: Sensor
Room
Water temperature

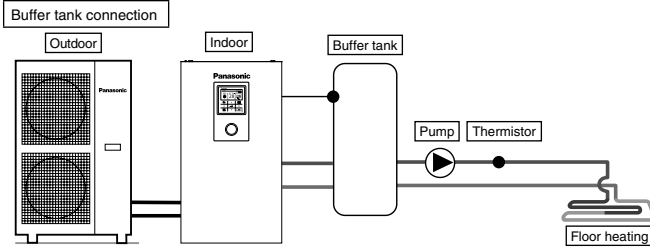
Operation setup
Heat
ΔT for heating ON - 1°C

Cool
ΔT for cooling ON - 1°C

This is an example of simple 2 zone control without using buffer tank.
Built-in pump from Tank Unit served as a pump in zone 1.
Install mixing valve, pump and thermistor (specified by Panasonic) on zone 2 circuit.
Please be sure to assign high temperature side to zone 1 as temperature of zone 1 cannot be adjusted.
Zone 1 thermistor is required to display temperature of zone 1 on remote controller.
Circulation water temperature of both circuits can be set independently.
(However, temperature of high temperature side and low temperature side cannot be reversed)
This system requires the Optional PCB (CZ-NS4P).

(NOTE)

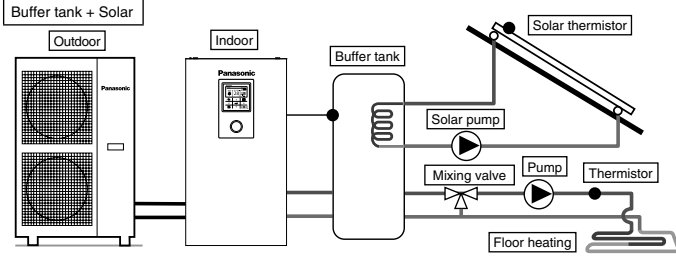
- Thermistor 1 does not affect operation directly. But error happens if it is not installed.
- Please adjust flow rate of zone 1 and zone 2 to be in balance. If it is not adjusted correctly, it may affects the performance. (If zone 2 pump flow rate is too high, there is possibility that no hot water flowing to zone 1.)
Flow rate can be confirmed by "Actuator Check" from maintenance menu.



This is an application that connects the buffer tank to the Tank Unit.
Buffer tank's temperature is detected by buffer tank thermistor (specified by Panasonic).
This system requires Optional PCB (CZ-NS4P).

Setting of remote controller

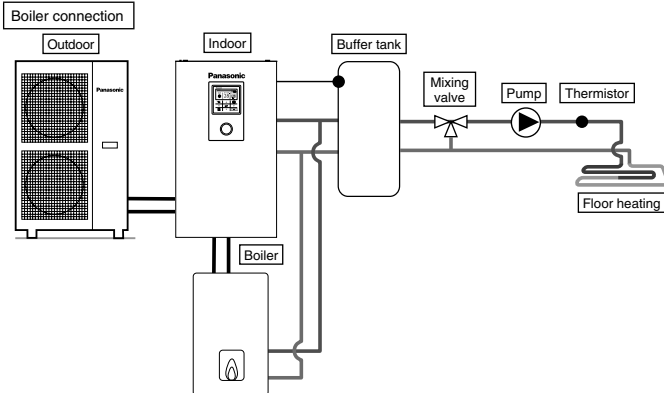
- Installer setting
- System setup
- Optional PCB connectivity - Yes
- Buffer Tank connection - Yes
- ΔT for buffer tank



This is an application that connects the buffer tank to the Tank Unit before connecting to the solar water heater to heat up the tank.
Buffer tank's temperature is detected by buffer tank thermistor (specified by Panasonic).
Solar panel's temperature is detected by solar thermistor (specified by Panasonic).
Buffer tank shall use tank with built-in solar heat exchange coil independently.
During winter season, solar pump for circuit protection will be activated continuously. If does not want to activate the solar pump operation, please use glycol and set the anti-freezing operation start temperature to -20°C .
Heat accumulation operates automatically by comparing the temperature of tank thermistor and solar thermistor.
This system requires Optional PCB (CZ-NS4P).

Setting of remote controller

- Installer setting
- System setup
- Optional PCB connectivity - Yes
- Buffer Tank connection - Yes
- ΔT for buffer tank
- Solar connection - Yes
- Buffer tank
- ΔT turn ON
- ΔT turn OFF
- Antifreeze
- Hi limit



This is an application that connects the boiler to the Tank Unit, to compensate for insufficient capacity by operate boiler when outdoor temperature drops & heat pump capacity is insufficient.
Boiler is connected parallel with heat pump against heating circuit.
There are 3 modes selectable by remote controller for boiler connection.
Besides that, an application that connects to the DHW tank's circuit to heat up tank's hot water is also possible.
(Operation setting of boiler shall be responsible by installer.)
This system requires Optional PCB (CZ-NS4P).

Setting of remote controller

- Installer setting
- System setup
- Optional PCB connectivity - Yes
- Bivalent - Yes
- Turn ON: outdoor temp
- Control pattern

Depending on the settings of the boiler, it is recommended to install buffer tank as temperature of circulating water may get higher. (It must connect to buffer tank especially when selecting Advanced Parallel setting.)

WARNING

Panasonic is NOT responsible for incorrect or unsafe situation of the boiler system.

CAUTION

Make sure the boiler and its integration in the system complies with applicable legislation.
Make sure the return water temperature from the heating circuit to the Tank Unit does NOT exceed 55°C .
Boiler is turned off by safety control when the water temperature of the heating circuit exceed 85°C .

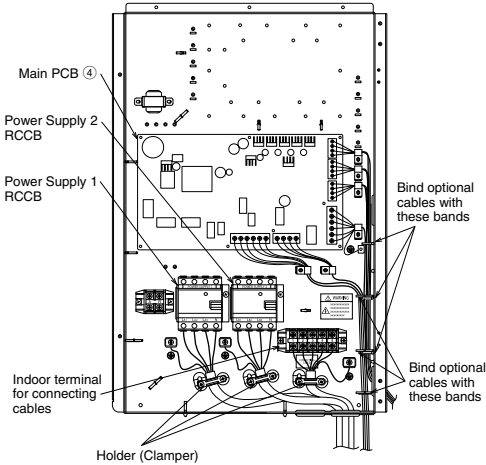
2 How to fix cable

Connecting with external device (optional)

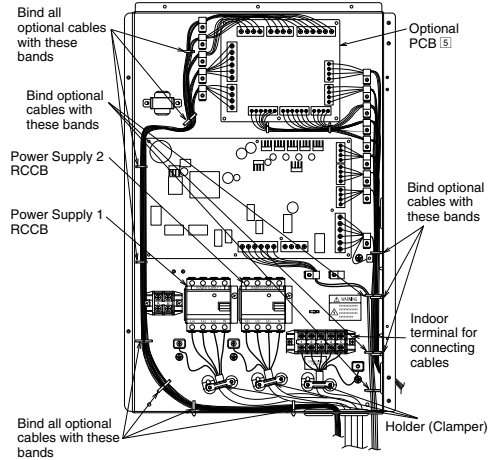
- **All connections shall** follow to the local national wiring standard.
 - It is strongly recommended to use manufacturer-recommended parts and accessories for installation.
 - For connection to main PCB (4)
1. Two-way valve shall be spring and electronic type, refer to "Field Supply Accessories" table for details. Valve cable shall be (3 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier, or similarly double insulation sheathed cable.
*note: - Two-way Valve shall be CE marking compliance component.
- Maximum load for the valve is 9.8VA.
 2. Room thermostat cable must be (4 or 3 x min 0.5 mm²), of type designation 60245 IEC 57 or heavier cord, or similarly double insulation sheathed cable.
 3. Extra pump cable shall be (2 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier.
 4. Boiler contact cable shall be (2 x min 0.5 mm²), of type designation 60245 IEC 57 or heavier.
 5. External control shall be connected to 1-pole switch with min 3.0 mm contact gap. Its cable must be (2 x min 0.5 mm²), double insulation layer of PVC-sheathed or rubber-sheathed cable.
*note: - Switch used shall be CE compliance component.
- Maximum operating current shall be less than 3A_{rms}.
 6. Room sensor zone 1 cable shall be (2 x min 0.3 mm²) double insulation layer of PVC-sheathed or rubber-sheathed.
 7. Outdoor air sensor cable shall be (2 x min 0.3 mm²) double insulation layer of PVC-sheathed or rubber-sheathed.

