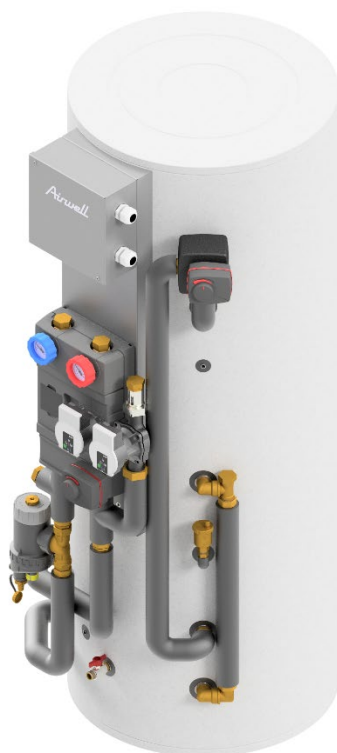




Installation manual

HYDRODUO Hydraulic Module *EN*



Dear Customer,

Thank you for purchasing this device.

Please read this manual carefully before using your device. Keep this document in a safe place for future reference.

To ensure safe and efficient operation, we recommend that you perform the necessary maintenance regularly. Our after-sales service can assist you with these operations.

We hope you will be satisfied with our services for many years to come.

AIRWELL

This manual refers to the following unit:

Designation	Code
ODHA-200N-08M22-00	7SP130005
ODHA-200N-08M22-01	7SP130006
ODHA-200N-08M22-02	7SP130007
ODHA-300N-08M22-00	7SP130008
ODHA-300N-08M22-01	7SP130009
ODHA-300N-08M22-02	7SP130010

The information contained in this manual is subject to change without notice by the manufacturer.

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1. SAFETY PRECAUTIONS

Meaning of the terms **DANGER**, **WARNING**, **CAUTION** and **NOTE**.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

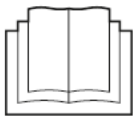
CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. This term may also be used as a warning in the case of unsafe practices.

NOTE

Indicates situations that may only cause accidental damage to equipment or other property.

1.1.Symbols on the device

	WARNING	A flammable refrigerant is used. A fire may occur due to an unexpected refrigerant leak.
	CAUTION	Read the user manual carefully before taking any action.
	CAUTION	Only a specialist is authorised to take measures in accordance with the installation manual instructions.
	CAUTION	The information is available in the relevant documentation.

1.2.Regulatory conditions for installation and maintenance

The installation and maintenance of the appliance must be carried out by an approved professional in accordance with the regulations and best practices in force, in particular:

France:

•Legislation on the handling of refrigerants: **Decree 2007/737 and its implementing orders.**

•Heating installation with underfloor heating: **NF DTU 65.14:** Installation of water-based underfloor

heating systems.

•**NF DTU 60.1** (and parts P1-1-1, P1-1-2, P1-1-3, P1-2 and P2): Sanitary plumbing for buildings.

•**NF DTU 60.11** (and parts P1-1, P1-2 and P2): Rules for calculating sanitary plumbing and rainwater installations.

•Standard Departmental Health Regulations (RSD).

•**NF C 15-100** and its amendments: Low-voltage electrical installations - Rules.

1.3.Installation

The installation of the heat pump must meet the requirements related to its location.

CAUTION

The hydraulic module must not be installed in a draught.

1.4.Hydraulic connections

The connection must comply with best practice in accordance with current regulations.

Reminder: all seals must be installed in accordance with current best practice for plumbing work:

- Use suitable seals (fibre seals, O-rings).
- Use Teflon tape or hemp.
- Use sealing compound (synthetic, depending on the situation).

Use glycol water if the minimum flow temperature is set below 10°C.

Use glycol water if the external hydraulic connections are at risk of freezing.

For external hydraulic connections, a suitable insulating material must be used: UV-resistant with an operating temperature of -20 to +70°C.

If glycol water is used, arrange for an annual check of the glycol quality. Use mono propylene glycol only. **The recommended concentration is 40% max. (30% min.).**

Please note: the maximum permissible concentration of monopropylene glycol in our components is 30%.

NOTE

The use of monoethylene glycol is prohibited.

Reminder: Articles 16.7 and 16.8 of the Standard Departmental Health Regulations require the installation of a CB-type backflow preventer to prevent heating water from flowing back into the drinking water system.

NOTE

In some installations, the presence of different metals can cause corrosion problems, resulting in the formation of metal particles and sludge in the hydraulic circuit. In this case, it is advisable to use a corrosion inhibitor in the proportions indicated by the manufacturer. It is also important to check that the treated water does not become aggressive.

1.5. Pressure limiting device

If a domestic hot water tank is installed, a pressure limiter device (safety unit) must be placed between the tank and the cold water supply pipe.

WARNING

The domestic hot water tank must be supplied with water via this pressure limiting device and no shut-off or bypass device must be installed between the tank and the safety unit (no additional valves, taps or pipes).

The pressure limiting device and its installation must comply with the following requirements:

- The pressure limiting device must bear a CE marking indicating its compliance with current European standards.
- The pressure limiter device's relief valve must be calibrated to 0.7 MPa (7 bar).
- A siphon and a discharge pipe must be installed with the valve and kept in the open air, as water may flow into them.
- The pressure limiter device's discharge pipe must be installed in a frost-free environment and on a continuous downward slope.
- If in doubt about how to install this pressure relief device, consult the manufacturer's installation recommendations.

NOTE

The pressure relief device must be operated regularly to remove limescale deposits and check that it is not blocked.

1.6. Electrical connections

Electrical connections shall only be made once all other assembly operations (fixing, assembly, etc.) have been completed.

DANGER

Before carrying out any work, ensure that all power supplies are disconnected and secured.

Power supply characteristics:

The electrical installation must be carried out in accordance with the regulations in force, in particular:

- France: **NF C 15-100** standard.
- Belgium: General Regulations for Electrical Installations (R.G.I.E).

For installations without a neutral, a galvanic isolation transformer earthed on the secondary side must be used.

CAUTION

The electrical installation must be equipped with a 30 mA residual current device (RCD).

This device is designed to operate at a nominal voltage of 230V +/- 10%, 50 Hz.

The contract with the energy supplier must be sufficient to cover not only the power of the heat pump (HP) but also the total power of all appliances that may be operating at the same time. If the power is insufficient, check with your energy supplier to find out the power rating specified in your contract.

Never use a power socket for the power supply.

The heat pump must be powered directly (without an external switch) by dedicated lines protected at the electrical panel by omnipolar circuit breakers dedicated to the heat pump, curve C for the outdoor unit, curve C for the electric heating and sanitary backup systems.

General information on electrical connections

It is essential to respect the phase-neutral polarity when making electrical connections.

Rigid wire is preferable for fixed installations, particularly in buildings.

Tighten the cables using cable glands to prevent accidental disconnection of the conductive wires.

The earth connection and its continuity are essential.

Cable glands

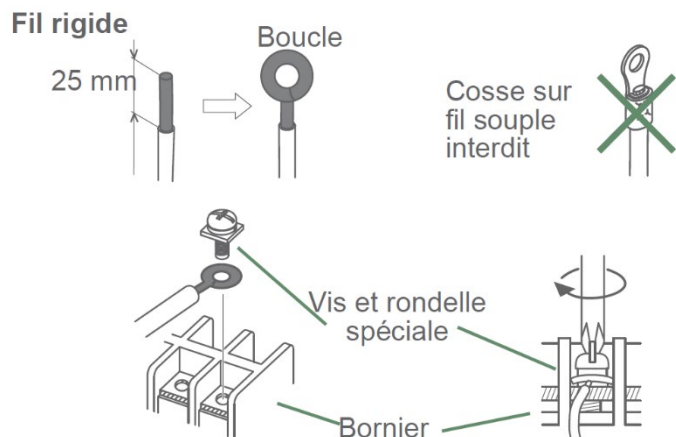
To ensure that power cables (low voltage) and probes (very low voltage) are securely held in place, it is essential to tighten the cable glands in accordance with the following recommendations:

Cable gland size (mm)	Cable diameter (mm)	's tightening torque (lock nut) (N.m)	Cap nut tightening torque (N.m)
PG7	1 to 5	1.3	1
PG9	1.5 to 6	3.3	2.6
PG19	5 to 12	4.3	2.6
PG21	13 to 18	5	4

Connection to screw terminals

- The use of cable lugs or ferrules is prohibited.
- Always choose a wire that complies with current standards.
- Strip the end of the wire to a length of approximately 25 mm.
- Using round-nose pliers, make a loop with a diameter corresponding to the terminal block's clamping screws.

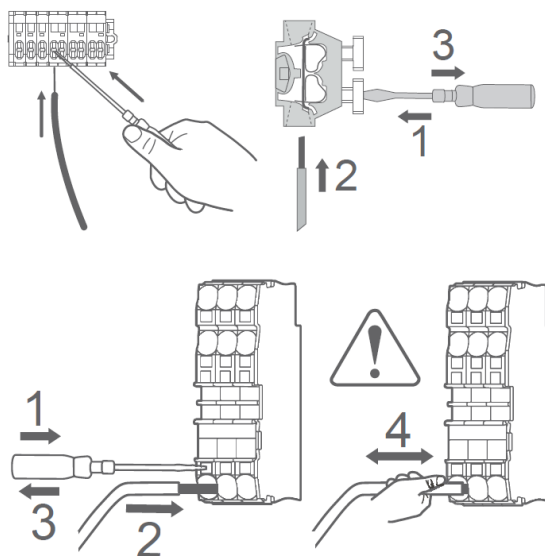
- Tighten the terminal block screw very firmly on the loop you have made. Insufficient tightening can cause overheating, which can lead to failure or even fire.



Connection to spring terminals

- Strip the end of the wire to a length of approximately 12 mm.
- Push the spring with a screwdriver so that the wire enters the cage.
- Slide the wire into the hole provided for this purpose.

Remove the screwdriver and check that the wire remains stuck in the cage by pulling on it.



