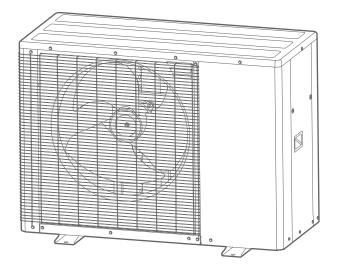
FUJITSU







Outdoor unit WPEG050KRF - 750918

EN

INSTALLATION MANUAL

Fujitsu Airstage Monobloc Comfort 5 Monobloc Air to Water Heat Pump Outdoor Unit

To be safety stored by the user for reference by installers.

Installation and maintenance rules

The appliance must be installed and maintained by an approved professional in accordance with current regulations and codes of practice.

- Do not use any means to accelerate the defrosting process or to clean the appliance, other than those recommended by the manufacturer.
- The appliance must be stored in a room that does not contain ignition sources (for example: open flames, gas appliance or operating electric heater).
- Do not pierce or burn the appliance.
- Caution should be taken as refrigerant can cause a hazardous environment and be flammable, colourless, and/or odourless.

Handling

The outdoor unit must be transported and stored in an upright position, avoiding tilting where possible.

If not kept upright during transport, the appliance could be damaged through displacement of the refrigerant and damage to the compressor mountings.

Any damage caused by not transporting in an upright position is not covered by the warranty.

If necessary, the outdoor unit may be tilted only during manual handling (to go through a door or a flight of stairs). This operation must be conducted very carefully and the appliance must be immediately restored to the upright position.

Installation

The heat pump installation must conform with the legislation and regulations of the installation site of the heat pump.

The heat pump is designed to be installed at an altitude less than 2.000m from sea level.

Hydronic connections

The connection must comply with industry standard practice according to current regulations.

Hydronic connections are to be made in accordance with industry standard practice for plumbing work using the following sealing methods where appropriate:

- Use suitable seals (fibre gasket, O-ring).

- Use Teflon or hemp tape.

- Use sealing paste (synthetic depending on the case).

Use glycol/water mix if the outdoor hydronic circuit is subject to a frost risk.

For the outdoor hydronic circuit, use an insulation which is suitable for outdoor use and is UV/moisture-resistant (usage temperature -20 to +70 °C). The thermal conductivity of the insulation is less than or equal to 0.040 W / mK.

it is mandatory that either antifreeze valves or a glycol/water mix are installed to protect the hydronic circuit and associated components.

If you are using a glycol/water mix, arrange for an annual check on the quality of the glycol.

Use monopropylene glycol only. The recommended concentration is 40% max. (30% minimum).

Never use monoethylene glycol.

Both antifreeze valves and a glycol/water mix must not be applied together in the same circuit.

- In some installations, the presence of different metals can cause corrosion problems; the formation of metal particles and sludge can appear in the hydronic circuit.
- In this case, it is advisable to use a corrosion inhibitor in the proportions indicated by the manufacturer.
- You must also ensure that treated water does not become corrosive.

Mandatory : Install a Sediment trap (supplied) on the heating return circuit in the manner suggested.

Caution: Do not close water valves (between Outdoor unit & Indoor unit) during operating the heat pump.

Electrical connections

Before performing any maintenance, make sure that <u>all power supplies</u> have been isolated.

Specifications of electricity supply

The electrical installation must be carried out in accordance with current regulations. Wiring external to the heat pump must be in accordance with the current I.E.E. (BS7671) wiring regulations and any local regulations.

Electrical connections must only be made once all other installation operations (fastening, assembly, etc.) have been completed.

Warning!

The power supply from the energy provider must be sufficient not only to cover the heat pump's power requirements but also the combined sum of all the appliances likely to be operating at the same time. If the power is too low, check the power rating stated in your contract with your energy provider.

Never use a power socket for the power supply to the heat pump.

The heat pump must be supplied directly with power by protected leads from the electric panel via dedicated bipolar circuit breakers, C curve for the outdoor unit, C curve for the electrical heating* and domestic water backups*.

The electrical installation must be fitted with a 30mA RCD.