- For connection to Optional PCB (5)

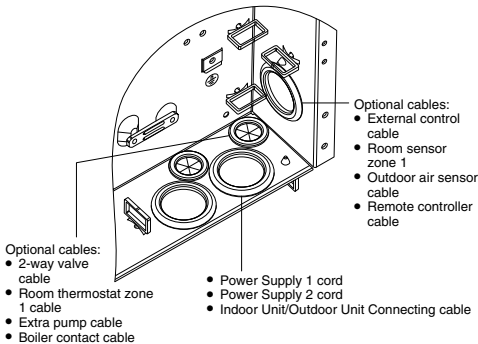
1. By connecting Optional PCB, 2 Zone temperature control can be achieved. Please connect mixing valves, water pumps and thermistors in zone 1 and zone 2 to each terminals in Optional PCB.
Temperature of each zone can be controlled independently by remote controller.
2. Pump zone 1 and zone 2 cable shall be (2 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier.
3. Solar pump cable shall be (2 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier.
4. Pool pump cable shall be (2 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier.
5. Room thermostat zone 1 and zone 2 cable shall be (4 x min 0.5 mm²), of type designation 60245 IEC 57 or heavier.
6. Mixing valve zone 1 and zone 2 cable shall be (3 x min 1.5 mm²), of type designation 60245 IEC 57 or heavier.
7. Room sensor zone 1 and zone 2 cable shall be (2 x min 0.3 mm²), double insulation layer (with insulation strength of minimum 30V) of PVC-sheathed or rubber-sheathed cable.
8. Buffer tank sensor, pool water sensor and solar sensor cable shall be (2 x min 0.3 mm²), double insulation layer (with insulation strength of minimum 30V) of PVC-sheathed or rubber-sheathed cable.
9. Water sensor zone 1 and zone 2 cable shall be (2 x min 0.3 mm²), double insulation layer of PVC-sheathed or rubber-sheathed cable.
10. Demand signal cable shall be (2 x min 0.3 mm²), double insulation layer of PVC-sheathed or rubber-sheathed cable.
11. SG signal cable shall be (3 x min 0.3 mm²), double insulation layer of PVC-sheathed or rubber-sheathed cable.
12. Heat/Cool switch cable shall be (2 x min 0.3 mm²), double insulation layer of PVC-sheathed or rubber-sheathed cable.
13. External compressor switch cable shall be (2 x min 0.3 mm²), double insulation layer of PVC-sheathed or rubber-sheathed cable.

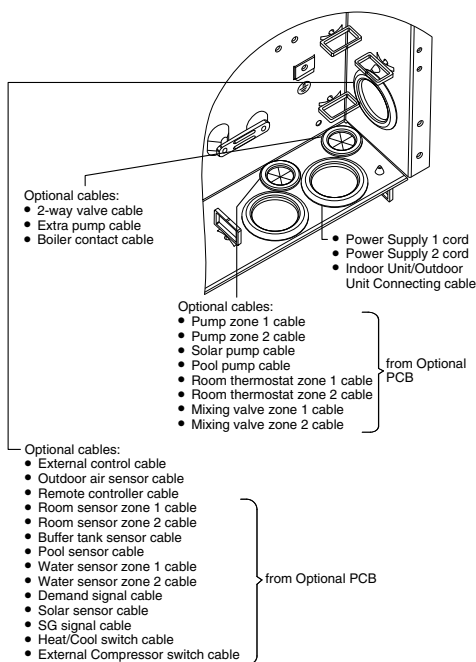


How to guide the optional cables and power supply cord (view without internal wiring)

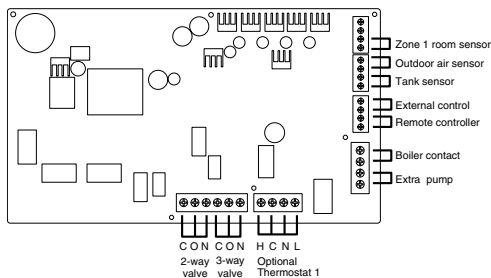


How to guide the optional cables and power supply cord (view without internal wiring)





Connection of the main PCB



Signal inputs

Optional Thermostat	L N =AC230V, Heat, Cool=Thermostat heat, Cool terminal #It does not function when using the Optional PCB
External control	Dry contact Open=not operate, Short=operate (System setup necessary) Able to turn ON/OFF the operation by external switch
Remote controller	Connected (Please use 2 cores wire for relocation and extension. Total cable length shall be 50m or less.)

Outputs

3-way valve	AC230V N=Neutral Open, Close=direction (For circuit switching when connected to DHW tank)
2-way valve	AC230V N=Neutral Open, Close (Prevent water circuit pass through during cooling mode)
Extra pump	AC230V (Used when Tank Unit pump capacity is insufficient)
Boiler contact	Dry contact (System setup necessary)

Thermistor inputs

Zone 1 room sensor	PAW-A2W-TSRT #It does not work when using the Optional PCB
Outdoor air sensor	AW-A2W-TSOD (Total cable length shall be 30m or less)

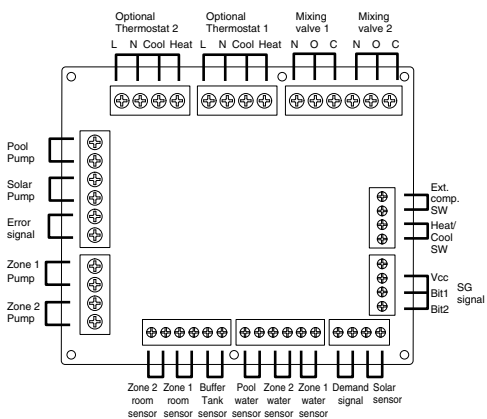
Terminal screw on PCB	Maximum tightening torque cN•m {kg•cm}
M3	50 {5.1}
M4	120 {12.24}

Connecting Cables Length

When connecting cables between Tank Unit and external devices, the length of the said cables must not exceed the maximum length as shown in the table.

External device	Maximum cables length (m)
Two-way valve	50
Mixing valve	50
Room thermostat	50
Extra pump	50
Solar pump	50
Pool pump	50
Pump	50
Boiler contact	50
External control	50
Room sensor	30
Outdoor air sensor	30
Buffer tank sensor	30
Pool water sensor	30
Solar sensor	30
Water sensor	30
Demand signal	50
SG signal	50
Heat/Cool switch	50
External compressor switch	50

Connection of Optional PCB (CZ-NS4P)



■ Signal inputs

Optional Thermostat	L N =AC230V, Heat, Cool=Thermostat heat, Cool terminal
SG signal	Dry contact Vcc-Bit1, Vcc-Bit2 open/short (System setup necessary) Switching SW (Please connect to the 2 contacts controller)
Heat/Cool SW	Dry contact Open=Heat, Short=Cool (System setup necessary)
External comp.SW	Dry contact Open=Comp.ON, Short=Comp.OFF (System setup necessary)
Demand signal	DC 0-10V (System setup necessary) Please connect to the DC 0-10V controller.

■ Outputs

Mixing valve	AC230V N=Neutral Open, Close=mixture direction Operating time: 30s-120s
Pool pump	AC230V
Solar pump	AC230V
Zone pump	AC230V

■ Thermistor inputs

Zone room sensor	PAW-A2W-TSRT
Buffer tank sensor	PAW-A2W-TSBU
Pool water sensor	PAW-A2W-TSHC
Zone water sensor	PAW-A2W-TSHC
Solar sensor	PAW-A2W-TSSO

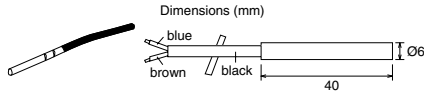
Recommended External Device Specification

• This section explains about the external devices (optional) recommended by Panasonic. Please always ensure to use the correct external device during system installation.

• For optional sensor.

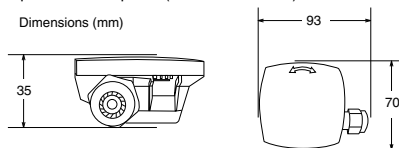
1. Buffer tank sensor: PAW-A2W-TSBU

Use for measurement of the buffer tank temperature. Insert the sensor into the sensor pocket and paste it on the buffer tank surface.



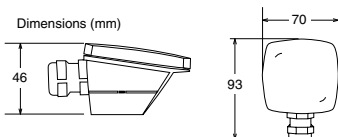
2. Zone water sensor: PAW-A2W-TSHC

Use to detect the water temperature of the control zone. Mount it on the water piping by using the stainless steel metal strap and contact paste (both are included).



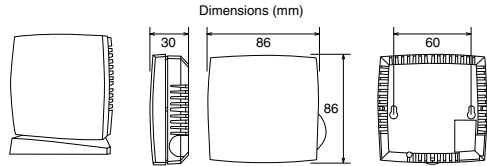
3. Outdoor sensor: PAW-A2W-TSOD

If the installation location of the outdoor unit is exposed to direct sunlight, the outdoor air temperature sensor will be unable to measure the actual outdoor ambient temperature correctly. In this case, optional outdoor temperature sensor can be fixed at a suitable location to more accurately measure ambient temperature.