2. INTRODUCTION

2.1. Validity of instructions

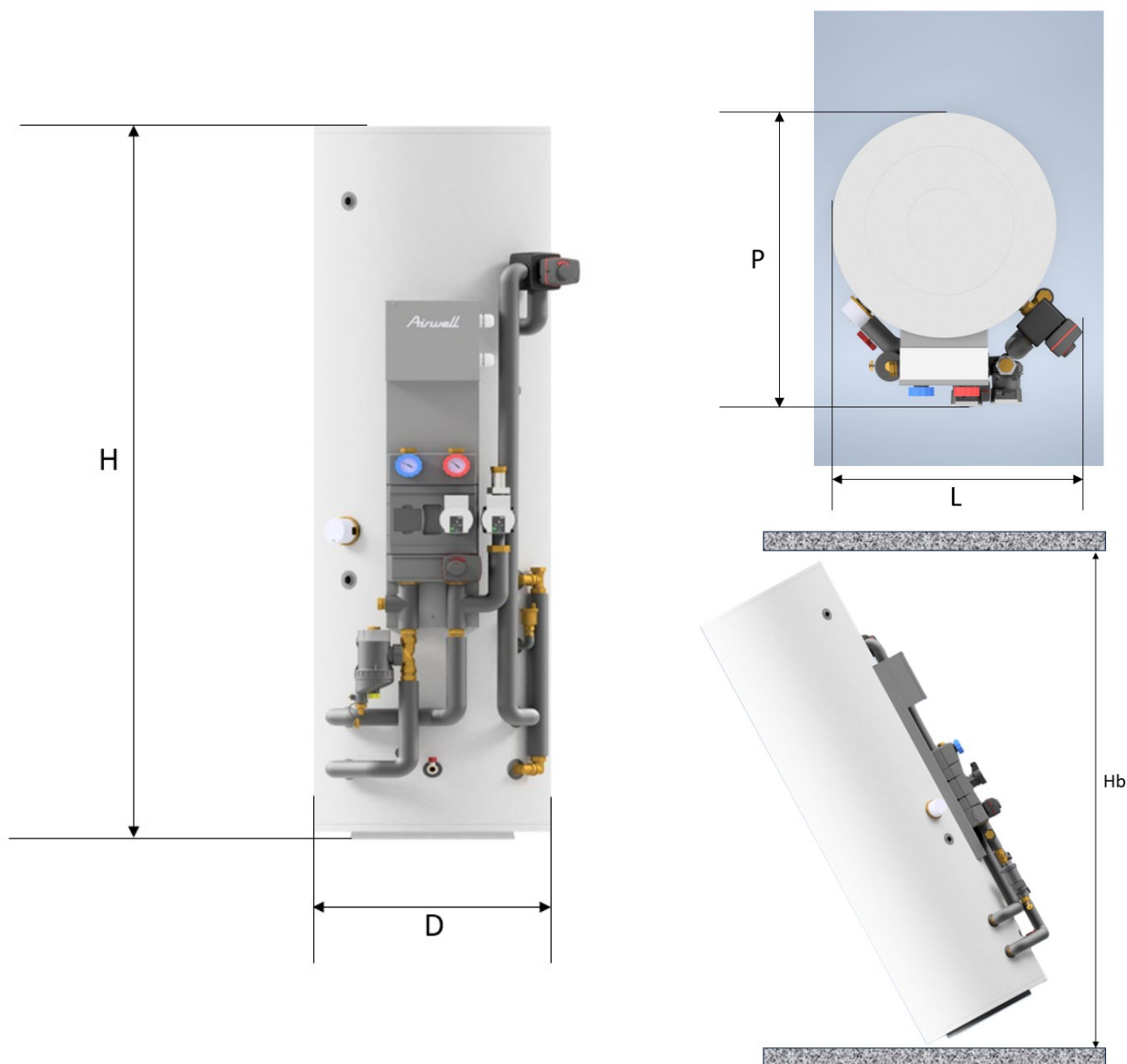
These instructions apply only to the following references (designations and codes):

Designation			ODHA-200N-08M22-00	ODHA-200N-08M22-01	ODHA-200N-08M22-02	ODHA-300N-08M22-00	ODHA-300N-08M22-01	ODHA-300N-08M22-02
Code			7SP130005	7SP130006	7SP130007	7SP130008	7SP130009	7SP130010
Max. capacity PAC		kW	16			16		
Function	Domestic hot water	L	200			300		
	Buffer	L	90			90		
	1 Direct zone			√	√		√	√
	1 mixed zone				√			√

2.2. Device accessories

Device accessories			
Name	Illustration	Quantity	Specifications
Installation manual (this manual)		1	
Safety group		1	To be installed
DHW trap		1	To be installed

2.3.Transport Dimensions

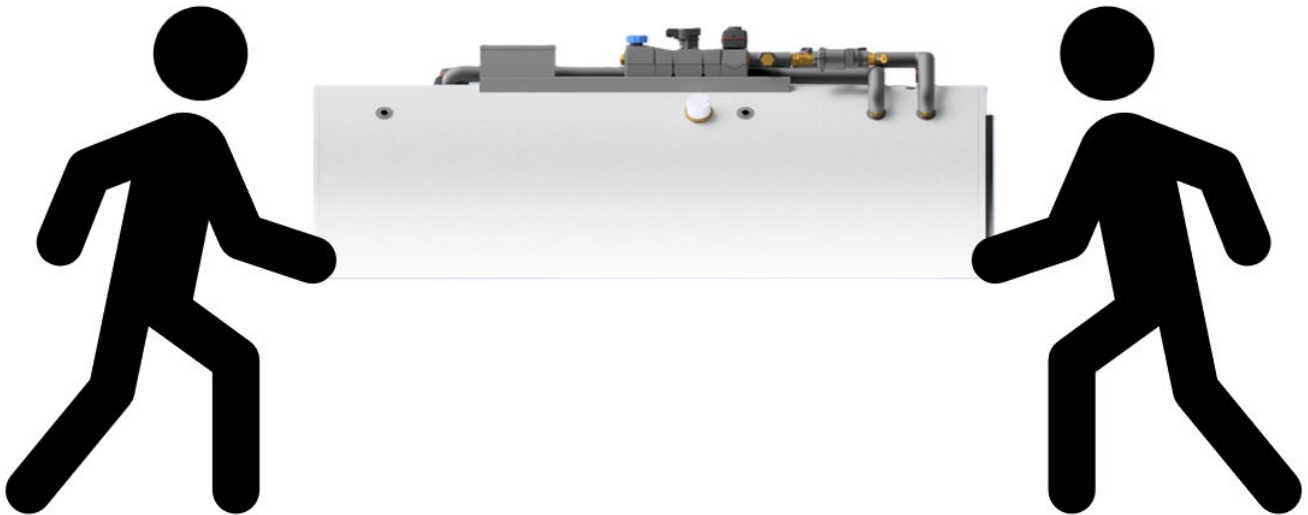


Designation		ODHA-200N-08M22-00	ODHA-200N-08M22-01	ODHA-200N-08M22-02	ODHA-300N-08M22-00	ODHA-300N-08M22-01	ODHA-300N-08M22-02
H	mm	1,675			2,185		
D	mm	620					
L	mm	695					
Hb	mm	1,800			2,300		
P	mm	620	815		620	815	
Weight	kg	100	105	115	120	125	135

Handling

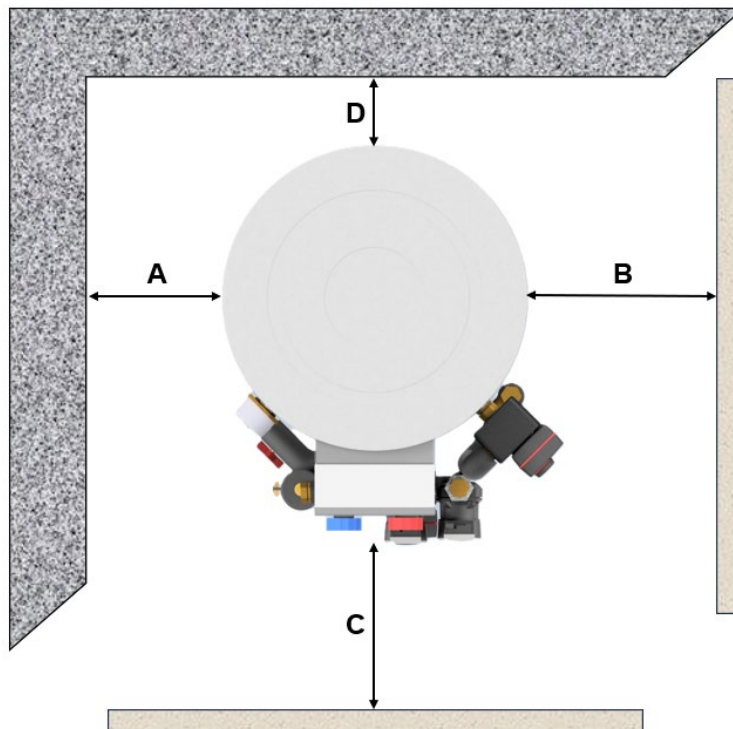
When transporting the module the last few metres, take care due to its weight. If possible, carry it between two people, laying it on the side without the hydraulic kit.

NEVER LIFT THE HYDRAULIC MODULE BY THE PIPES



3. INSTALLATION

3.1. Positioning



	A	B	C	D
Minimum distance	40 cm	50 cm	60 cm	10 cm
Recommended distance	50 cm	60 cm	70 cm	10 cm

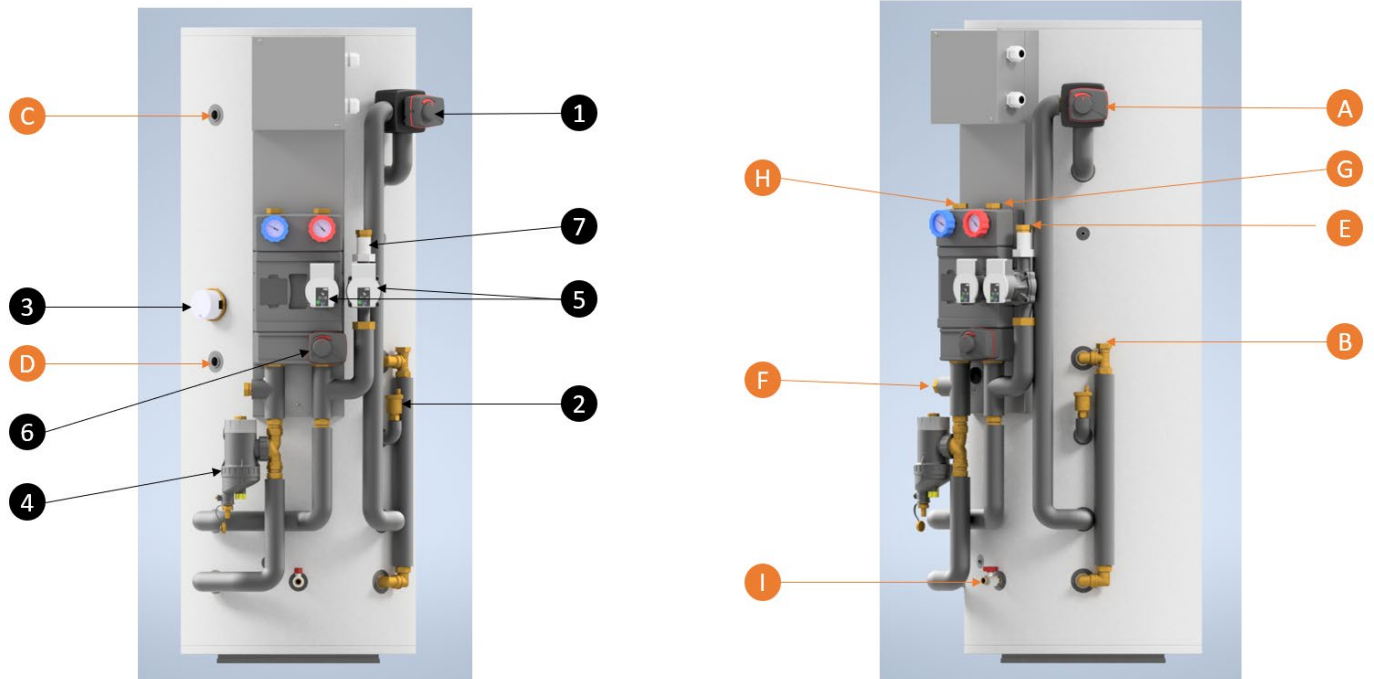
3.2.Items included

Components included depending on version				ESS	1ZT	2ZT
Electrical resistance	Power	kW	3	√	√	√
	Connection		Type E plug			
	Intensity	A	16			
3-way DHW valve	Diameter	inch	1" 1/4	√	√	√
DHW valve motor	Power supply	V	230	√	√	√
	Race time	s	40			
	Control		3 wires			
Mixing valve	Diameter	inch	1	-	-	√
Zone 2 valve motor	Power supply	V	230	-	-	√
	Race time	s	120			
	Control		3 wires			
Zone 1 circulator*	Reference*		Wilo PARA 25-180/8-75	-	√	√
	Max. static pressure*	kPa	80			
	Maximum power consumption*	W	75			
Zone 2 circulator*	Reference*		Wilo PARA 25-180/8-75	-	-	√
	Max. static pressure*	kPa	80			
	Maximum power consumption*	W	75			
Sludge pot	Diameter	inch	1	-	√	√
Temperature sensor			1 DHW sensor	-	√	√
			1 Zone 2 sensor	-	-	√

* PLEASE NOTE: depending on the version and date of manufacture, the circulators may be subject to change.