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

General remarks on electrical connections

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

Rigid wires are preferable for fixed installations, particularly in a building.

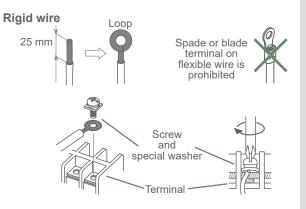
Tighten the cables using cable ties to prevent the power cables from being accidentally disconnected. The earth connection and its continuity must be ensured.

The earth wire must be longer than the other wires.

Connecting to screw terminals

The use of ring, spade or blade terminals or caps is prohibited.

- Always select wire that complies with current standards.
- Strip wire end around 25 mm.
- With round end pliers, form a loop with a diameter which matches the tightening screws on the terminal.
- Tighten the terminal screw firmly onto the loop created. Insufficient tightening can cause overheating, leading to breakdown or even fire.



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Make sure that these instructions, safety instructions, local regulations, local legislation, and guidelines are read and understand before installation and/or maintenance.

Unpacking and delivery

While the courier is still present, carefully check the general appearance of the appliances.

Check the package codes that make up your device.

In the event of a problem with the packaged product, send any relevant problems to the carrier in writing within 48 hours and send a copy of the letter to Customer Services.



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This document was written in French and translated.

Symbols and definitions



Warning. Risk of serious injury to the person and / or risk of damage to the machine. Observe the warning.

Important information that must always be kept in mind.



Tips and tricks / Advice.



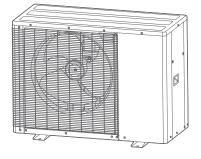
Bad practice.

Warning : Electricity hazard.	
Warning : Flammable substances	
Read the installation manual.	
Read the Operating Manual.	
Read the instructions.	

Q Presentation of the equipment

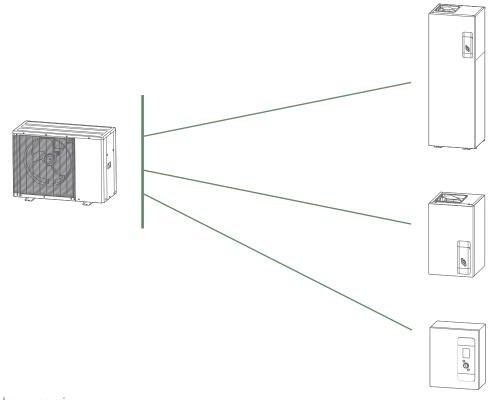
Packing list

1 package : Outdoor unit



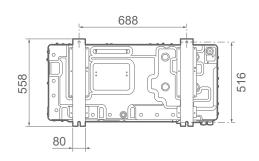
Model		Code
Fujitsu Airstage Monobloc Comfort 5 WPEG050KRF		750918
	Elbow	
Plug (x9)		
		Elbow

The outdoor unit can be associated with an indoor unit 1 service , DHW



▼ Optional accessories

- **Antifreezing valve for Monobloc** (Code UTW-KAVXQ) to protect the hydraulic outdoor circuit.
- Antivibration Rubber feet (Code UTW-KARXQ)
- Drain pan (Code UTW-KDPXQ)



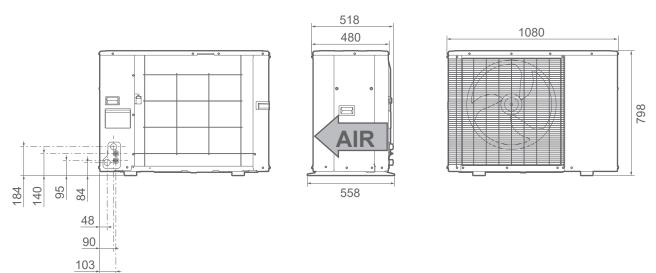


fig. 1 - Dimensions (in mm)