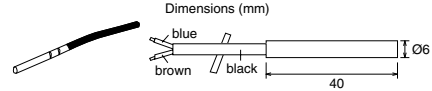
4. Room sensor: PAW-A2W-TSRT

Install the room temperature sensor to the room which requires room temperature control.



5. Solar sensor: PAW-A2W-TSSO

Use for measurement of the solar panel temperature. Insert the sensor into the sensor pocket and paste it on the solar panel surface.



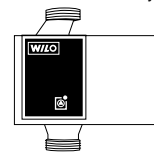
6. Please refer to the table below for sensor characteristic of the sensors mentioned above.

Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)
30	5.326	150	0.147
25	6.523	140	0.186
20	8.044	130	0.236
15	9.980	120	0.302
10	12.443	110	0.390
5	15.604	100	0.511
0	19.70	90	0.686
-5	25.05	80	0.932
-10	32.10	70	1.279
-15	41.45	65	1.504
-20	53.92	60	1.777
-25	70.53	55	2.106
-30	93.05	50	2.508
-35	124.24	45	3.003
-40	167.82	40	3.615
		35	4.375

• For optional pump.

Power supply: AC230V/50Hz, <500W

Recommended part: Yonos 25/6: made by Wilo

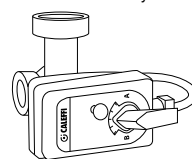


• For optional mixing valve.

Power supply: AC230V/50Hz (input open/output close)

Operating time: 30s-120s

Recommended part: 167032: made by Caleffi



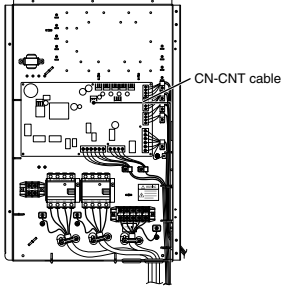
⚠ WARNING

This section is for authorized and licensed electrician/water system installer only. Work behind the front plate secured by screws must only be carried out under supervision of qualified contractor, installation engineer or service person.

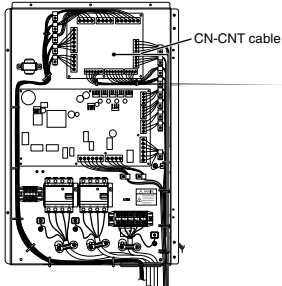
Network Adaptor 6 Installation (Optional)

1. Remove the Control Board Cover (3), then connect the cable included with this adaptor to the CN-CNT connector on the printed circuit board.
 - Pull the cable out of the Tank Unit so that there is no pinching.
 - If an Optional PCB has been installed in the Tank Unit, connect to the CN-CNT connector of the Optional PCB.

Connection examples: H series

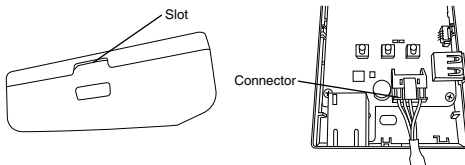


Without Optional PCB

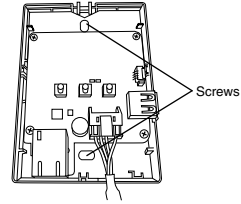


With Optional PCB

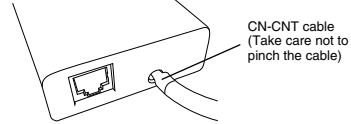
2. Insert a flat head screwdriver into the slot on the top of the adaptor and remove the cover. Connect the other end of the CN-CNT cable connector to the connector inside the adaptor.



3. On the wall near the Tank Unit, attach the adaptor by screwing screws through the holes in the back cover.

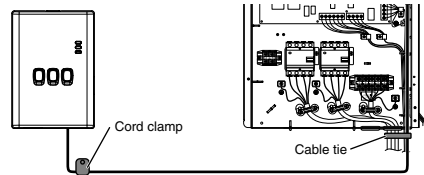


4. Pull the CN-CNT cable through the hole in the bottom of the adaptor and re-attach the front cover to the back cover.



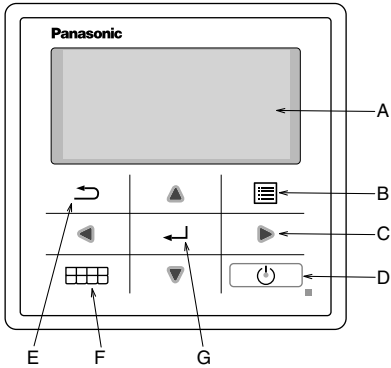
5. Use the included cord clamp to fix the CN-CNT cable to the wall.

Pull the cable around as shown in the diagram so that external forces cannot act on the connector in the adaptor. Furthermore, on the Tank Unit end, use the included cable tie to fix the cables together.

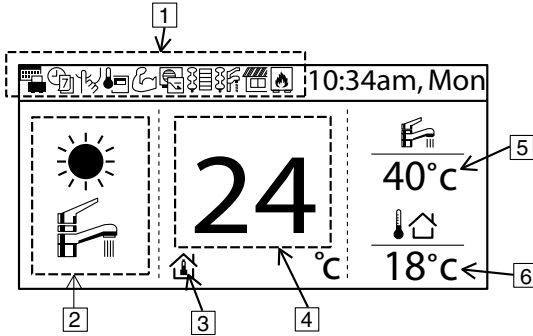


3 System installation

3-1. Remote Controller Outline

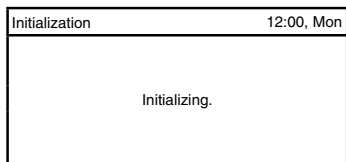


Name	Function
A: Main screen	Display information
B: Menu	Open/Close main menu
C: Triangle (Move)	Select or change item
D: Operate	Start/Stop operation
E: Back	Back to previous item
F: Quick Menu	Open/Close Quick menu
G: OK	Confirm

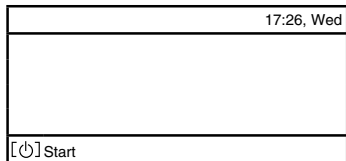


Name	Function
1: Function icon	Display set function/status
	Holiday mode
	Weekly timer
	Quiet mode
	Remote controller room thermostat
	Powerful mode
	Demand control
	Room heater
	Tank heater
	Solar
	Boiler
2: Mode	Display set mode/current status of mode
	Heating
	Auto
	Heat pump operating
	Cooling
	Hot water supply
	Auto heating
	Auto cooling
3: Temp setting	Set room temp
	Compensation curve
	Set direct water temp
	Set pool temp
4: Display Heat temp	Display current heating temperature (it is set temperature when enclosed by line)
5: Display tank temp	Display current tank temperature (it is set temperature when enclosed by line)
6: Outdoor temp	Display outdoor temp

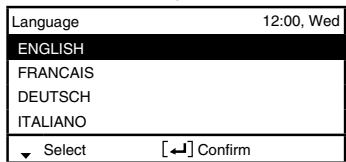
First time of power ON (Start of installation)



When power is ON, firstly initialization screen appears (10 sec)

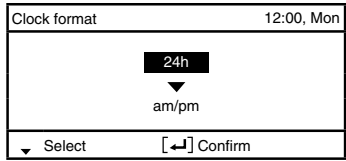


When initialization screen ends, it turns to normal screen.



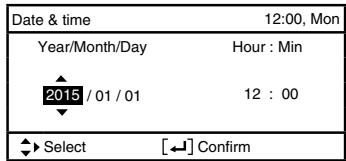
When any button is pressed, language setting screen appears. (NOTE) If initial setting is not performed, it does not go into menu.