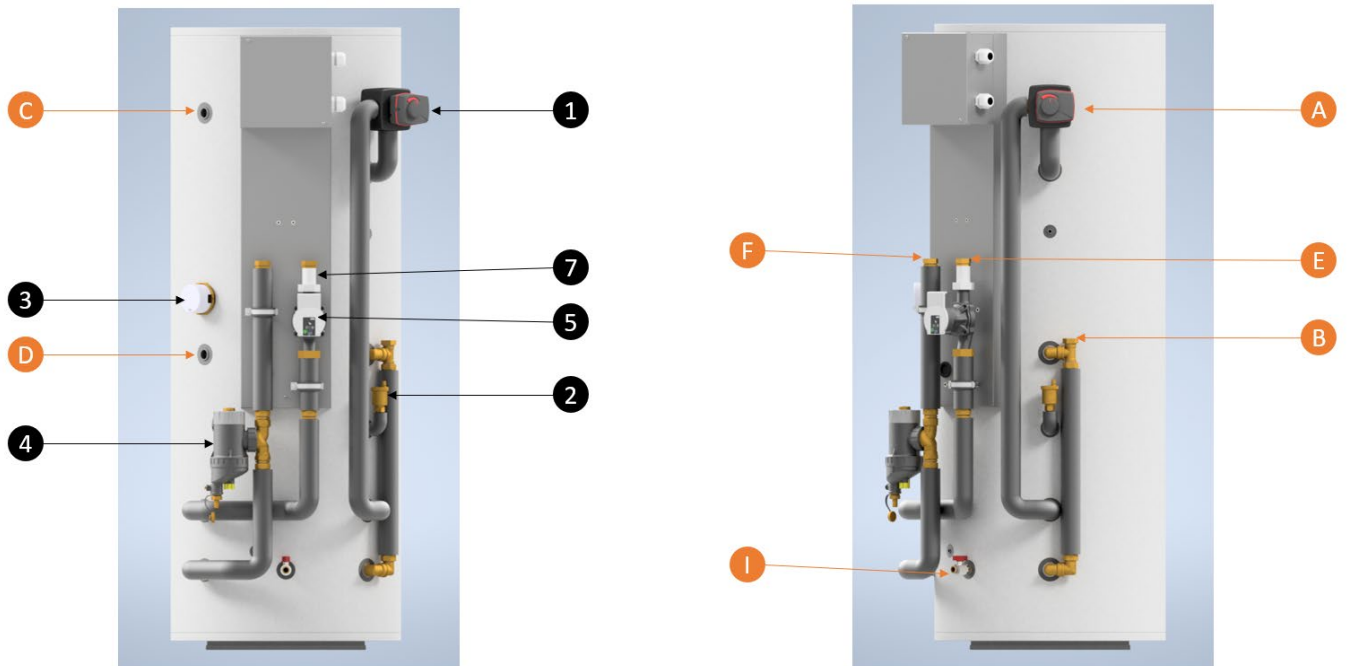
3.3. Visual and components

3.3.1. ODHA-200N-08M22-02 & ODHA-300N-08M22-02



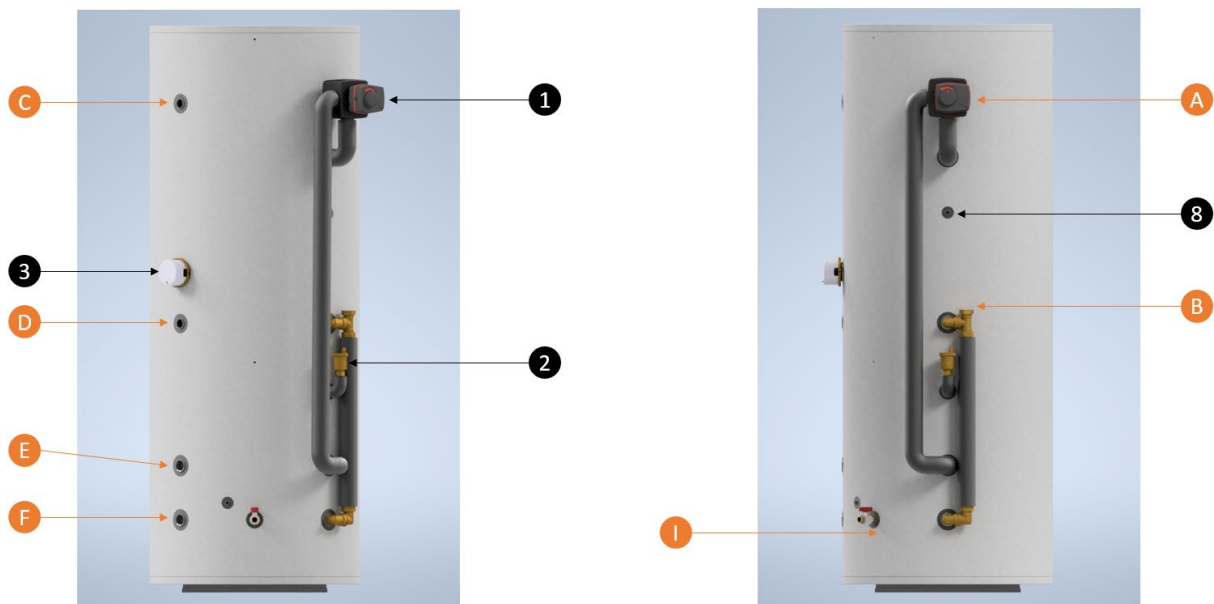
Reference	Description	Reference	Description
1	3-way DHW valve	A	Heat pump outlet
2	Automatic air vent	B	Heat pump return
3	DHW backup heater	C	DHW outlet
4	Magnetic sludge pot	D	EFS inlet
5	Heating circulators zone 1 and 2	E	Direct zone outlet (zone 1)
6	Zone 2 mixing valve	F	Direct zone return (zone 1)
7	Zone 1 non-return valve	G	Mixed zone start (zone 2)
		H	Mixed zone return (zone 2)
		I	Buffer tank drain valve

3.3.1.ODHA-200N-08M22-01 & ODHA-300N-08M22-01



Reference	Description	Reference	Description
1	3-way DHW valve	A	Heat pump outlet
2	Automatic air vent	B	Heat pump return
3	DHW backup heater	C	DHW outlet
4	Magnetic sludge pot	D	EFS inlet
5	Heating circulator	E	Direct zone outlet
7	Non-return valve	F	Direct zone return
		I	Buffer tank drain valve

3.3.2.ODHA-200N-08M22-00 & ODHA-300N-08M22-00



Reference	Description	Reference	Description
1	3-way DHW valve	A	Heat pump outlet
2	Automatic air vent	B	Heat pump return
3	DHW backup heater	C	DHW outlet
8	DHW sensor location	D	EFS inlet
		I	Buffer tank drain valve

4. HYDRAULIC CONNECTION

NOTE

Installation must be carried out in accordance with best practice and applicable DTU standards. These documents are listed in section 1.2: Regulatory requirements for installation and maintenance.

4.1. Flushing the installation

NOTE

THE ENTIRE SYSTEM MUST BE DESCALED AND FLUSHED BEFORE CONNECTING AIRWELL HEAT PUMPS AND HYDRAULIC MODULES. FAILURE TO COMPLY WITH THIS REQUIREMENT WILL VOID THE WARRANTIES.

Do not use solvents or aromatic hydrocarbons (petrol, oil, etc.).

In general, installations must be protected from oxygen. This recommendation applies to conventional emitter networks as well as to underfloor or ceiling heating and cooling systems. In all cases, oxygen is responsible for the formation of sludge, which can significantly reduce the performance and reliability of the product. This recommendation therefore excludes, for example, the use of oxygen-permeable piping materials such as PER.

4.2. Flow rate range

Check that the minimum flow rate of the installation is guaranteed under all conditions. This flow rate is necessary for defrosting/auxiliary heating.

Refer to the heat pump manual.

NOTE

When one or more heating circuits are controlled by remote-controlled valves, the minimum water flow rate must be guaranteed, even if all valves are closed. If the minimum cannot be met, E0 and E8 (unit shutdown) will be triggered.

4.3. Heat pump connection

The heat pump must be connected according to the outlet diameters of the heat pump. Please refer to the table below.

In all cases, the pipes, connections, elbows, exogel valves and hoses must have the same diameters as those of the heat pump. The connection diameters of the HydroDuo do not represent the pipe diameters to be used.

List of items not supplied with the HydroDuo tank and required for connecting the heat pump:

- Isolation valves
- Sieve filter (supplied with the WELLEA)
- Pressure gauge

HYDRAULICS			
Heat pump connection	Outlet	inch	1" M
	Return	inch	1" M

NOTE

- *The inside of the pipe must be clean.*
- *Hold the end of the pipe downwards when removing burrs.*
- *Cover the end of the pipe when inserting it into a wall to prevent dust and dirt from entering the pipe.*
- *Use thread sealant to seal the connections. The seal must be able to withstand the pressure and temperature of the system.*
- *When using non-copper metal pipes, care must be taken to insulate the two types of material from each other to prevent galvanic corrosion.*
- *Copper is malleable. Use the appropriate tools to avoid damaging it.*
- *Zn-coated parts cannot be used.*
- *Always use materials that do not react with the water used in the system and with the materials used in the appliance.*
- *Ensure that the components installed in the piping can withstand the water pressure and temperature.*

Range	WELLEA M MT	WELLEA S MT	WELLEA M HT
DN25 (1")	WHPMA04-H91	WHPMA0406-N91	BDHW-040R-09M25
		WHPMA0810-N91	
	WHPMA06-H91	WHPMA1216-N91	BDHW-060R-09M25
		WHPMA1216-N93	
DN32 (1-1/4")	WHPMA08-H91	-	BDHW-080R-09M25
	WHPMA10-H91		BDHW-100R-09M25
	WHPMA12-H91		BDHW-120R-09M25
	WHPMA14-H91		BDHW-140R-09M25
	WHPMA16-H91		BDHW-160R-09M25
	WHPMA12-H93		BDHW-120R-09T35
	WHPMA14-H93		BDHW-140R-09T35
	WHPMA16-H93		BDHW-160R-09T35

CAUTION

Incorrect orientation of the water outlet and inlet may cause the unit to malfunction.

Do NOT apply excessive force when connecting the pipes and ensure that the pipes are correctly aligned. Deformation of the water pipes may cause the unit to malfunction.

The appliance must only be used in a closed water system.

4.4. Connecting the heating circuit(s)

List of items not supplied with the HydroDuo tank and required for connecting the heating circuit(s):

- Shut-off valves (on each flow/return pipe)
- Valve + backflow preventer for filling the system
- Expansion tank (depending on water volume, refer to the WELLEA heat pump manual)
- Insulated heating pipe (DN25)
- Magnetic sludge pot (on the buffer tank return) (supplied on 1ZT and 2ZT versions)
- Automatic air vents at all high points of the system

HYDRAULICS			
Zone 1 connection	Start	inch	1" M
	Return	inch	1" M
Zone 2 connection	Outlet	inch	1" M
	Return	inch	1" M

An automatic air vent is already installed on the buffer tank.

CAUTION FOR ESSENTIAL VERSIONS, THE SECONDARY CIRCUIT IS NOT PRE-ASSEMBLED, SO THE BUFFER TANK FLOW/RETURN IS G1" F.

4.5. Domestic hot water tank connection

The domestic hot water tank must be connected in accordance with local standards.