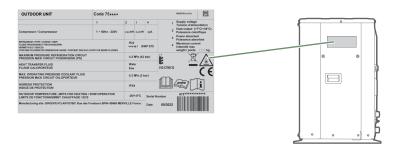


fig. 2 - Location of Data Plate

Specification

Model name	WPEG	050KRF		
Nominal heating performances (outdoor temperature/ initial temperature)				
Heat output				
+7°C / +35°C ³	kW	5.0		
-7°C / +35°C	kW	5.1		
+7°C / +55°C	kW	5.0		
-7°C / +55°C	kW	4.8		
Power consumption ⁴				
+7°C / +35°C ³	kW	0.97		
-7°C / +35°C	kW	1.63		
+7°C / +55°C	kW	1.64		
-7°C / +55°C	kW	2.25		
Coefficient of performance (COP) ³	(+7°C/+ 35°C)	5.15		
Electrical characteristics				
Power Supply Requirements				
Electrical voltage (50 Hz) 1-phase	V	230		
Maximum current	А	14.6		
Hydronic circuit				
Connection size / pipe diameter	meter Inches 1" - 25.4			
Maximum operating pressure	num operating pressure MPa (bar) 0.3			
Minimum flow rate of the hydraulic circuit	l/min	8.5		
Miscellaneous				
Weight (empty)	kg	85		
Sound power level (Medium temp.(W55) EN12102 / EN14825)	dB (A)	52		
Heating system operating limits				
Min /max outdoor temperature	°C	-20 / +35		
Max. water temperature for heating	°C	60		
Initial min. water temperature (may require auxiliary heater)	°C	17		
Refrigerant circuit				
Factory charge of refrigerating fluid R32 ²	g	880		
Maximum operating pressure	MPa (bar)	4.2 (42)		

¹ The acoustic power is a measurement made in the laboratory of the power of the noise emitted but contrary to the noise level, it does not correspond to the measurement of what is felt.

² Refrigerant R32 in compliance with standard NF EN 378.1.

 3 The announced thermal and acoustic performances are measured with 5m of hydraulic connections, half of which in outdoor conditions, in 1"1/4 diameter and with 19mm of insulation (λ =0.033W/mK).

⁴ Specifications with "UTW-SCBEC" connected.

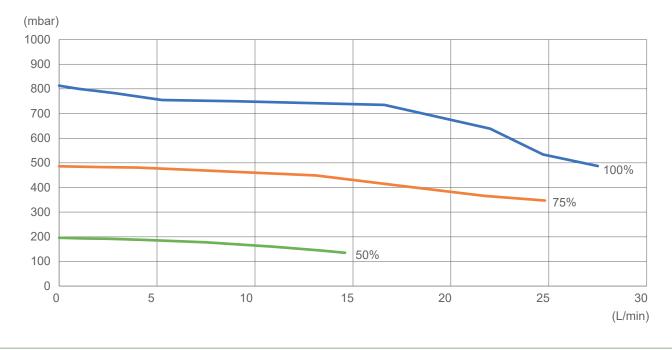


fig. 3 - Outdoor unit available hydronic pressures and flow rates

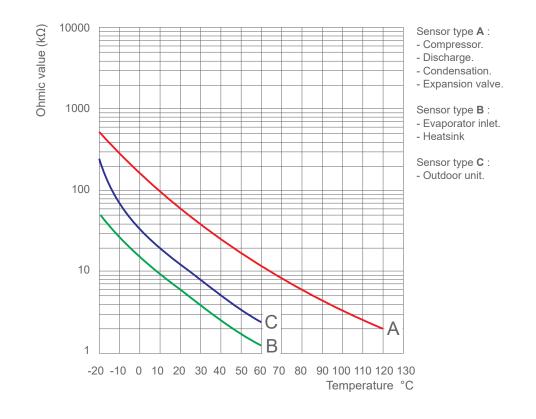


fig. 4 - Ohmic sensor values (Outdoor unit)

Operating principle

The Monobloc Outdoor unit, as its name suggests, is placed outside your dwelling, and extracts energy from the outside air.

The Monobloc Outdoor unit is designed to be controlled by the Indoor unit to heat the circuit by transfer heat from this air to the water.

Nothing should obstruct the air passage through the evaporator and out from the fan.