Set language & confirm



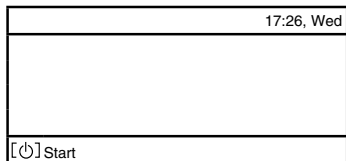
When language is set, setting screen of time display appears (24h/am/pm)

Set time display & confirm



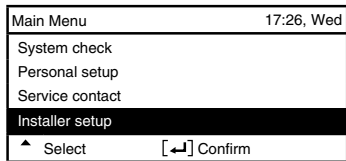
YY/MM/DD/Time setup screen appears

Set YY/MM/DD/Time & confirm



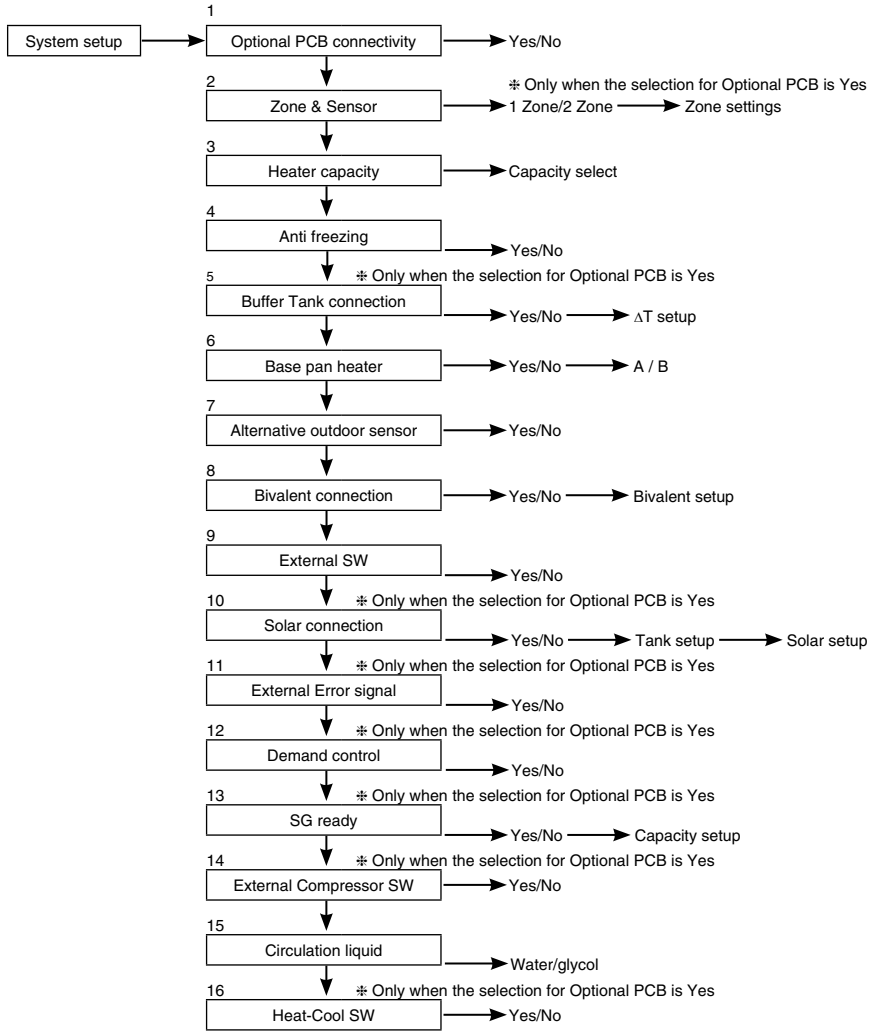
Back to initial screen

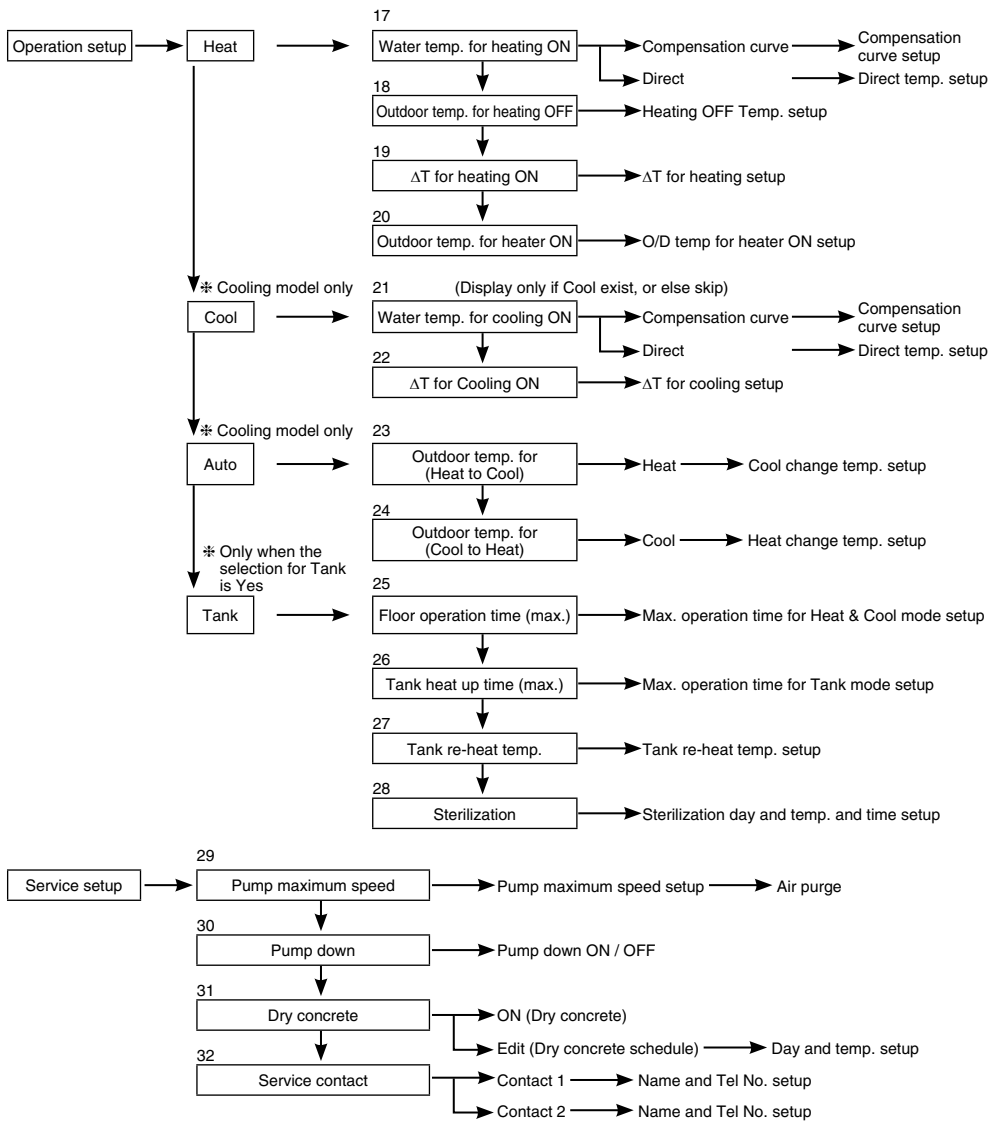
Press menu, select Installer setup



Confirm to go into Installer setup

3-2. Installer Setup





3-3. System Setup

<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">1. Optional PCB connectivity</div> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-left: 20px;">Initial setting: No</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; padding: 2px;">System setup</td> <td style="text-align: left; padding: 2px;">17:26, Wed</td> </tr> <tr> <td colspan="2" style="background-color: #f0f0f0; padding: 2px;">Optional PCB connectivity</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Zone & Sensor</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Heater capacity</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Anti freezing</td> </tr> <tr> <td style="padding: 2px;">▼ Select</td> <td style="text-align: right; padding: 2px;">[←] Confirm</td> </tr> </table>	System setup	17:26, Wed	Optional PCB connectivity		Zone & Sensor		Heater capacity		Anti freezing		▼ Select	[←] Confirm
System setup	17:26, Wed												
Optional PCB connectivity													
Zone & Sensor													
Heater capacity													
Anti freezing													
▼ Select	[←] Confirm												
<p>If function below is necessary, please purchase and install Optional PCB. Please select Yes after installing Optional PCB.</p> <ul style="list-style-type: none"> ● 2-zone control ● Pool ● Buffer tank ● Solar ● External error signal output ● Demand control ● SG ready ● Stop heat source unit by external SW 													

<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">2. Zone & Sensor</div> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-left: 20px;">Initial setting: Room and Water temp.</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; padding: 2px;">System setup</td> <td style="text-align: left; padding: 2px;">17:26, Wed</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Optional PCB connectivity</td> </tr> <tr> <td colspan="2" style="background-color: #f0f0f0; padding: 2px;">Zone & Sensor</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Heater capacity</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Anti freezing</td> </tr> <tr> <td style="padding: 2px;">▲ Select</td> <td style="text-align: right; padding: 2px;">[←] Confirm</td> </tr> </table>	System setup	17:26, Wed	Optional PCB connectivity		Zone & Sensor		Heater capacity		Anti freezing		▲ Select	[←] Confirm
System setup	17:26, Wed												
Optional PCB connectivity													
Zone & Sensor													
Heater capacity													
Anti freezing													
▲ Select	[←] Confirm												
<p>If no Optional PCB connectivity Select sensor of room temperature control from the following 3 items</p> <ol style="list-style-type: none"> ① Water temperature (circulation water temperature) ② Room thermostat (Internal or External) ③ Room thermistor <p>When there is Optional PCB connectivity</p> <ol style="list-style-type: none"> ① Select either 1 zone control or 2 zone control. If it is 1 zone, select either room or pool, select sensor If it is 2 zone, after select sensor of zone 1, select either room or pool for zone 2, select sensor <p>(NOTE) In 2 zone system, pool function can be set at zone 2 only.</p>													