List of items not supplied with the HydroDuo tank and required for connecting the domestic hot water tank:

- Shut-off valves
- Valve + backflow preventer for domestic cold water
- Thermostatic valve to limit the water temperature
- Expansion tank (depending on water volume)

HYDRAULICS			
DHW connection	DHW outlet	inch	3/4" F
	CW inlet	inch	3/4" F

A DHW safety group and a DHW siphon are supplied with the HydroDuo tank.

4.6. Buffer tank drain connection

The buffer tank drain valve is already installed. The connection to it is made with a G 1/2" M.

4.7. Connection of an expansion tank

If the volume of the heating system requires an expansion tank in addition to the one in the heat pump, the automatic vent on the buffer tank can be removed. Once the automatic vent has been unscrewed, you will have access to a G1/2" female thread with a loose nut. If you remove the elbow, you will then have access to a G1/2" M thread.

4.8. Filling and bleeding the system

- Check that the pipes are securely fastened, the connections are tight and the hydraulic module is stable.
- Check the direction of water flow and that all valves are open.
- Proceed to fill the system.

While filling, do not operate the circulator; open all the system's bleed valves and the hydraulic module's bleed valve to remove any air from the pipes.

- Close the bleed valves and add water until the pressure in the hydraulic circuit reaches 1 bar.
- Check that the hydraulic circuit is properly vented.
- Check that there are no leaks.

When commissioning the heat pump, refer to its installation manual to perform a bleed cycle.

4.9. Water quality

Checking and treating heating water and top-up water

Before filling or topping up the system, check the quality of the heating water.

NOTE

Risk of material damage due to poor-quality heating water.

Ensure that the heating water is of sufficient quality.

The water quality must comply with European Directive EN 98/83.

Filling check

Before filling the system, measure the water hardness.

Checking the quality of the heating water

- 1) Remove a small amount of water from the heating circuit.
- 2) Check the appearance of the heating water.
If the heating water contains sediment, ensure that the system is descaled.
- 3) Use a magnetic rod to check whether the heating water contains magnetite (iron oxide).
If you find that it contains magnetite, clean the system and take the necessary corrosion inhibition measures, or install a magnetite separator.
- 4) Check the pH value of the extracted water at 25 °C.
If the value is below 8.2 or above 10.0, clean the system and treat the heating water.

NOTE

Ensure that oxygen cannot enter the heating water.

Water treatment

Observe all applicable national regulations and technical rules when treating the water.

If national regulations and technical rules do not stipulate stricter requirements, the following provisions apply:

You must treat the heating water in the following cases.

- If the total amount of fill water and make-up water during the service life of the system exceeds three times the nominal value of the heating system,

- If the guideline values listed in the following table are not complied with,

- If the pH of the heating water is below 8.2 or above 10.0.

4.10. Frost protection

4.10.1. Safety via heat pump control

Refer to the heat pump manual.

4.10.2. Protection with glycol

Glycol lowers the freezing point of water.

CAUTION

Propylene glycol is toxic.

WARNING

Glycol can corrode the system. When uninhibited glycol comes into contact with oxygen, it becomes acidic. This corrosion process is accelerated by copper and high temperatures. Acidic uninhibited glycol attacks metal surfaces, forming galvanic corrosion cells that can seriously damage the system. It is therefore important to follow these steps:

- Have a qualified specialist treat the water correctly;
- Choose a glycol containing corrosion inhibitors to counteract the acids formed by glycol oxidation;
- Do not use automotive glycol as its corrosion inhibitors have a limited lifespan and contain silicates that can contaminate or block the system;
- Do not use galvanised pipes in glycol systems, as these pipes can cause certain components of the glycol corrosion inhibitor to precipitate.

NOTE

Glycol absorbs moisture from the environment, so it is important to avoid using glycol that has been exposed to air. If glycol is left exposed to the air, the water content increases, reducing the glycol concentration and potentially causing hydraulic components to freeze. To prevent this, precautions should be taken to minimise the glycol's exposure to air.

Required glycol concentration

The required glycol concentration depends on the lowest expected outside temperature and the protection of the system against bursting or freezing. To prevent the system from freezing, more glycol is required. Add glycol according to the table below.

Lowest expected outdoor temperature	Burst prevention	Freeze protection
-5°C	10	15
-10°C	15	25
-15°C	20	35
-20°C	25	N/A
-25°C	30	N/A
-30°C	35	N/A

* Additional action is required to prevent freezing.

NOTE

The required concentration may vary depending on the type of glycol used. ALWAYS compare the requirements in the table above with the specifications provided by the glycol manufacturer. If necessary, comply with the requirements set by the glycol manufacturer.

The concentration of glycol added must NEVER exceed 35%.

If the liquid in the system is frozen, the pump will NOT start. Please note that preventing the system from bursting may not prevent the liquid inside from freezing. If water stagnates in the system, it is likely to freeze and damage the system.

Glycol and maximum permitted water volume

Adding glycol to the water circuit reduces the maximum permitted water volume in the system.

4.10.3. Use of Exogel valves

NOTE

Do NOT install frost protection valves if glycol is added to the water. Otherwise, glycol may leak from the frost protection valves.

If no glycol is added to the water, you can use frost protection valves to drain the water from the system before it freezes.

Install frost protection valves on the heat pump's flow and return pipes.

Install isolation valves inside the building and before the buffer tank. On the flow and return pipes.

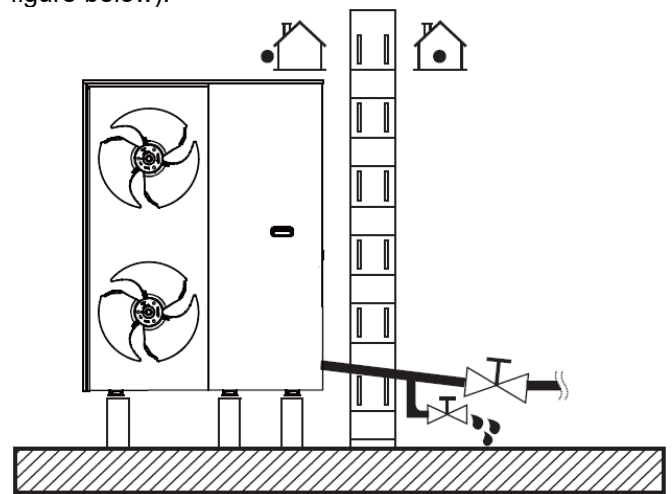
This will isolate the heat pump during a prolonged absence and prevent the entire system from being drained when the Exogel valves are opened.

NOTE

When frost protection valves are installed, ensure that the minimum cooling set point is 7°C (7°C = default). Otherwise, the frost protection valves may open during cooling.

4.10.4. Measurement without frost protection

In cold environments, if there is no antifreeze (e.g. glycol) in the system or if a prolonged power failure or pump failure is expected, drain the system (as shown in the figure below).



NOTE

If water is not drained from the system during freezing weather when the unit is not in use, frozen water may damage parts of the water circuit.

4.10.5. Protecting the heat pump from freezing

Refer to the heat pump manual.

5. ELECTRICAL CONNECTION

DANGER

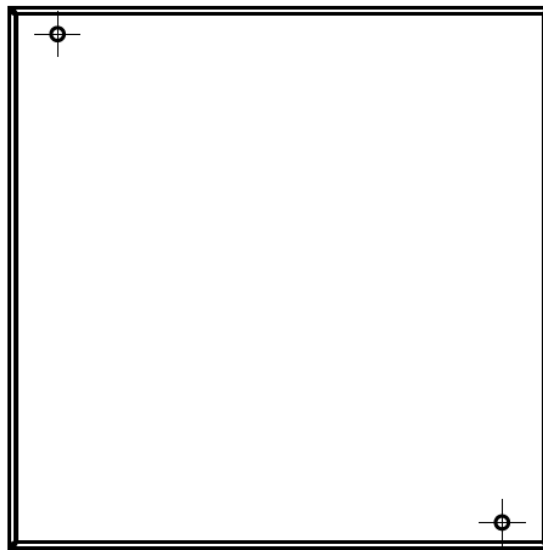
Risk of electric shock.

5.1. Opening the electrical box cover

To access the unit for installation and maintenance, follow the instructions below.
The electrical box is present on the 1-Zone and 2-Zone versions.

There is no electrical box on the Essential versions.

To open the electrical box, use a 4 mm hex screwdriver.
Unscrew the 2 screws.



WARNING

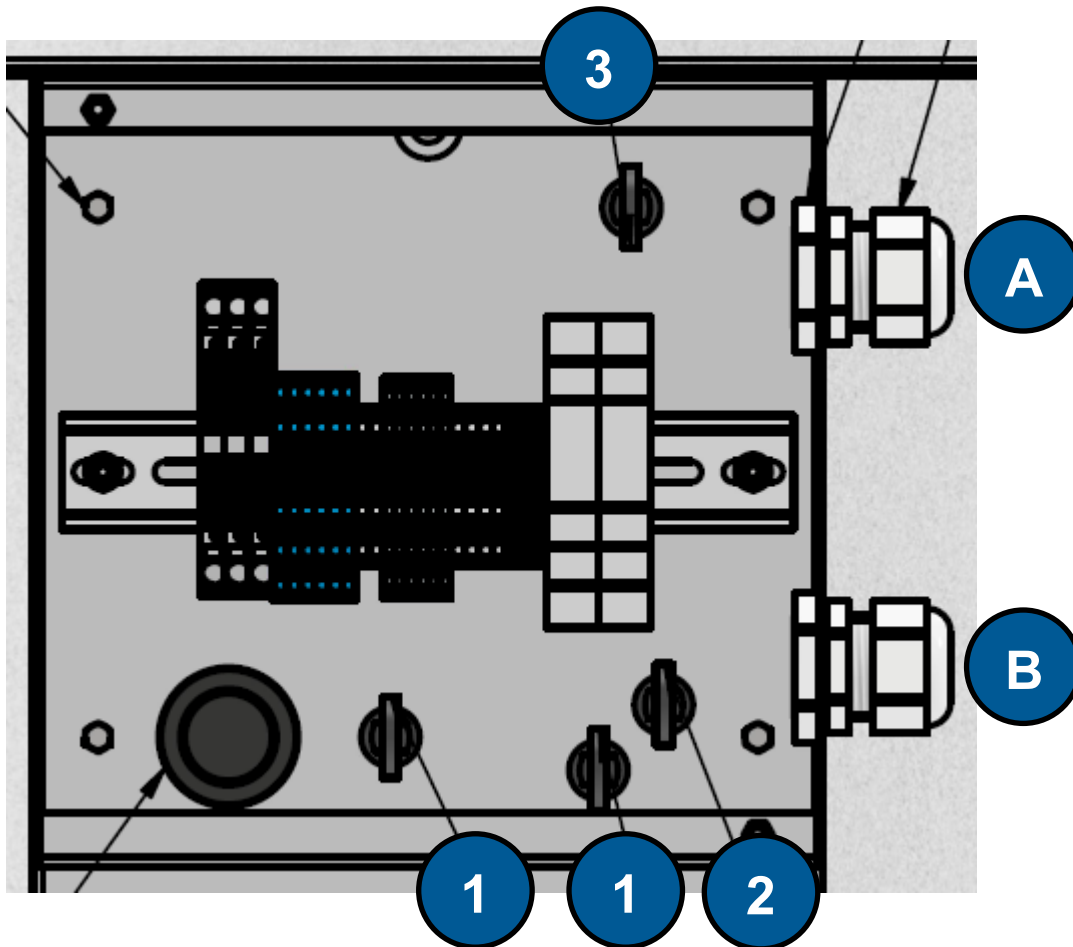
Risk of electric shock.
Risk of burns.

NOTE

Keep the screws in a safe place for future use.

5.2. Precautions for electrical wiring

When wiring, it is necessary to follow the cable routing paths within the box. The box has two cable glands and several cable pull-out prevention devices, as shown below.