The water contained in the air may condense and flow out of the outdoor unit. The outdoor unit can generate a large volume of water called condensate.

In cold weather, this water freezes on contact with the exchanger and must be regularly removed through defrosting cycles. The defrosting cycle is managed automatically by the control system and can produce steam emissions which are completely normal.

The Outdoor unit is equiped with a circulating pump to transfer the water flow to the water through pipings. The speed of the pump can be adjusted by the Indoor unit.

The heating circuit flow temperature is controlled by Indoor unit.

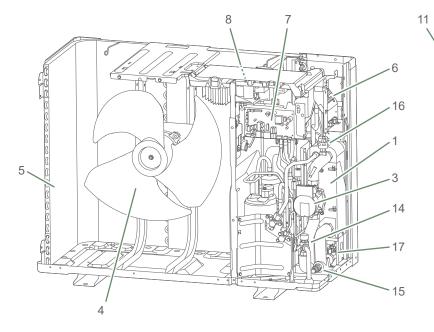
Depending on the heating flow temperature demand, the Outdoor unit's power is modulated by an inverter controller compressor. A minimum water flow is required to have optimized exchange, this is controlled by a water flow sensor (flowmeter).

A communication line allows information to be transferred between the indoor and outdoor unit such as heating demand signal and fault status.

Protective functions

- Frost protection (provided that the heat pump's electrical power supply is active).
- The flow rate sensor checks that the flow rate is higher than the required minimum value.
- The hydronic circuit is equipped with a 3 bar pressure relief safety valve.

9 10





- 2. Compressor (Cp)
- 3. Circulating pump (CC)
- 4. High performance and low noise fan
- 5. Air to Refrigerant Heat Exchanger (Ech)
- 6. Supply terminal

fig. 5 - Components

- 7. Hydronic Circuit PCB
- 8. Main PCB
- 9. 4-way valve (V4V)
- 10. Schrader Valve
- 11. Pressure sensor (SPr)
- 12. High pressure switch (Prt)
- 13. Expansion valve (Dt)
- 14. Pressure Relief Valve (SSe)
- 15. Drain valve (V)

2

16. Automatic bleeder valve (PgA)

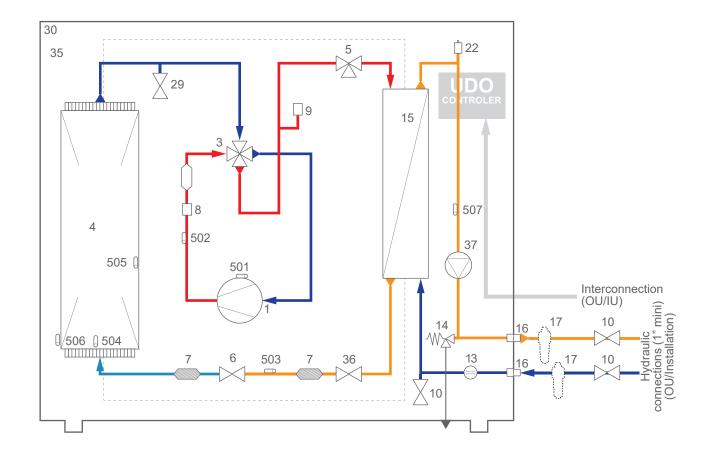
12

13

17

15

17. Flowmeter (Db)



- 1 Compressor
- 3 4-way valve
- 4 Air to Refrigerant Heat Exchanger
- 5 3-way valve
- 6 Expansion valve
- 7 Filter
- 8 Pressure switch (On/Off)
- 9 Pressure sensor
- 10 Valve
- 13 Flow-meter

- 14 Pressure Relief Valve
- 15 Refrigerant to Water Heat Exchanger
- **16 -** Hydraulic connection 1"
- 17 Antifreeze valve
- 22 Automatic bleeder valve
- 29 Schrader valve
- 30 Outdoor unit
- 35 Refrigerant unit
- 36 2-ways valve
- 37 HP circulation pump IPWM

- 501 Compressor temp. sensor
- 502 Discharge temp. sensor
- 503 Electric expansion valve sensor
- 504 Oudoor temp. sensor
- 505 Heat Ex. middle temp. sensor
- 506 Outdoor unit Heat Ex. liquid temp. sensor
- 507 Water outlet temp. sensor

Installing the outdoor unit

▼ Installation precautions

The outdoor unit must only be installed outdoors. If a shelter is required, it must have broad openings on all 4 walls and comply with the installation clearances.