<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">3. Heater capacity</div> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-left: 20px;">Initial setting: Depend on model</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; padding: 2px;">System setup</td> <td style="text-align: left; padding: 2px;">17:26, Wed</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Optional PCB connectivity</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Zone & Sensor</td> </tr> <tr> <td colspan="2" style="background-color: #f0f0f0; padding: 2px;">Heater capacity</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Anti freezing</td> </tr> <tr> <td style="padding: 2px;">▲ Select</td> <td style="text-align: right; padding: 2px;">[←] Confirm</td> </tr> </table>	System setup	17:26, Wed	Optional PCB connectivity		Zone & Sensor		Heater capacity		Anti freezing		▲ Select	[←] Confirm
System setup	17:26, Wed												
Optional PCB connectivity													
Zone & Sensor													
Heater capacity													
Anti freezing													
▲ Select	[←] Confirm												
<p>If there is built-in Heater, set the selectable heater capacity.</p> <p>(NOTE) There are models which cannot select heater.</p>													

<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">4. Anti freezing</div> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-left: 20px;">Initial setting: Yes</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; padding: 2px;">System setup</td> <td style="text-align: left; padding: 2px;">17:26, Wed</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Optional PCB connectivity</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Zone & Sensor</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Heater capacity</td> </tr> <tr> <td colspan="2" style="background-color: #f0f0f0; padding: 2px;">Anti freezing</td> </tr> <tr> <td style="padding: 2px;">▲ Select</td> <td style="text-align: right; padding: 2px;">[←] Confirm</td> </tr> </table>	System setup	17:26, Wed	Optional PCB connectivity		Zone & Sensor		Heater capacity		Anti freezing		▲ Select	[←] Confirm
System setup	17:26, Wed												
Optional PCB connectivity													
Zone & Sensor													
Heater capacity													
Anti freezing													
▲ Select	[←] Confirm												
<p>Operate anti-freezing of water circulation circuit. If select Yes, when the water temperature is reaching its freezing temperature, the circulation pump will start up. If the water temperature does not reach the pump stop temperature, back-up heater will be activated.</p> <p>(NOTE) If set No, when the water temperature is reaching its freezing temperature or below 0°C, the water circulation circuit may freeze and cause malfunction.</p>													

<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">5. Buffer Tank connection</div> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-left: 20px;">Initial setting: No</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; padding: 2px;">System setup</td> <td style="text-align: left; padding: 2px;">17:26, Wed</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Heater capacity</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Anti freezing</td> </tr> <tr> <td colspan="2" style="padding: 2px;">Tank connection</td> </tr> <tr> <td colspan="2" style="background-color: #f0f0f0; padding: 2px;">Buffer tank connection</td> </tr> <tr> <td style="padding: 2px;">▲ Select</td> <td style="text-align: right; padding: 2px;">[←] Confirm</td> </tr> </table>	System setup	17:26, Wed	Heater capacity		Anti freezing		Tank connection		Buffer tank connection		▲ Select	[←] Confirm
System setup	17:26, Wed												
Heater capacity													
Anti freezing													
Tank connection													
Buffer tank connection													
▲ Select	[←] Confirm												
<p>Select whether it is connected to buffer tank for heating or not. If buffer tank is used, please set Yes. Connect buffer tank thermistor and set, ΔT (ΔT use to increase primary side temp against secondary side target temp). (NOTE) Does not display if there is no Optional PCB. If the buffer tank capacity is not so large, please set larger value for ΔT.</p>													

6. Base pan heater

Initial setting: No

Select whether Base pan heater is installed or not. If set Yes, select to use either heater A or B.

- A: Turn on Heater when heating with defrost operation only
- B: Turn on Heater at heating

System setup	17:26, Wed
Tank connection	
Buffer tank connection	
Tank heater	
Base pan heater	
⬆ Select	[←] Confirm

7. Alternative outdoor sensor

Initial setting: No

Set Yes if outdoor sensor is installed. Controlled by optional outdoor sensor without reading the outdoor sensor of heat pump unit.

System setup	17:26, Wed
Buffer tank connection	
Tank heater	
Base pan heater	
Alternative outdoor sensor	
⬆ Select	[←] Confirm

8. Bivalent connection

Initial setting: No

Set if heat pump linked with boiler operation. Connect the start signal of the boiler in boiler contact terminal (main PCB). Set Bivalent connection to YES. After that, please begin setting according to remote controller instruction. Boiler icon will be displayed on remote controller top screen.

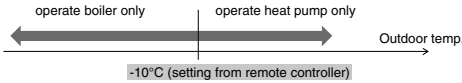
System setup	17:26, Wed
Tank heater	
Base pan heater	
Alternative outdoor sensor	
Bivalent connection	
⬆ Select	[←] Confirm

There are 3 different modes in the boiler operation. Movement of each modes are shown below.

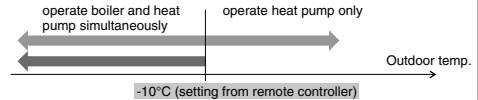
- ① Alternative (switch to boiler operation when drops below setting temperature)
- ② Parallel (allow boiler operation when drops below setting temperature)
- ③ Advanced Parallel (able to slightly delay boiler operation time of parallel operation)

When the boiler operation is "ON", "boiler contact" is "ON", "_" (underscore) will be displayed below the boiler icon. Please set target temperature of boiler to be the same as heat pump temperature. When boiler temperature is higher than heat pump temperature, zone temperature cannot be achieved if mixing valve is not installed. This product only allows one signal to control the boiler operation. Operation setting of boiler shall be responsible by installer.

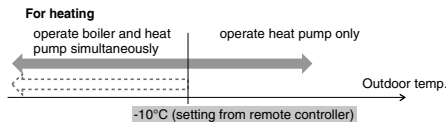
Alternative mode



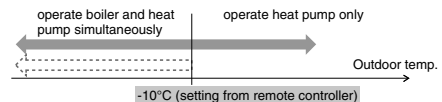
Parallel mode



Advanced Parallel mode

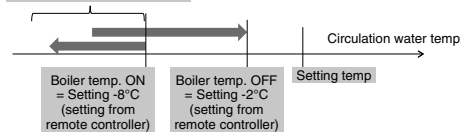


For DHW tank

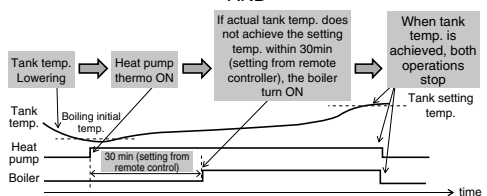


Although heat pump operates but water temperature does not reach this temperature for more than 30 mins (setting from remote controller)

AND



AND



In Advanced Parallel mode, setting for both heating and tank can be made simultaneously. During operation of "Heating/Tank" mode, when each time the mode is switched, the boiler output will be reset to OFF. Please have good understanding on the boiler control characteristic in order to select the optimal setting for the system.

9. External SW Initial setting: No

Able to turn ON/OFF the operation by external switch.

System setup 17:26, Wed

Base pan heater

Alternative outdoor sensor

Bivalent connection

External SW

⬆ Select [↵] Confirm

10. Solar connection Initial setting: No

Set when solar water heater is installed.

Setting include items below.

- ① Set either buffer tank or DHW tank for connection with solar water heater.
- ② Set temperature difference between solar panel thermistor and buffer tank or DHW tank thermistor to operate the solar pump.
- ③ Set temperature difference between solar panel thermistor and buffer tank or DHW tank thermistor to stop the solar pump.
- ④ Anti-freezing operation start temperature (please change setting based on usage of glycol.)
- ⑤ Solar pump stop operation when it exceeds high limit temperature (when tank temperature exceed designated temperature (70~90°C))

System setup 17:26, Wed

Alternative outdoor sensor

Bivalent connection

External SW

Solar connection

⬆ Select [↵] Confirm

11. External Error Signal Initial setting: No

Set when external error display unit is installed.

Turn on Dry Contact SW when error happened.

(NOTE) Does not display when there is no Optional PCB.
When error occurs, error signal will be ON.
After turn off "close" from the display, error signal will still remain ON.

System setup 17:26, Wed

Bivalent connection

External SW

Solar connection

External error signal

⬆ Select [↵] Confirm

12. Demand control Initial setting: No

Set when there is demand control.

Adjust terminal voltage within 1 ~ 10 V to change the operating current limit.

(NOTE) Does not display when there is no Optional PCB.