Cables coming from the balloon components must pass through cable gland **B**, while cables going from the electrical box to the heat pump must pass through cable gland **A**.

Cables to be passed through cable gland **A**:

- All connection cables coming from (or going to) the heat pump.

Cables that must be passed through cable gland **B**, in addition to the cables already passed through at the factory:

- Cables from thermostats, if any.

Cables already fed through cable gland **B** at the factory and which must not be tampered with:

- General power cable for the box.
- Circulator power cable.
- Power and control cable for the valve motors.
- Cable for the DHW tank temperature sensor.
- Cable for the mixed zone temperature sensor, if present.

The cable pull-out devices marked "1" are tightened at the factory and must not be tampered with.

The anti-pull-out device marked "2" must be tightened after connecting the cables coming from cable gland **B**.

The cable pull-out device marked "3" must be tightened after connecting the cables coming from cable gland **A**.

After passing through and connecting all the cables, then tightening the anti-pull-out devices, the cable glands will be tightened on the cables passing through each of them.

WARNING

Wiring must comply with local laws and regulations.

Follow the electrical wiring diagrams for electrical wiring (the electrical wiring diagrams are located on the back of the switch box service panel).

CAUTION

A main switch or other means of disconnection, such as all-pole contact separation, must be incorporated into the fixed wiring. Refer to applicable local laws and regulations.

Use only copper wires.

Never press cables into bundles and keep them away from pipes and sharp edges.

Ensure that no external pressure is exerted on the terminal connections.

Wiring must be carried out in accordance with the wiring diagram supplied with the device and the instructions given below.

Be sure to use a dedicated power source, rather than a power source shared by another device.

Ground the unit properly. Do not connect the unit to a supply pipe, surge protector, or telephone ground. Incomplete grounding may result in electric shock.

A 30 mA earth leakage circuit breaker must be installed to prevent electric shock. Use 3-wire shielded cables.

Ensure that the necessary fuses or circuit breakers are installed.

A leakage protection switch must be installed on the power supply to the appliance.

Install an earth leakage circuit breaker and a fuse on the power supply line.

Earthing

NOTE

The equipment must be earthed.

Any external high-voltage load, whether metallic or a grounded port, must be grounded.

Ensure that the residual current device is compatible with the inverter (resistant to high-frequency electrical noise) to prevent unnecessary tripping of the circuit breaker.

5.1. Connecting the power supply to the box

The HydroDuo tank is supplied with a power cable fitted with a Type E plug.

The cable is 4 m long.

The box is equipped with a fuse holder with a gG 10.3x38 8A cartridge fuse.

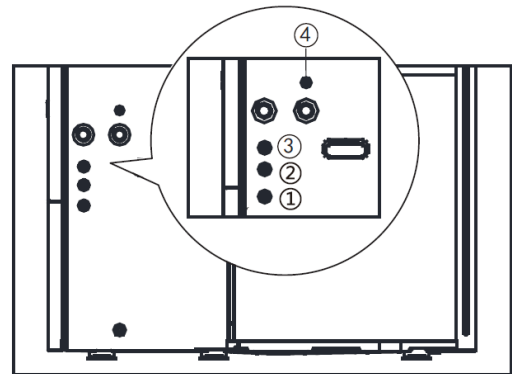
5.2. Connecting the DHW backup heater

The DHW backup heater is supplied with a power cable fitted with a Type E plug.

A dedicated wall socket must therefore be provided if necessary.

The plug must be connected to a 16A circuit breaker.

5.3. Cable passage at the heat pump



①	For the main power supply wiring.
②	For high-voltage wiring.
③	For low-voltage wiring.
④	Draining the safety valve.

5.4. Wiring between the tank and the heat pump

Depending on the version of your HydroDuo tank, the amount of cable to be connected between the heat pump and the hydraulic module differs. Refer to the table below:

The electrical terminal block in the hydraulic module is numbered to correspond exactly with the terminal block on the heat pump.

You must therefore wire the terminals identically between the hydraulic module and the heat pump.

Refer to the table below for the terminal block correspondences between the different heat pumps.

PLEASE NOTE: THERMOSTATS MUST BE CONNECTED TO THE WELLEA WITH POTENTIAL-FREE CONTACTS.

5.5. Electrical box terminal block

See Appendix.

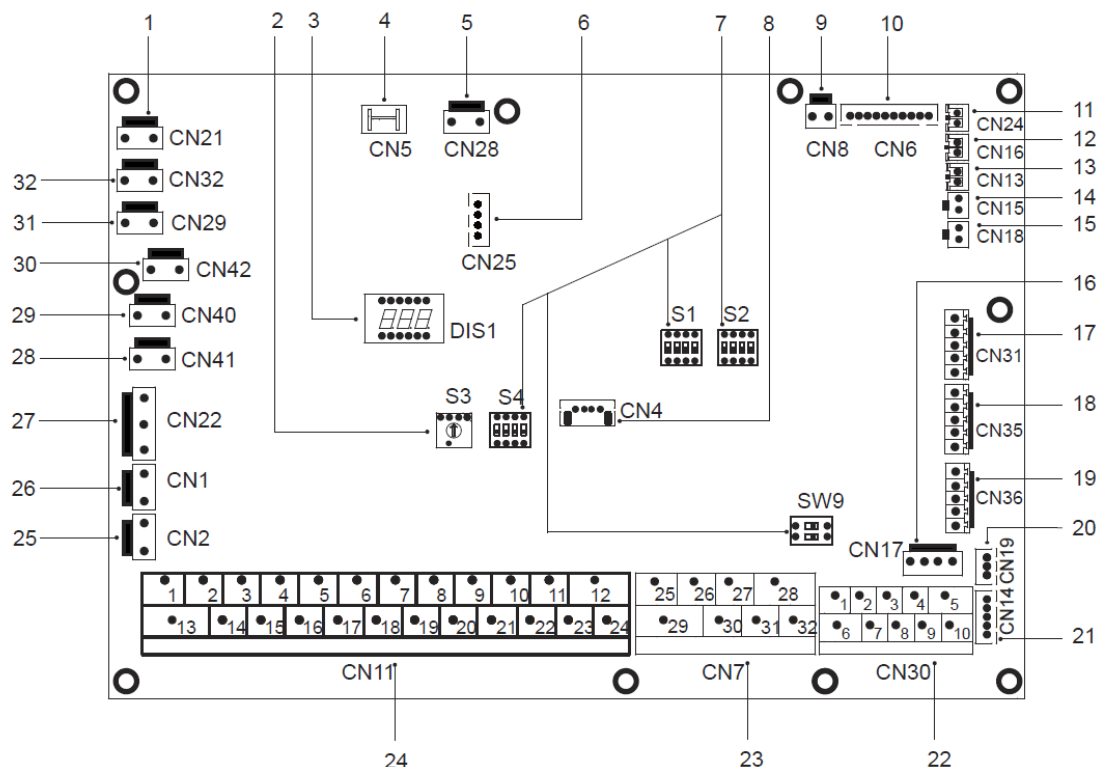
5.6. Electrical diagram

See Appendix.

Components	3-way valve for DHW/heating			Zone 2 mixing 3-way valve			Zone 1 circulator		Zone 2 circulator		Zone 1 thermostat		Zone 2 thermostat	
	N	ON	OFF	N	ON	OFF	N	L	N	L	N	L	N	L
HydroDuo terminal block	16	5	6	18	19	20	22	10	21	9	15	3	15	4
Terminal block Wellea S MT	16	5	6	18	19	20	22	10	21	9	15	3	15	4
Terminal block Wellea M MT	16	5	6	18	19	20	22	10	21	9	15	3	15	4
Terminal block Wellea M HT	17	3	4	19	7	8	21	10	20	9	COM	HT	COM	CL
Cable (mm ²)	3 x 0.75			3 x 0.75			2 x 0.75		2 x 0.75		2 x 0.75		2 x 0.75	

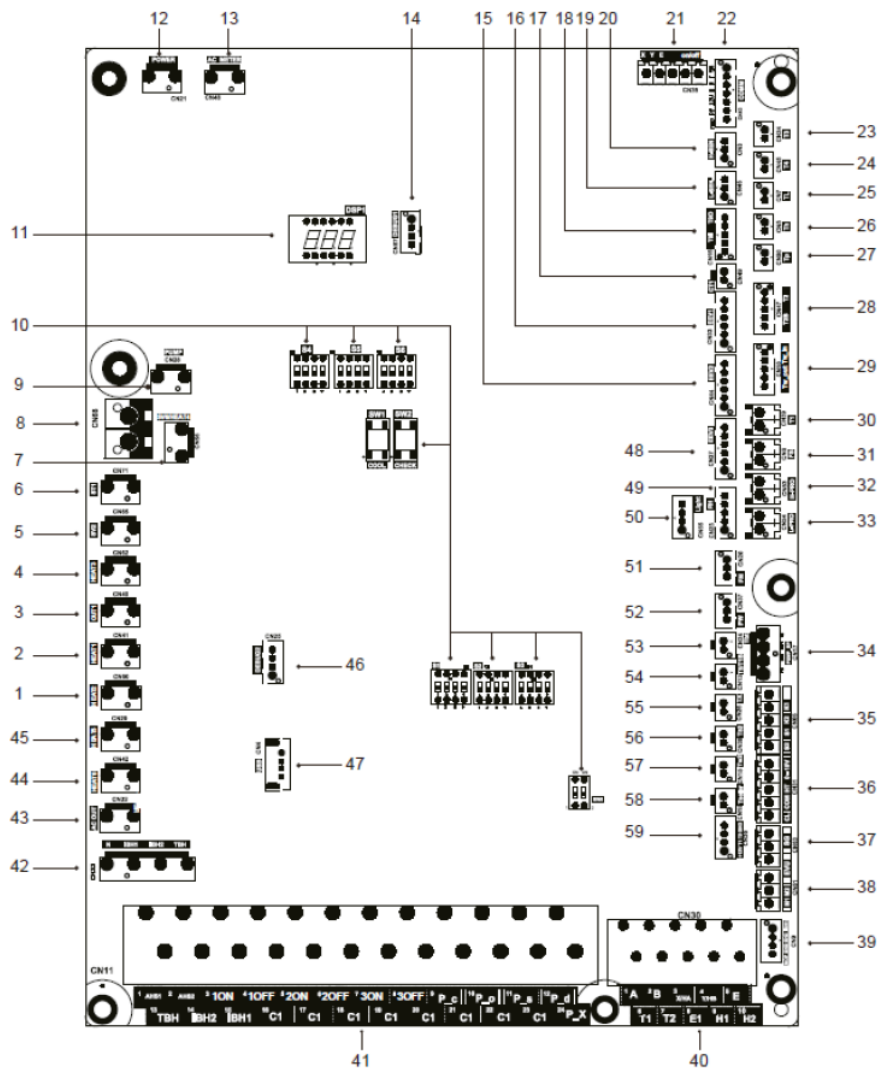
5.1. Connection of temperature sensors to the heat pump

WELLEA S MT and M MT



Sensor	Number	Port
T5 DHW temperature sensor	13	CN13
Tw2 zone 2 temperature sensor	14	CN15

WELLEA M HT



Probe	Number	Port
T5 DHW temperature sensor	54	CN13
Tw2 zone 2 temperature sensor	57	CN15

6. CONFIGURATION

The device must be configured by a certified installer to suit the installation environment (outdoor climate, installed options, etc.) and meet the user's requirements.
Follow the instructions below for the next step.