- Choose the installation site after talks with the customer.
- It is preferred that the outdoor unit is protected from wind and installed in a sunny area.
- Be sure to install the outdoor unit as prescribed, so that it can withstand earthquakes and typhoons or other strong winds. Improper installation can cause the unit to topple or fall, or other accidents.
- The unit must be easily accessible for future installation and maintenance work.
- Ensure that the connectors can be easily connected to the hydronic unit.

- The outdoor unit can be exposed to bad weather, however avoid installing it in places where it will become dirty or have excessive water dripping onto it (for example under a leaky drainpipe).
- Do not install the outdoor unit in the following areas:
- Areas with high salt content in the air such as coastal areas. It will deteriorate metal parts, causing the parts to fail or the unit to leak water.
- Area that generates substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, acid, or alkali. It will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
- Area where animals may urinate on the unit or ammonia may be generated.
- When operating water may escape from the outdoor unit. Do not install the appliance on a terrace; install it in a well-drained location (bed of gravel or sand). If installed in a region where the temperature may drop below 0 °C for a long period of time, check that the ice does not cause any danger. A drainage pipe can also be connected to the outdoor unit (see *"Connecting the condensate evacuation pipe", page 13*).

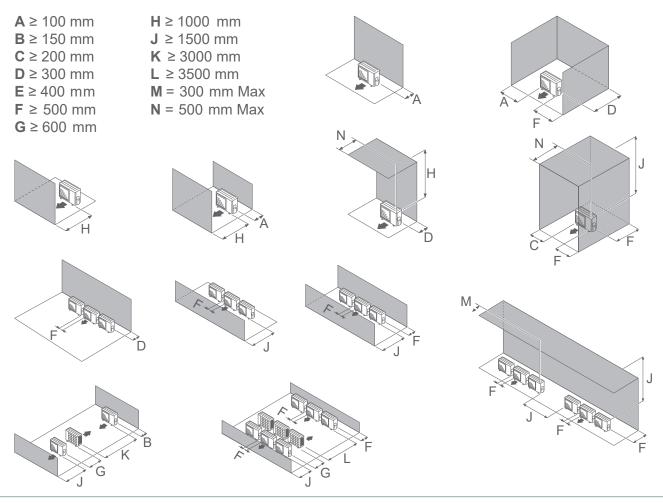


fig. 6 - Minimum installation clearances around the outdoor unit

- Nothing should obstruct the air from circulating through the evaporator and out of the fan.
- Keep the outdoor unit away from sources of heat or inflammable products.
- Ensure that the appliance does not disturb neighbours or users (noise level, draughts caused, low temperature of the air blown causing a risk of freezing plants in its path).
- The surface on which the outdoor unit is mounted must:
- Be permeable (earth, gravel bed...),
- Support the weight comfortably,
- Permit it to be solidly attached,
- Not transmit any vibration to housing. Anti-vibration pads are available as an optional extra.
- The outdoor unit must be firmly fastened to the ground.
 - Positioning the outdoor unit

Do not tilt the outdoor unit more than 3 degrees.

The outdoor unit must be raised by at least 50 mm from the ground. In snowy regions, this height must be increased but must not exceed 1.5 m.

Fasten the outdoor unit using screws and elastic tightening or toothed lock washers to prevent them from coming loose.



In regions with heavy snowfall, if the outdoor unit's entrance and exit are blocked by snow it may be difficult to heat up and may cause breakdown.

Build a canopy or position the unit on a high stand (local configuration).

- Put the appliance on a solid support to minimise impact and vibration.
- Do not set the unit directly on the ground as this may generate disruptions.





The outdoor unit may generate a large volume of water.