System setup 17:26, Wed

External SW

Solar connection

External error signal

Demand control

⬆ Select [↵] Confirm

Analog input [v]	Rate [%]	
0.0	not activate	
0.1 ~ 0.6	not activate	
0.7	10	not activate
0.8		activate
0.9 ~ 1.1	10	
1.2	15	10
1.3		15
1.4 ~ 1.6	15	
1.7	20	15
1.8		20
1.9 ~ 2.1	20	
2.2	25	20
2.3		25
2.4 ~ 2.6	25	
2.7	30	25
2.8		30
2.9 ~ 3.1	30	
3.2	35	30
3.3		35
3.4 ~ 3.6	35	
3.7	40	35
3.8		40

Analog input [v]	Rate [%]	
3.9 ~ 4.1	40	
4.2	45	40
4.3		45
4.4 ~ 4.6	45	
4.7	50	45
4.8		50
4.9 ~ 5.1	50	
5.2	55	50
5.3		55
5.4 ~ 5.6	55	
5.7	60	55
5.8		60
5.9 ~ 6.1	60	
6.2	65	60
6.3		65
6.4 ~ 6.6	65	
6.7	70	65
6.8		70
6.9 ~ 7.1	70	
7.2	75	70
7.3		75

Analog input [v]	Rate [%]	
7.4 ~ 7.6	75	
7.7	80	75
7.8		80
7.9 ~ 8.1	80	
8.2	85	80
8.3		85
8.4 ~ 8.6	85	
8.7	90	85
8.8		90
8.9 ~ 9.1	90	
9.2	95	90
9.3		95
9.4 ~ 9.6	95	
9.7	100	95
9.8		100
9.9 ~	100	

*A minimum operating current is applied on each model for protection purpose.
*0.2 voltage hysteresis is provided.
*The value of voltage after 2nd decimal point are cut off.

13. SG ready

Initial setting: No

Switch operation of heat pump by open-short of 2 terminals.
Setting belows are possible

SG signal		Working pattern
Vcc-bit1	Vcc-bit2	
Open	Open	Normal
Short	Open	Heat pump and Heater OFF
Open	Short	Capacity 1
Short	Short	Capacity 2

Capacity setting 1

- Heating capacity ___%
- DHW capacity ___%

Capacity setting 2

- Heating capacity ___%
- DHW capacity ___%

} Set by SG ready setting of remote controller

System setup	17:26, Wed
Solar connection	
External error signal	
Demand control	
SG ready	
▲ Select	[←] Confirm

14. External Compressor SW

Initial setting: No

Set when external compressor SW is connected.
SW is connected to external devices to control power consumption, ON signal will stop compressor's operation. (Heating operation etc. are not cancelled).

(NOTE) Does not display if there is no Optional PCB.

If follow Swiss standard power connection, need to turn on DIP SW of main unit PCB. ON/OFF signal used to ON/OFF tank heater (for sterilization purpose)

System setup	17:26, Wed
External error signal	
Demand control	
SG ready	
External compressor SW	
▲ Select	[←] Confirm

15. Circulation Liquid

Initial setting: Water

Set circulation of heating water.

There are 2 types of settings, water and anti-freeze function.

(NOTE) Please set glycol when using anti-freeze function.
It may cause error if setting is wrong.

System setup	17:26, Wed
Demand control	
SG ready	
External compressor SW	
Circulation liquid	
▲ Select	[←] Confirm

16. Heat-Cool SW

Initial setting: Disable

Able to switch (fix) heating & cooling by external switch.

(Open) : Fix at Heating (Heating +DHW)
(Short) : Fix at Cooling (Cooling +DHW)
(NOTE) This setting is disabled for model without Cooling.
(NOTE) Does not display if there is no Optional PCB.

Timer function cannot be used. Cannot use Auto mode.

System setup	17:26, Wed
SG ready	
External compressor SW	
Circulation liquid	
Heat-Cool SW	
▲ Select	[←] Confirm

3-4. Operation Setup

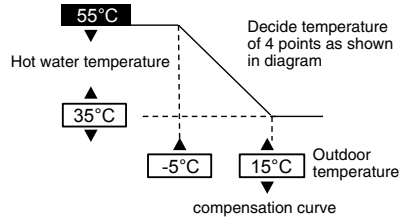
Heat

17. Water temp. for heating ON

Initial setting: compensation curve

Set target water temperature to operate heating operation.
 Compensation curve: Target water temperature change in conjunction with outdoor ambient temperature change.
 Direct: Set direct circulation water temperature.

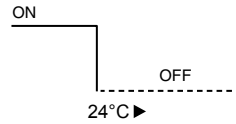
In 2 zone system, zone 1 and zone 2 water temperature can be set separately.



18. Outdoor temp. for heating OFF

Initial setting: 24°C

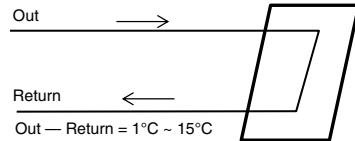
Set outdoor temp to stop heating.
 Setting range is 5°C ~ 35°C



19. ΔT for heating ON

Initial setting: 5°C

Set temp difference between out temp & return temp of circulating water of Heating operation.
 When temp gap is enlarged, it is energy saving but less comfort. When the gap gets smaller, energy saving effect gets worse but it is more comfortable.
 Setting range is 1°C ~ 15°C

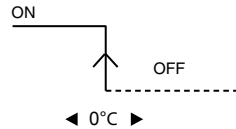


20. Outdoor temp. for heater ON

Initial setting: 0°C

Set outdoor temp when back-up heater starts to operate.
 Setting range is -15°C ~ 20°C

User shall set whether to use or not to use heater.



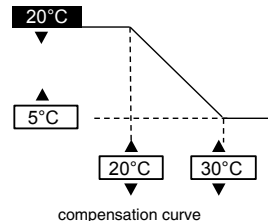
Cool

21. Water temp. for cooling ON

Initial setting: compensation curve

Set target water temperature to operate cooling operation.
 Compensation curve: Target water temperature change in conjunction with outdoor ambient temperature change.
 Direct : Set direct circulation water temperature.

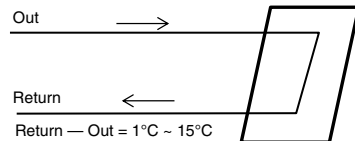
In 2 zone system, zone 1 and zone 2 water temperature can be set separately.



22. ΔT for cooling ON

Initial setting: 5°C

Set temp difference between out temp & return temp of circulating water of Cooling operation.
 When temp gap is enlarged, it is energy saving but less comfort. When the gap gets smaller, energy saving effect gets worse but it is more comfortable.
 Setting range is 1°C ~ 15°C



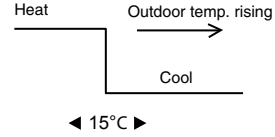
Auto

23. Outdoor temp. for (Heat to Cool)

Initial setting: 15°C

Set outdoor temp that switches from heating to cooling by Auto setting. Setting range is 5°C ~ 25°C

Timing of judgement is every 1 hour

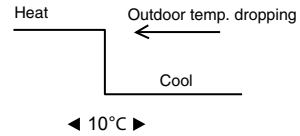


24. Outdoor temp. for (Cool to Heat)

Initial setting: 10°C

Set outdoor temp that switches from Cooling to Heating by Auto setting. Setting range is 5°C ~ 25°C

Timing of judgement is every 1 hour



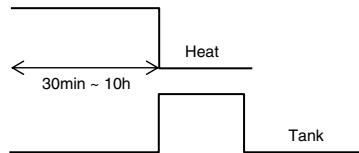
Tank

25. Floor operation time (max)

Initial setting: 8h

Set max operating hours of heating. When max operation time is shortened, it can boil the tank more frequently.

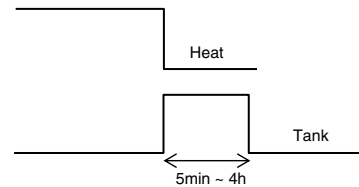
It is a function for Heating + Tank operation.



26. Tank heat up time (max)

Initial setting: 60min

Set max boiling hours of tank. When max boiling hours are shortened, it immediately returns to Heating operation, but it may not fully boil the tank.

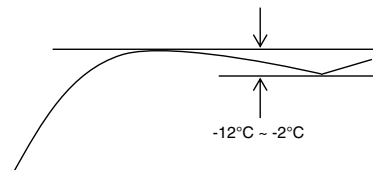


27. Tank re-heat temp.

Initial setting: -8°C

Set temp to perform reboil of tank water. (When boiled by heat pump only, (51°C – Tank re-heat temp) shall become max temp.)

Setting range is -12°C ~ -2°C



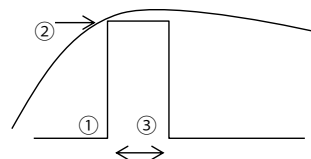
28. Sterilization

Initial setting: 65°C 10min

Set timer to perform sterilization.

- ① Set operating day & time. (Weekly timer format)
- ② Sterilization temp (55~75°C ≠ If use back-up heater, it is 65°C)
- ③ Operation time (Time to run sterilization when it reached setting temp 5min ~ 60min)

User shall set whether to use or not to use sterilization mode.