6.1. Checks before configuration

Before switching on the device, check the following points:

No.	CHECK	Description
1		Field wiring: Ensure that all electrical connections comply with the instructions.
2		Fuses, circuit breakers or protective devices: Check the size and type in accordance with the instructions provided. Ensure that no fuses or protective devices have been bypassed.
3		Backup heater circuit breaker: Ensure that the backup heater circuit breaker located in the switch box is closed (this varies depending on the type of backup heater). Refer to the wiring diagram.
4		Internal wiring: Check that the wiring and connections inside the switch box are not loose or damaged, including the earth wiring.
5		Assembly: Check and ensure that the unit and water loop system are correctly mounted to prevent water leaks, abnormal noises and vibrations during unit start-up.
6		Damaged equipment: Check that the components and piping inside the unit are not damaged or deformed.
7		Refrigerant leak: Check the inside of the unit for any refrigerant leaks. If there is a refrigerant leak, follow the instructions in the "Safety precautions" section.
8		Power supply voltage: Check the power supply voltage. The voltage must match that indicated on the appliance's identification label.
9		Vents: Ensure that the bleed valves are open (at least 2 turns).
10		Shut-off valve: Ensure that the shut-off valves are fully open.
11		Sheet metal: Ensure that all metal sheets on the appliance are correctly fitted.

After switching on the appliance, check the following:

No.	CHECK	Description
13		When the device is switched on, nothing is displayed on the user interface: Check for the following anomalies before diagnosing possible error codes. - Wiring connection problem (power supply or communication signal). - Fuse fault on the printed circuit board.
14		Error code "E8" or "E0" is displayed on the user interface: - There is residual air in the system. - The water level in the system is insufficient. Before starting the test run, ensure that the water system and tank are filled with water and that the air has been removed. Otherwise, the pump or auxiliary heater may be damaged.
15		Error code "E2" is displayed on the user interface: - Check the wiring between the wired controller and the appliance.
16		Initial start-up at low outdoor ambient temperature: To start initial commissioning when the outdoor ambient temperature is low, the water must be heated gradually. Please use the preheating function for the floor. (See "SPECIAL FUNCTION" in the MAINTENANCE mode)

6.2. Configuration for Wellea S MT and Wellea M MT

To configure the heat pump, a number of parameters must be changed to match the version of the hydraulic module installed. These parameters can be accessed in REPAIR MODE.

How to access the FOR REPAIRER menu

Press "≡" and search for "FOR REPAIR", then press OK.

Enter the password 234 and confirm it. The system will then move to the page containing the settings.

POUR RÉPARATEUR

Saisir le mot de passe :

0 0 0

OK ENTRE AJUSTE

POUR RÉPARATEUR 1/3

1. RÉGL. MODE ECS

2. RÉGL. MODE FROID

3. RÉGL. MODE CHAUD

4. RÉGL. MODE AUTO

5. RÉGLAGE DE TYPE DE TEMP.

6. THERMOSTAT AMBI

OK ENTRE

POUR RÉPARATEUR 2/3

7. AUTRE SOURCE CHAUD

8. RÉGL. MODE VACANCE PARTI

9. RÉGLAGE APPEL SERVICE

10. RESTAU. PARAMÈTRE USINE

11. TEST FON

12. FONCT. SPÉCIALE

OK ENTRE

POUR RÉPARATEUR 3/3

13. REDÉMAR AUTO

14. LIMIT. ENTRÉE PUIS.

15. ENTRÉE DÉFI

16. ENS. CASCADE

17. RÉG. ADRESSE IHM

OK ENTRE

6.3. Configuration for Wellea M HT

To configure the heat pump, a number of settings must be changed to match the version of the hydraulic module installed. These settings can be accessed in REPAIR MODE.

How to access the FOR REPAIRER menu

Press "≡", and ">" simultaneously for 3 seconds to access the authorisation page. Enter the password 234 and confirm it. The system will then move to the page containing a list of advanced settings.

Pour réparateur

0 0 0

Veuillez saisir le mot de passe

Pour réparateur

Réglage ECS >

Réglage refroid. >

Réglage chauffage >

Réglage mode auto >

6.4.ODHA-200N-08M22-02 & ODHA-300N-08M22-02 configuration

The table below only shows the parameters required for recognising the hydraulic module components. **For other parameter settings, refer to the heat pump manual.**

Title	Code	Status	Setting	Unit
DHW setting	DHW mode	Enables or disables DHW mode: 0=NO, 1=YES	1	/
	Disinfect	Enables or disables disinfection mode: 0=NO, 1=YES	1	/
	DHW priority	Enables or disables DHW priority mode: 0=NO, 1=YES	1	/
	Pump_D	Enables or disables DHW pump mode: 0=NO, 1=YES	0	/
	DHW priority time setting	Enables or disables DHW priority time setting: 0=NO, 1=YES	1	/
	dT5_ON	Temperature difference for starting DHW mode	5	°C
	dT1S5	Value of the difference between Twout and T5 in DHW mode	7	°C
	T4DHWMAX	The maximum ambient temperature at which the heat pump can operate for domestic water heating.	43	°C
	T4DHWMIN	The minimum ambient temperature at which the heat pump can operate for domestic water heating.	-20	°C
	t_INTERVAL_DHW	Compressor start-up time interval in DHW mode	5	Min
	T5S_DISINFECT	Target temperature of the water in the domestic hot water tank in DISINFECT mode	65	°C
	t_DI_HIGHTEMP.	Duration during which the highest water temperature in the domestic hot water tank is maintained in DISINFECT mode.	15	Min
	t_DI_MAX	Maximum duration of disinfection	210	Min
	t_DHWHP_RESTR ICT	Heating/cooling operating time	30	Min
	t_DHWHP_MAX	Maximum continuous operating time of the heat pump in DHW PRIORITY mode	90	Min
Heating setting	Heating mode	Enables or disables heating mode: 0=NO, 1=YES	1	/
	t_T4_FRESH_H	Refresh time for climate curves in heating mode	0.5	Hour
	T4HMAX	Maximum ambient temperature for operation in heating mode	25	°C
	T4HMIN	Minimum ambient temperature for operation in heating mode	-25	°C
	dT1SH	Temperature difference for unit start-up (T1)	5	°C
	dTSH	Temperature difference for unit start-up (Ta)	2	°C
	t_INTERVAL_H	Compressor operating delay in heating mode	5	Min
	Zone 1 H-emission	The terminal type for zone 1 in heating mode: 0=FCU (fan coil unit), 1=RAD. (radiator), 2=FLH (floor heating)	Depending on installation	/
	Zone 2 H emissions	The type of terminal for zone 2 in heating mode: 0=FCU (fan coil unit), 1=RAD. (radiator), 2=FLH (underfloor heating)	Depending on installation	/
	Forced defrost	Enables or disables forced defrosting: 0=NO, 1=YES	0	/

Title	Code	Status	Adjustment	Unit
Setting Type Temp.	Water flow temperature	Enable or disable WATER FLOW TEMPERATURE: 0=NO, 1=YES	1	/
	Ambient temperature	Enable or disable the ROOM TEMPERATURE function: 0=NO, 1=YES	0	/
	Dual zone	Enables or disables DUAL ZONE: 0=NO, 1=YES	1	/
Thermostat setting	Room thermostat	Room thermostat style: 0=NO, 1=DEFINED MODE, 2=ONE ZONE, 3=DUAL ZONE	If you are using external thermostats 3	/
	Priority to set mode	Select the priority mode in the ROOM THERMOSTAT: 0=HEATING, 1=COOLING	0	/
Other heat source	IBH FUNCTION	Select the IBH (BACKUP HEATER) mode: 0= HEATING + DHW, 1= HEATING	0	/
	IBH location	Location of IBH/AHS installation: 0=water loop	0	/
	dT1_IBH_ON	Temperature difference between T1S and T1 for auxiliary heating start-up	5	°C
	t_IBH_DELAY	Time during which the compressor has been operating before starting the first stage of auxiliary heating	30	Minute
	T4_IBH_ON	The room temperature at which the auxiliary heating starts up	Depending on the bivalence point of the installation	°C
	P_IBH1	Power consumption by IBH1	3	kW
	P_IBH2	Power absorbed by IBH2	6	kW

6.1.ODHA-200N-08M22-01 & ODHA-300N-08M22-01 configuration

The table below only shows the parameters required for recognising the hydraulic module components. **For other parameter settings, refer to the heat pump manual.**

Title	Code	Status	Setting	Unit
DHW setting	DHW mode	Enables or disables DHW mode: 0=NO, 1=YES	1	/
	Disinfect	Enables or disables disinfection mode: 0=NO, 1=YES	1	/
	DHW priority	Enables or disables DHW priority mode: 0=NO, 1=YES	1	/
	Pump_D	Enables or disables DHW pump mode: 0=NO, 1=YES	0	/
	DHW priority time setting	Enables or disables DHW priority time setting: 0=NO, 1=YES	1	/
	dT5_ON	Temperature difference for starting DHW mode	5	°C
	dT1S5	Value of the difference between Twout and T5 in DHW mode	7	°C
	T4DHWMAX	The maximum ambient temperature at which the heat pump can operate for domestic water heating.	43	°C
	T4DHWMIN	The minimum ambient temperature at which the heat pump can operate for domestic water heating.	-20	°C
	t_INTERVAL_DHW	Compressor start-up time interval in DHW mode	5	Min
	T5S_DISINFECT	Target temperature of the water in the domestic hot water tank in DISINFECT mode	65	°C
	t_DI_HIGHTEMP.	Duration during which the highest water temperature in the domestic hot water tank is maintained in DISINFECT mode.	15	Min
	t_DI_MAX	Maximum duration of disinfection	210	Min
	t_DHWHP_RESTRICT	Heating/cooling operating time	30	Min
	t_DHWHP_MAX	Maximum continuous operating time of the heat pump in DHW PRIORITY mode	90	Min

Title	Code	Status	Setting	Unit
Heating setting	Heating mode	Enables or disables heating mode: 0=NO, 1=YES	1	/
	t T4 FRESH_H	Refresh time for climate curves in heating mode	0.5	Hour
	T4HMAX	Maximum ambient temperature for operation in heating mode	25	°C
	T4HMIN	Minimum ambient temperature for operation in heating mode	-25	°C
	dT1SH	Temperature difference for unit start-up (T1)	5	°C
	dTSH	Temperature difference for unit start-up (Ta)	2	°C
	t INTERVAL_H	Compressor operating delay in heating mode	5	Min
	Zone 1 H-emission	The terminal type for zone 1 in heating mode: 0=FCU (fan coil unit), 1=RAD. (radiator), 2=FLH (floor heating)	Depending on installation	/
	Zone 2 H emissions	The type of terminal for zone 2 in heating mode: 0=FCU (fan coil unit), 1=RAD. (radiator), 2=FLH (underfloor heating)	Depending on installation	/
	Forced defrost	Enables or disables forced defrosting: 0=NO, 1=YES	0	/
Setting Type Temp.	Water flow temperature	Enable or disable WATER FLOW TEMPERATURE: 0=NO, 1=YES	1	/
	Ambient temperature	Enable or disable the ROOM TEMPERATURE function: 0=NO, 1=YES	0	/
	Dual zone	Enables or disables DUAL ZONE: 0=NO, 1=YES	0	/
Thermostat setting	Room thermostat	Room thermostat style: 0=NO, 1=DEFINED MODE, 2=ONE ZONE, 3=DUAL ZONE	If you are using an external thermostat: 1 with changeover 2 without changeover	/
	Priority to the set mode	Select the priority mode on the ROOM THERMOSTAT: 0=HEATING, 1=COOLING	0	/
Other heat source	IBH FUNCTION	Select the IBH (BACKUP HEATER) mode: 0= HEATING + DHW, 1= HEATING	0	/
	IBH location	Location of IBH/AHS installation: 0=water loop	0	/
	dT1_IBH_ON	Temperature difference between T1S and T1 for auxiliary heating start-up	5	°C
	t_IBH_DELAY	Time during which the compressor has been operating before starting the first stage of auxiliary heating	30	Minute
	T4_IBH_ON	The room temperature at which the auxiliary heating starts up	Depending on the bivalence point of the installation	°C
	P_IBH1	Power consumption by IBH1	3	kW
	P_IBH2	Power absorbed by IBH2	6	kW