If the use of a drain hose is imperative:

- Install the condensate drain tray (optional). Use the elbow provided and connect a 16 mm-diameter hose / pipe for draining the condensate.
- Provide for the gravitational discharge of the condensates (waste water, rainwater, gravel bed).



If the appliance is installed in a region where the temperature may fall below 0 °C for long periods, fit the drain hose and condensate drain tray with a heating cable to prevent it from icing over.

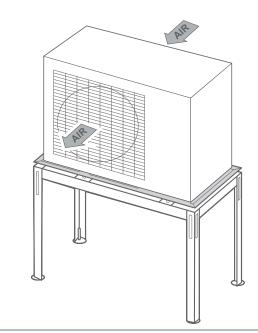


fig. 7 - High stand (optional)

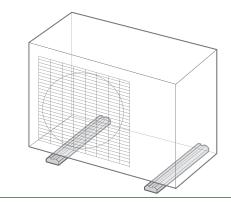
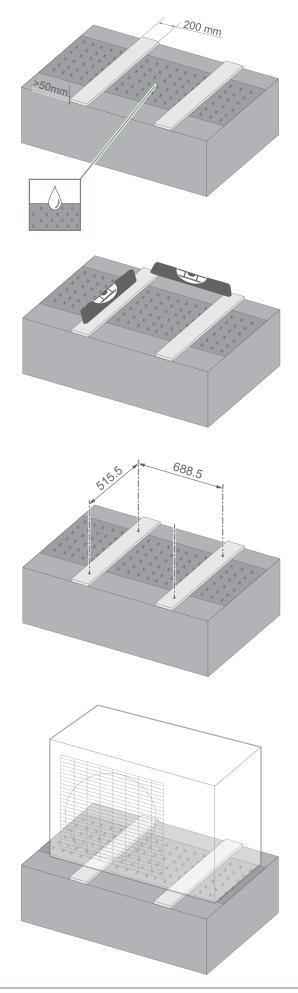


fig. 8 - Rubber feet arrangement (optional)



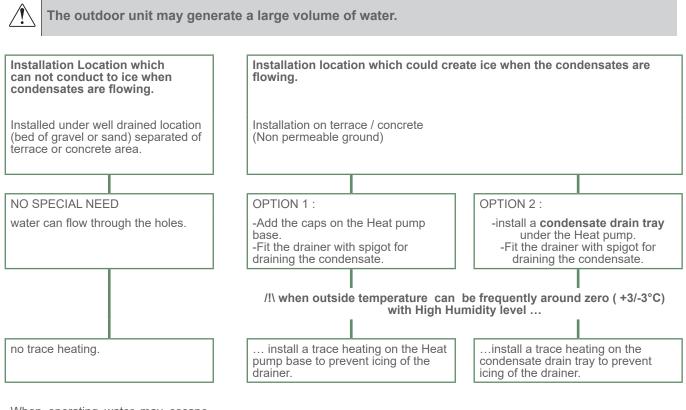




85 kg



OUTDOOR UNIT INSTALLATION



When operating water may escape from the Heat pump. Do not install the appliance on a terrace; install it in a well-drained location (bed of gravel or sand). If installed in a region where the temperature may drop around 0°C for a long period of time, check that the ice does not cause any danger.

Hydronic connection

Rinsing the installation

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Before connecting the hydraulic unit to the installation, rinse the heating system correctly to eliminate the particles that could compromise the correct operation of the appliance.

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

In some installations, the presence of different metals can cause corrosion problems; the formation of metal particles and sludge can appear in the hydronic circuit.

To prevent sludge from forming in the system, use oxygen-tight piping (copper, PEX-OB, multi-layer, etc.).

Outdoor unit

Connect the pipe of the outdoor unit to the hydronic unit respecting the direction of flow.



It is mandatory that either antifreeze valves or a glycol/water mix are installed to protect the hydronic circuit and associated components.



Mandatory : Install a Sediment trap (supplied) on the heating return circuit in the manner suggested.

Use union connectors to facilitate removal.

Connect the pipe of the central heating to the hydronic unit respecting the direction of flow.