3-5. Service Setup

29. Pump maximum speed	Initial setting: Depend on model	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Service setup</td> <td style="width: 40%;">17:26, Wed</td> </tr> <tr> <td>Flow rate</td> <td>Max. Duty Operation</td> </tr> <tr> <td>88:8 L/min</td> <td>0xCE Air Purge</td> </tr> <tr> <td colspan="2" style="text-align: left;">← Select</td> </tr> </table>	Service setup	17:26, Wed	Flow rate	Max. Duty Operation	88:8 L/min	0xCE Air Purge	← Select	
Service setup	17:26, Wed									
Flow rate	Max. Duty Operation									
88:8 L/min	0xCE Air Purge									
← Select										

Normally setting is not necessary.
Please adjust when need to reduce the pump sound etc.
Besides that, it has Air Purge function.

30. Pump down	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Service setup</td> <td style="width: 40%;">17:26, Wed</td> </tr> <tr> <td>Pump down:</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">ON</td> </tr> <tr> <td colspan="2" style="text-align: center;">[↵] Confirm</td> </tr> </table>	Service setup	17:26, Wed	Pump down:			ON	[↵] Confirm		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; padding: 20px;"> Pump down operation in progress! [⏻] OFF </td> </tr> </table>	Pump down operation in progress! [⏻] OFF
Service setup	17:26, Wed										
Pump down:											
	ON										
[↵] Confirm											
Pump down operation in progress! [⏻] OFF											

Operate pump down operation

31. Dry concrete Operate concrete curing operation. Select Edit, set temp for every stage (1-99 1 is for 1 day). Setting range is 25-55°C When it is turned ON, dry concrete starts. When it is 2 zone, it dries both zones.	<table style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="text-align: center;">30°C</td> <td style="text-align: center;">35°C</td> <td style="text-align: center;">40°C</td> <td style="text-align: center;">45°C</td> <td style="text-align: center;">40°C</td> <td style="text-align: center;">35°C</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> <td style="text-align: center;">⑥</td> </tr> </table> <p style="text-align: right; margin-top: 5px;">→ Stage</p>	30°C	35°C	40°C	45°C	40°C	35°C	①	②	③	④	⑤	⑥
30°C	35°C	40°C	45°C	40°C	35°C								
①	②	③	④	⑤	⑥								

32. Service contact	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Service setup</td> <td style="width: 40%;">17:26, Wed</td> </tr> <tr> <td>Service contact:</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">Contact 1</td> </tr> <tr> <td></td> <td style="text-align: center;">Contact 2</td> </tr> <tr> <td colspan="2" style="text-align: left;">↑ Select [↵] Confirm</td> </tr> </table>	Service setup	17:26, Wed	Service contact:			Contact 1		Contact 2	↑ Select [↵] Confirm		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Contact-1: Bryan Adams</td> <td style="width: 40%;"></td> </tr> <tr> <td style="text-align: center;">ABC/ abc</td> <td style="text-align: center;">0-9/ Other</td> </tr> <tr> <td colspan="2">A B C D E F G H I J K L M N O P Q R</td> </tr> <tr> <td colspan="2">S T U V W X Y Z a b c d e f g h i</td> </tr> <tr> <td colspan="2">j k l m n o p q r s t u v w x y z</td> </tr> <tr> <td colspan="2" style="text-align: left;">↓ Select [↵] Enter</td> </tr> </table>	Contact-1: Bryan Adams		ABC/ abc	0-9/ Other	A B C D E F G H I J K L M N O P Q R		S T U V W X Y Z a b c d e f g h i		j k l m n o p q r s t u v w x y z		↓ Select [↵] Enter	
Service setup	17:26, Wed																							
Service contact:																								
	Contact 1																							
	Contact 2																							
↑ Select [↵] Confirm																								
Contact-1: Bryan Adams																								
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S T U V W X Y Z a b c d e f g h i																								
j k l m n o p q r s t u v w x y z																								
↓ Select [↵] Enter																								

Able to set name & tel no. of contact person when there is breakdown etc. or client has trouble. (2 items)

4 Service and maintenance

When connect CN-CNT connector with computer

Please use optional USB cable to connect with CN-CNT connector.
After connected, it requests for driver. If PC is under Windows Vista or later version, it automatically installs the driver under internet environment.

If PC uses Windows XP or earlier version and there is no internet access, please get FTDI Ltd's USB - RS232C conversion IC driver (VCP driver) and install.
<http://www.ftdichip.com/Drivers/VCP.htm>

If forget Password and cannot operate remote controller

Press + + for 5 sec.
Password unlock screen appears, press Confirm and it shall reset.
Password will become 0000. Please reset it again.
(NOTE) Only display when it is locked by password.

Maintenance menu

Setting method of Maintenance menu

Maintenance menu	17:26, Wed
Actuator check	
Test mode	
Sensor setup	
Reset password	
▼ Select	[↵] Confirm

Press + + for 5 sec.

Items that can be set

- ① Actuator check (Manual ON/OFF all functional parts)
(NOTE) As there is no protection action, please be careful not to cause any error when operating each part (do not turn on pump when there is no water etc.)
- ② Test mode (Test run)
Normally it is not used.
- ③ Sensor setup (offset gap of detected temp of each sensor within -2~2°C range)
(NOTE) Please use only when sensor is deviated.
It affects temperature control.
- ④ Reset password (Reset password)

Custom menu

Setting method of Custom menu

Custom menu	17:26, Wed
Cool mode	
Back-up heater	
Reset energy monitor	
Reset operation history	
Smart DHW	
▼ Select	[↵] Confirm

Please press + + + for 10 sec.

Items that can be set

- ① Cool mode (Set With/Without Cooling function) Default is without
(NOTE) As with/without Cool mode may affect electricity application, please be careful and do not simply change it.
In Cool mode, please be careful if piping is not insulated properly, dew may form on pipe and water may drip on the floor and damage the floor.
- ② Backup heater (Use/Do not use Backup heater)
(NOTE) It is different from to use/not to use backup heater set by client. When this setting is used, heater power on due to protection against frost will be disabled. (Please use this setting when it is required by utility company.)
By using this setting, it cannot defrost due to low Heating's setting temp and operation may stop (H75)
Please set under the responsibility of installer. When it stops frequently, it may be due to insufficient circulation flow rate, setting temp of heating is too low etc.
- ③ Reset energy monitor (delete memory of Energy monitor)
Please use when moving house and handover the unit.
- ④ Reset operation history (delete memory of operation history)
Please use when moving house and handover the unit.
- ⑤ Smart DHW (Set Smart DHW mode Parameter)
 - a) Start time: Tank reboil at lower ON Temp. onward.
 - b) Stop time: Tank reboil at normal ON Temp. onward.
 - c) ON Temp.: Tank Reboil Temp when Smart DHW start.



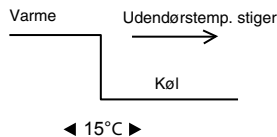
Auto

23. Udetemp. for (varme til køl)

Startindstilling: 15°C

Indstil udedørstemperatur, der skifter fra opvarmning til nedkøling med Auto-indstilling.
Indstillingsvidden er 5°C ~ 25°C

Timing af bedømmelse er hver time

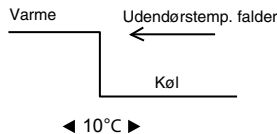


24. Udetemp. for (køl til varme)

Startindstilling: 10°C

Indstil udedørstemperatur, der skifter fra nedkøling til opvarmning med Auto-indstilling.
Indstillingsvidden er 5°C ~ 25°C

Timing af bedømmelse er hver time



DANSK

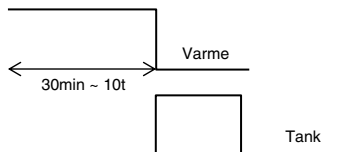
Tank

25. Max. opvarmningstid varme

Startindstilling: 8t

Indstil maks. driftstimer for opvarmning.
Når den maks. driftstid forkortes, kan beholderen opvarmes hyppigere.

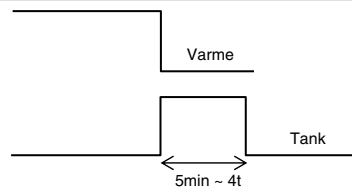
Det er en funktion til Opvarmning + Beholderdrift.



26. Max. opvarmningstid tank

Startindstilling: 60min

Indstil maks. opvarmningstimer for beholder.
Når den maks. opvarmningstid forkortes, vender den straks tilbage til varmedrift, men det kan muligvis ikke opvarme beholderen helt.