6.2.ODHA-200N-08M22-00 & ODHA-300N-08M22-00 configuration

The table below only shows the parameters required for recognising the hydraulic module components. **For other parameter settings, refer to the heat pump manual.**

Title	Code	Status	Setting	Unit
DHW setting	DHW mode	Enables or disables DHW mode: 0=NO, 1=YES	1	/
	Disinfect	Enables or disables disinfection mode: 0=NO, 1=YES	1	/
	DHW priority	Enables or disables DHW priority mode: 0=NO, 1=YES	1	/
	Pump_D	Enables or disables DHW pump mode: 0=NO, 1=YES	0	/
	DHW priority time setting	Enables or disables DHW priority time setting: 0=NO, 1=YES	1	/
	dT5_ON	Temperature difference for starting DHW mode	5	°C
	dT1S5	Value of the difference between Twout and T5 in DHW mode	7	°C
	T4DHWMAX	The maximum ambient temperature at which the heat pump can operate for domestic water heating.	43	°C
	T4DHWMIN	The minimum ambient temperature at which the heat pump can operate for domestic water heating.	-20	°C
	t_INTERVAL_DHW	Compressor start-up time interval in DHW mode	5	Min
	T5S_DISINFECT	Target temperature of the water in the domestic hot water tank in DISINFECT mode	65	°C
	t_DI_HIGHTEMP.	Duration during which the highest water temperature in the domestic hot water tank is maintained in DISINFECT mode.	15	Min
	t_DI_MAX	Maximum duration of disinfection	210	Min
	t_DHWHP_RESTRICT	Heating/cooling operating time	30	Min
Other heat source	t_DHWHP_MAX	Maximum continuous operating time of the heat pump in DHW PRIORITY mode	90	Min
	IBH FUNCTION	Select IBH (BACKUP HEATER) mode: 0= HEATING + DHW, 1= HEATING	0	/
	IBH location	Location of IBH/AHS installation: 0=water loop	0	/
	dT1_IBH_ON	Temperature difference between T1S and T1 for auxiliary heating start-up	5	°C
	t_IBH_DELAY	Time during which the compressor has been operating before starting the first stage of auxiliary heating	30	Minute
	T4_IBH_ON	The room temperature at which the auxiliary heating starts up	Depending on the bivalence point of the installation	°C
	P_IBH1	Power consumption by IBH1	3	kW
	P_IBH2	Power absorbed by IBH2	6	kW

7. COMMISSIONING

Refer to the heat pump manual to run a series of tests and a purge cycle.

Commissioning checklist

CHECK	Description
	Test the actuator operation.
	Air purge
	Operational test.
	Verification of minimum flow rate under all conditions.

7.1.Functional test of components

NOTE

When the actuator is commissioned, the unit's protection function is deactivated. Excessive use may damage components.

Why

Check that each actuator is in good working order.

What - List of actuators

No	Name	Note
1	SV2	Three-way valve 2
2	SV3	Three-way valve 3
3	Pump_I	Heat pump pump
4	Pump_O	Zone 1 pump
5	Pump_C	Zone 2 pump
6	IBH	Internal emergency heating
7	AHS	Additional heat source
8	SV1	3-way valve DHW/Heating
		Invisible if DHW is deactivated

How

1	Go to "FOR REPAIRERS"
2	Search for "Test run" and enter the process.
3	Search for "Point check" and enter the process.
4	Select the actuator and press "○" to activate or deactivate the actuator. The ON status means that the actuator is activated and the OFF status means that the actuator is deactivated.

NOTE

When you exit the menu, all actuators will automatically switch off.

7.2.Air purge

Why

To purge any air remaining in the water loop.

How

1	Go to "FOR REPAIRERS"
2	Search for "Test run" and enter the process.
3	Search for "Air purge" and enter the process.
4	Select "Air purge" and press "○" to enable or disable the air purge function.  means that the air purge function is enabled, and  means that the air purge function is disabled.

Note

"Air purge pump output_i"	To adjust the flow rate of pump_i. The higher the value, the greater the flow rate of the pump.
"Air purge operating time"	Allows you to adjust the duration of the air purge. When the programmed duration has elapsed, the air purge is deactivated.
"Status check"	Other operating parameters can be found.

7.3.Heat pump operation test

Why

Check that the device is in good working order.

What to do

Circulation pump operation

Cooling operation

Heating operation

DHW operation

How

1	Go to "FOR THE SERVICE ENGINEER" (see 10.2 Configuration)
2	Search for "Test run" and enter the page.
3	Search for "Other" and enter the process.
4	Select "XXXX "*" and press "  " to start the test. During the test, press "  ", select "OK" and confirm to return to the home screen.

NOTE

During a performance test, the target temperature is pre-set and cannot be changed.

If the outdoor temperature is outside the operating temperature range, the unit may not operate or may not provide the required capacity.

7.4.Checking the minimum flow rate

1	Check the hydraulic configuration to identify any heating loops in the premises that may be closed by mechanical, electronic or other valves.
2	Close all room heating loops that can be closed.
3	Start and run the circulation pump.
4	Measure the flow rate(a) and adjust the bypass valve settings until the set value reaches the minimum required flow rate + 2 l/min.

(a) During the pump test, the unit may operate below the minimum required flow rate.

8. HANDOVER TO THE USER

Once the test is complete and the unit is operating correctly, ensure that the following points are clear to the user:

- Fill in the installer's adjustment table (in the USER MANUAL) with the actual settings.
- Ensure that the user has the printed documentation and ask them to keep it for future reference.
- Explain to the user how to use the system correctly and what to do in case of a problem.
- The user manual contains basic guidelines for using the device.
- Show the user what they need to do to maintain the device.
- Explain the energy-saving tips described below to the user.

8.1. Energy saving tips

Tips on room temperature

- Ensure that the desired room temperature is NEVER too high (in heating mode) or too low (in cooling mode), and ALWAYS set it according to your actual needs. Increasing or decreasing the temperature by one degree can save up to 6% in heating or cooling costs.

- Do NOT increase/decrease the desired room temperature to speed up the heating/cooling of the space, as this will not speed up the heating/cooling process.

- When your system contains slow heat emitters (such as underfloor heating), avoid large fluctuations in the desired room temperature and do NOT lower or raise the room temperature excessively. Otherwise, it will take more time and energy to heat/cool the room.

- Use a weekly programme to meet your normal heating or cooling needs. If necessary, you can easily deviate from this programme:

1) For shorter periods: You can change the programmed room temperature until the next programmed action begins. For example, you can do this when you are hosting a party or when you are away for a few hours.

2) For longer periods: You can use holiday mode.

Tips on DHW tank temperature

- Use a weekly programme to meet your normal domestic hot water needs (only in programmed mode).

- Programme to heat the DHW tank to a predefined value during the night, because the demand for space heating during this period is low.

- If heating the domestic hot water tank only at night is not sufficient, programme additional heating of the domestic hot water tank to a predefined value during the day.

- Ensure that the desired temperature for the DHW tank is NOT too high. For example, after installation, lower the temperature of the DHW tank by 1°C each day and check whether you still have enough hot water.

- Programme to activate the domestic hot water pump only during periods of the day when instant hot water is needed, e.g. in the morning and evening.

Water law setting

Refer to the heat pump manual

9. TROUBLESHOOTING

Refer to the heat pump manual.

10. MAINTENANCE

Regular checks and inspections at certain intervals are necessary to ensure the optimal functioning of the appliance.

10.1. Safety precautions for maintenance

DANGER

Risk of electric shock.

WARNING

- Please note that some parts of the electrical component housing are hot.
- Do not rinse the unit. Doing so may result in electric shock or fire.
- Do not leave the appliance unattended when the service panel is removed.

NOTE

Before performing any maintenance or servicing, touch a metal part of the unit to eliminate static electricity and protect the printed circuit board.

10.2. Annual maintenance

Water pressure

Check the water pressure. If it is below 1 bar, fill the system with more water. **Please note that if the system uses antifreeze (glycol), you will also need to add the correct amount of glycol.**

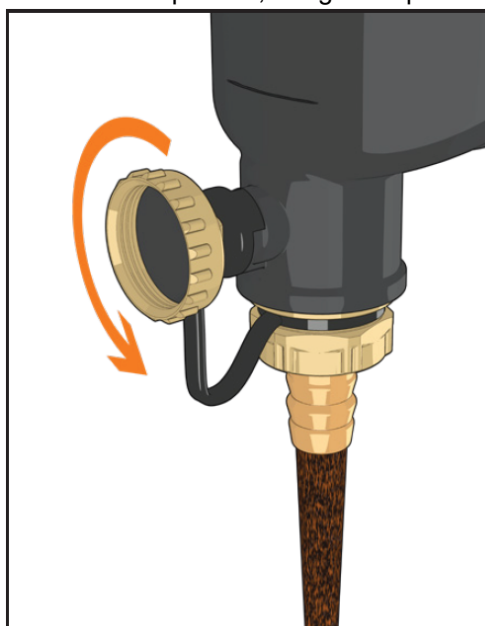
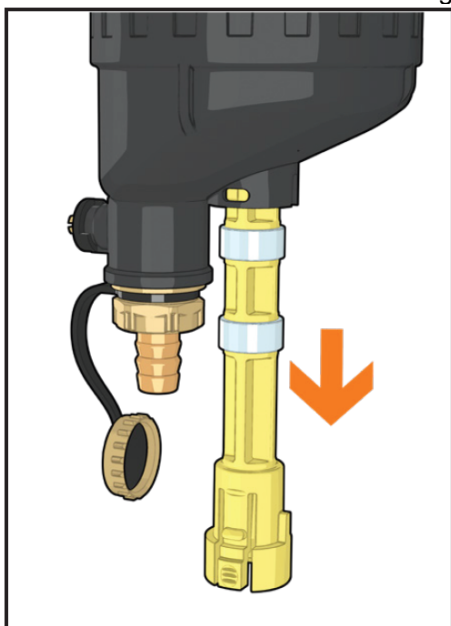
Sieve filter (Y)

Clean the strainer filter (Y).

Sludge pot

To clean the sludge pot, it is not necessary to dismantle the device. Follow the steps below.

1. Switch off the circulator and remove the magnetic rod.
2. Drain to remove impurities, filling unit open.



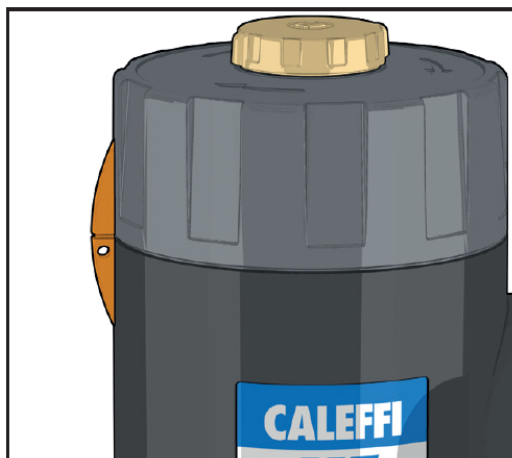
3. Turn the upper handle clockwise to clean the filter

4. Once cleaning is complete, align the indicator on the

mesh using the internal brushes. Turn a few times to ensure thorough cleaning.



upper handle with the mark on the body of the device. Close the drain valve and restart the system.



Heating safety valve

- Check that the safety valve is working properly by turning the black knob on the valve anticlockwise:
- If you do not hear a clicking sound, contact your local dealer.
- If water continues to flow from the appliance, close the shut-off valves at the water inlet and outlet, then contact your local dealer.