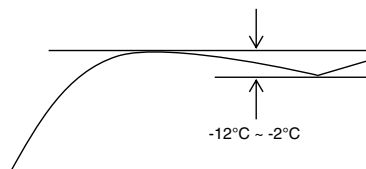


27. Max. genopvarmningstid tank

Startindstilling: -8°C

Indstil temperatur til at udføre genopvarmning af vandet i beholderen.
(Kun ved opvarmning med pumpen, (51°C – Temp. for genopvarmning af beholder skal være den maksimale temperatur.)

Indstillingsvidden er -12°C ~ -2°C



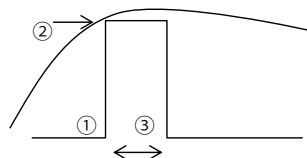
28. Legionella

Startindstilling: 65°C 10min

Indstil timer for at udføre sterilisering.

- ① Indstil driftsdag og tid. (Ugentligt timer-format)
- ② Steriliseringstemp. (55-75°C ≠ Ved brug af backup-varmelegeme er den 65°C)
- ③ Driftstid (Tid til at køre sterilisation, når den når indstillingstemperaturen 5min ~ 60min)

Brugeren skal angive, om der skal bruges sterilisering eller ej.



3-5. Service setup

<p>29. Pumpe max. hastighed</p> <p>Normalt er indstilling ikke nødvendig. Juster, når der er behov for at reducere pumpeens lyd etc. Udover det, har den udluftningsfunktion.</p>	<p>Startindstilling: Afhænger af model</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Service setup</td> <td style="text-align: right;">17:26, Ons</td> </tr> <tr> <td>Kapacitet</td> <td>Maks. drift</td> <td>Funktion</td> </tr> <tr> <td>88:8 L/min</td> <td>0xCE</td> <td style="text-align: center;">▲ Udluftn.</td> </tr> <tr> <td colspan="2">◀ Vælg</td> <td></td> </tr> </table>	Service setup		17:26, Ons	Kapacitet	Maks. drift	Funktion	88:8 L/min	0xCE	▲ Udluftn.	◀ Vælg		
Service setup		17:26, Ons												
Kapacitet	Maks. drift	Funktion												
88:8 L/min	0xCE	▲ Udluftn.												
◀ Vælg														

<p>30. Pump down</p> <p>Kør pumpen ned</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Service setup</td> <td style="text-align: right;">17:26, Ons</td> </tr> <tr> <td colspan="3">Pump down:</td> </tr> <tr> <td colspan="3" style="text-align: center;">TIL</td> </tr> <tr> <td colspan="3" style="text-align: center;">[↩] Bekr.</td> </tr> </table>	Service setup		17:26, Ons	Pump down:			TIL			[↩] Bekr.			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Pump down i gang!</td> </tr> <tr> <td colspan="2" style="text-align: center;">[⏻] SLUK</td> </tr> </table>	Pump down i gang!		[⏻] SLUK	
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<p>31. Beton tørring</p> <p>Kør betonhærdningsdrift. Vælg Rediger, indstil temperatur for hvert trin (1-99 1 er for 1 dag). Indstillingsvidden er 25-55°C. Når den er TÆNDT, starter tør beton. Når den er på zone 2, tørrer den begge zoner.</p>	
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<p>32. Info på servicefirma</p> <p>I stand til at indstille navn & tlfnr. på kontaktperson, når der er nedbrud etc. eller når kunden har problemer. (2 genstande)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Service setup</td> <td style="text-align: right;">17:26, Ons</td> </tr> <tr> <td colspan="3">Info på servicefirma:</td> </tr> <tr> <td colspan="3" style="text-align: center;">Kontakt 1</td> </tr> <tr> <td colspan="3" style="text-align: center;">Kontakt 2</td> </tr> <tr> <td colspan="2">▲ Vælg</td> <td>[↩] Bekr.</td> </tr> </table>	Service setup		17:26, Ons	Info på servicefirma:			Kontakt 1			Kontakt 2			▲ Vælg		[↩] Bekr.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Kontakt -1: Bryan Adams</td> </tr> <tr> <td style="text-align: center;">ABC/abc</td> <td style="text-align: center;">0-9/Andr.</td> </tr> <tr> <td colspan="2">A B C D E F G H I J K L M N O P Q R</td> </tr> <tr> <td colspan="2">S T U V W X Y Z a b c d e f g h i</td> </tr> <tr> <td colspan="2">j k l m n o p q r s t u v w x y z</td> </tr> <tr> <td colspan="2">▼ Vælg</td> </tr> <tr> <td colspan="2" style="text-align: right;">[↩] Gå ind</td> </tr> </table>	Kontakt -1: Bryan Adams		ABC/abc	0-9/Andr.	A B C D E F G H I J K L M N O P Q R		S T U V W X Y Z a b c d e f g h i		j k l m n o p q r s t u v w x y z		▼ Vælg		[↩] Gå ind	
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DANSK

4 Service og vedligeholdelse

Tilslut CN-CNT-stikket til computeren

Brug venligst et USB-kabel til at tilslutte med CN-CNT-stikket. Efter tilslutning anmoder den om et drev. Hvis PC'en er under Windows Vista eller nyere version, installerer den automatisk drevet under internetmiljøet.

Hvis PC'en bruger Windows XP eller tidligere version, og der er ikke adgang til internettet, skal du få FTDI Ltd's USB - RS232C konvertering IC drev (VCP drev) og installere. (<http://www.ftdichip.com/Drivers/VCP.htm>)

Hvis du glemmer adgangskoden og ikke kan få fjernkontrollen til at fungere

Tryk + + på i 5 sekunder. Adgangskodeoplysningskærmen vises; tryk på Bekræft, så den bliver nulstillet. Adgangskoden vil nu være 0000. Nulstil den venligst igen. (BEMÆRK) Vis den kun, når den er med adgangskoden.

Service menu

Indstillingsmetode af Servicemenue

Servicemenu	17:26, Ons
Overstyring af outputs	
Testtilstand	
Føler setup	
Reset adgangskode	
▼ Vælg	[↵] Bekr.

Tryk + + på i 5 sekunder.

Ting, der kan indstilles

- 1 Overstyring af outputs (Manuel TÆND/SLUK på alle funktionelle dele)
(BEMÆRK) Da der ikke er nogen beskyttelsehandling, skal du være forsigtig med ikke at forårsage nogen fejl ved betjening af hver del (tænd ikke for pumpen, når der ikke er vand, etc.)
- 2 Testtilstand (Testkørsel)
Den benyttes normalt ikke.
- 3 Føler setup (offset-mellemrum af detekteret temp af hver sensor indenfor en -2-2°C rækkevidde)
(BEMÆRK) Brug venligst kun når føleren er afvejet. Den påvirker temperaturkontrollen.
- 4 Reset adgangskode (Nulstil adgangskode)

Grundindstillinger

Indstillingsmetode af Grundindstillingerne

Grundindstillinger	17:26, Ons
Køl	
Backupvarmelegeme	
Reset energimåler	
Nulstil driftshistorik	
Smart VV	
▼ Vælg	[↵] Bekr.

Tryk på + + i 10 sekunder.

Ting, der kan indstilles

- 1 Køl (Indstil med eller uden nedkølingsfunktion) Standard er uden
(BEMÆRK) Da med/uden Kølertilstand kan påvirke elektriciteten, skal du være forsigtig og ikke bare ændre den.
I Kølertilstand, skal du være forsigtig, hvis rørene ikke er isoleret ordentligt, da der kan dannes dug på røret og vand kan dryppe på gulvet og beskadige gulvet.
- 2 Backupvarmelegeme (Brug/Brug ikke Backupvarmelegeme)
(BEMÆRK) Det er forskelligt fra at bruge/ikke at bruge backupvarmelegemet indstillet af kunden. Når denne indstilling bruges, vil varmelegeme deaktiveres på grund af beskyttelse mod frost. (Brug venligst denne indstilling, når det kræves af eiselskabet.)
Ved at bruge denne indstilling, kan det ikke optø på grund af lav opvarmningstemperatur, og driften kan standse (H75) Indstil under ansvar af installatør. Når den stopper ofte, kan det skyldes utilstrækkelig cirkulationsstrømningshastighed, indstillingen af opvarmningstemperaturen er for lavt etc.
- 3 Reset energimåler (slet energimålerens hukommelse)
Brug venligst når du flytter husningen og overdrager enheden.
- 4 Nulstil driftshistorikken (slet hukommelsen ved driftshistorikken)
Brug venligst når du flytter husningen og overdrager enheden.
- 5 Smart VV (Indstil parameteren for Smart VV-tilstand)
 - a) Starttid: Beholder genopvarmes ved lavere PÅ Temp. fremefter.
 - b) Stoptid: Beholder genopvarmes ved normal PÅ Temp. fremefter.
 - c) PÅ temp.: Beholders genopvarmningstemp. når Smart VV starter.