Heating safety valve pipe

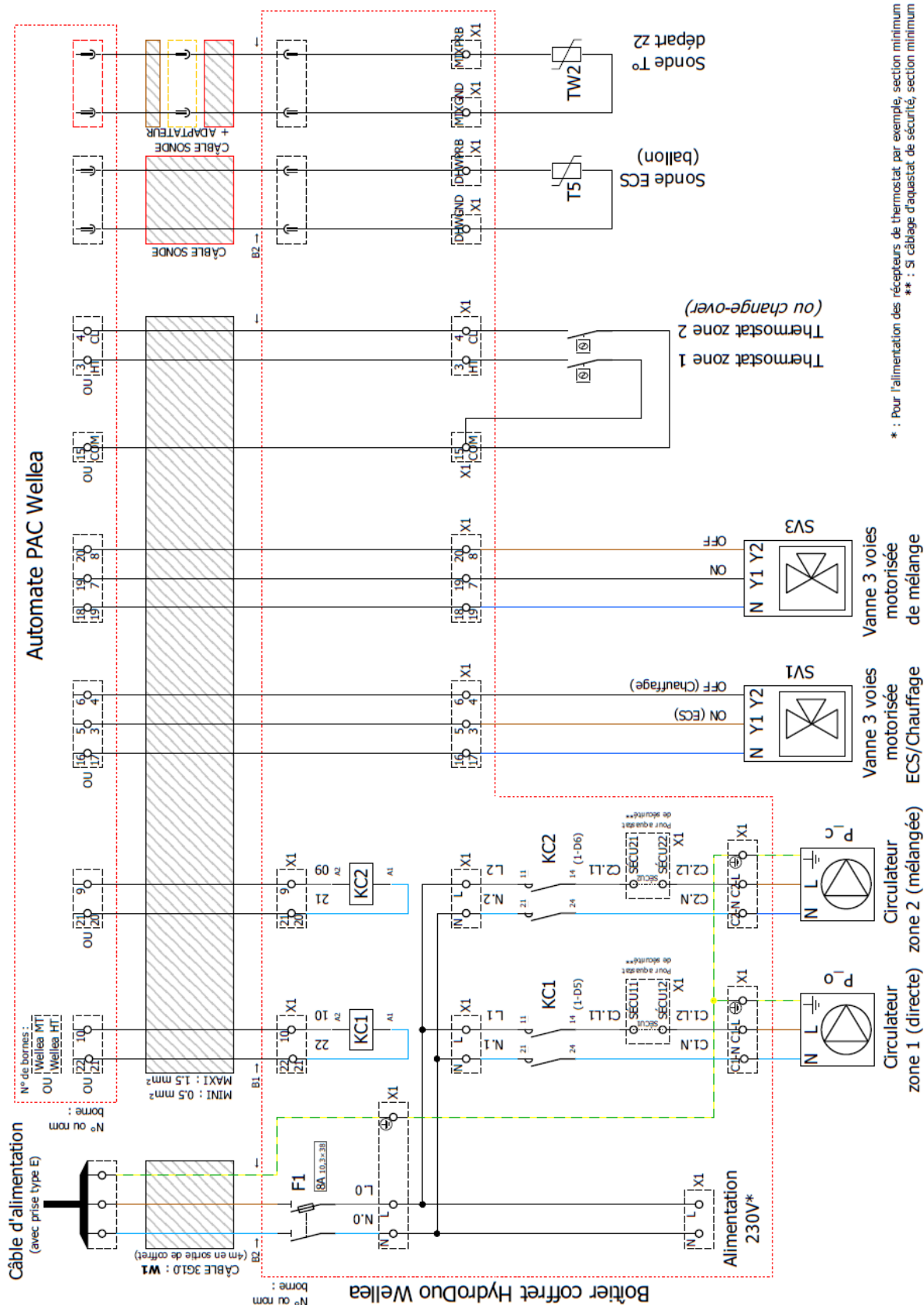
Check that the safety valve pipe is positioned correctly to drain the water.

domestic hot water tank safety unit

Check that the domestic hot water tank safety unit is working properly.

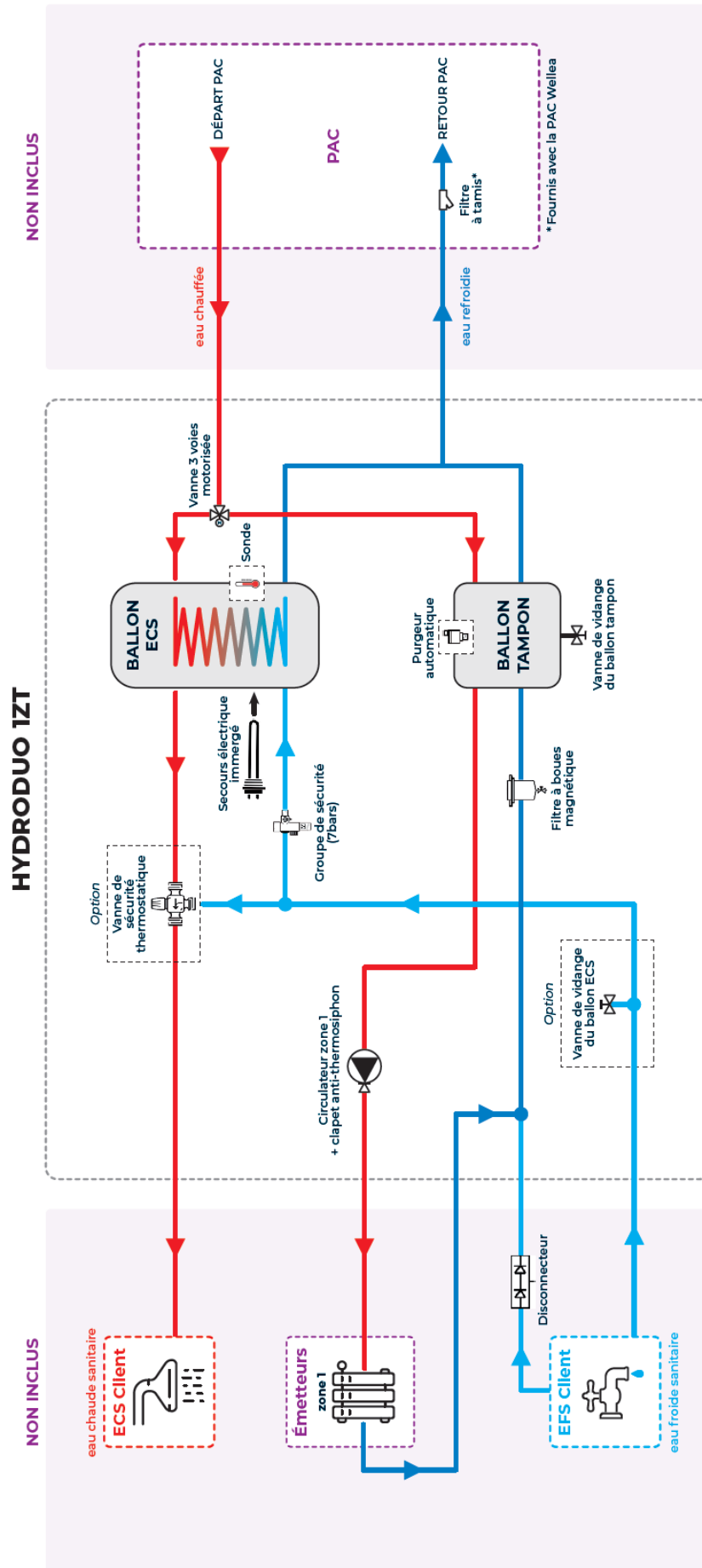
The diagram illustrates the internal wiring of a 120V, 15A single-phase receptacle outlet assembly. The main receptacle (NEMA 5-15R) is connected to a 120V supply (L, N, TERRE) and a 15A circuit (L, N, TERRE). The wiring is color-coded: blue for line, red for neutral, and green for ground. The outlet is labeled "FERRAZ SHAWMUT MSC.10" and "120V 15A". The circuit breaker is labeled "F1".

Electrical diagram

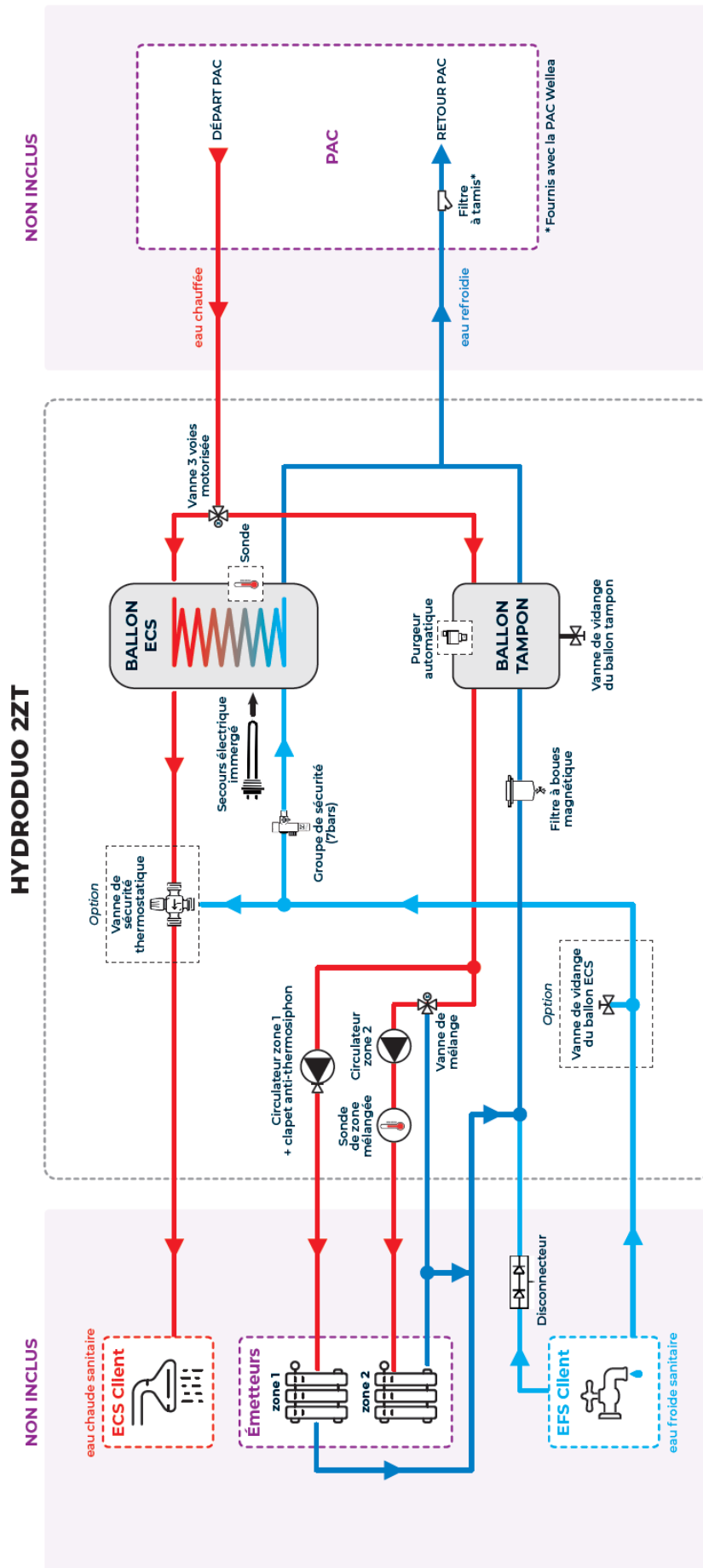




Direct 1-zone version



1 direct zone + 1 mixed zone version





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