The pipe between the hydraulic unit and the heat collector must be at least 1" diameter (26x34 mm).

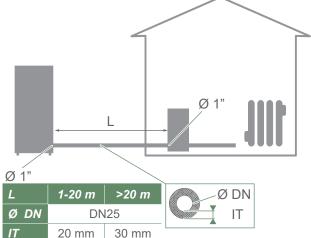
Use union connectors to facilitate removal.

Prioritise connector hoses to avoid transmitting noise and vibrations to the building.

Tightening torque:

Ø	Tightening torque
1/2"	25 Nm
3/4"	35 Nm
1"	45 Nm
1-1/4"	60 Nm







Warning : Minimum volume of water in the free circulating loop: 24 liters

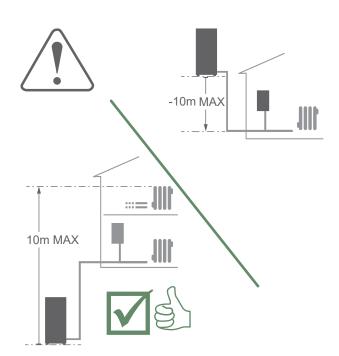
This monobloc outdoor unit is included in an outdoor/ indoor unit system.

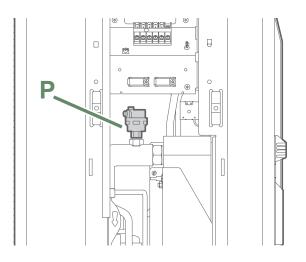
To confirm the value of the minimum volume circulating in the system: refer to the hydraulic module manual.

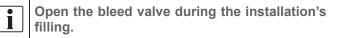


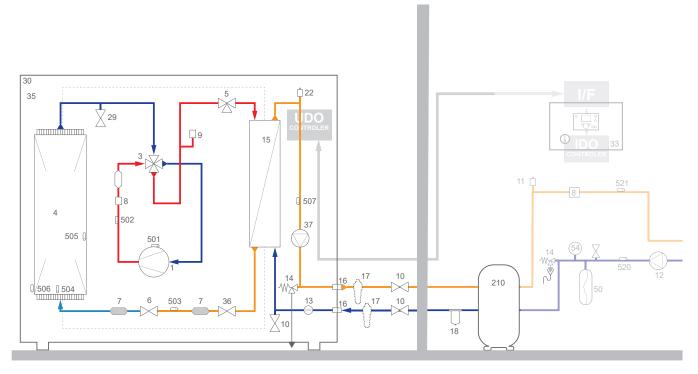
Caution: Do not close water valves (between Outdoor unit & Indoor unit) during operating the heat pump.

Connect the pipe (Ø15mm) of the pressure relief valve to the main sewer system









- 1 Compressor
- 3 4-way valve
- 4 Air to Refrigerant Heat Exchanger
- 5 3-ways valve
- 6 Expansion valve
- 7 Filter
- 8 Pressure switch (On/Off)
- 8 High pressure switch
- 9 Pressure sensor
- 10 Valve
- 11 Bleeder valve
- 12 Circulation pump

fig. 10 - Basic Hydronic Layout

- 13 Flow-meter
- **14** Pressure Relief Valve
- 15 Refrigerant to Water Heat Exchanger
- 16 Hydraulic connection 1"
- 17 Antifreeze valve
- 18 Sediment trap
- 22 Automatic bleeder valve
- 29 Schrader valve
- 30 Outdoor unit
- 35 Refrigerant unit
- 36 2-ways valve
- 37 HP circulation pump IPWM

- 50 Expansion vessel
- 54 Manometer
- 210 Buffer tank
- 320 Return temp. sensor
- 501 Compressor temp. sensor
- 502 Discharge temp. sensor
- 503 Electric expansion valve sensor
- 504 Oudoor temp. sensor
- ${\bf 505}$ Heat Ex. middle temp. sensor
- 506 Outdoor unit Heat Ex. liquid temp. sensor
- 507 Water outlet temp. sensor
- 521 Flow temp. sensor

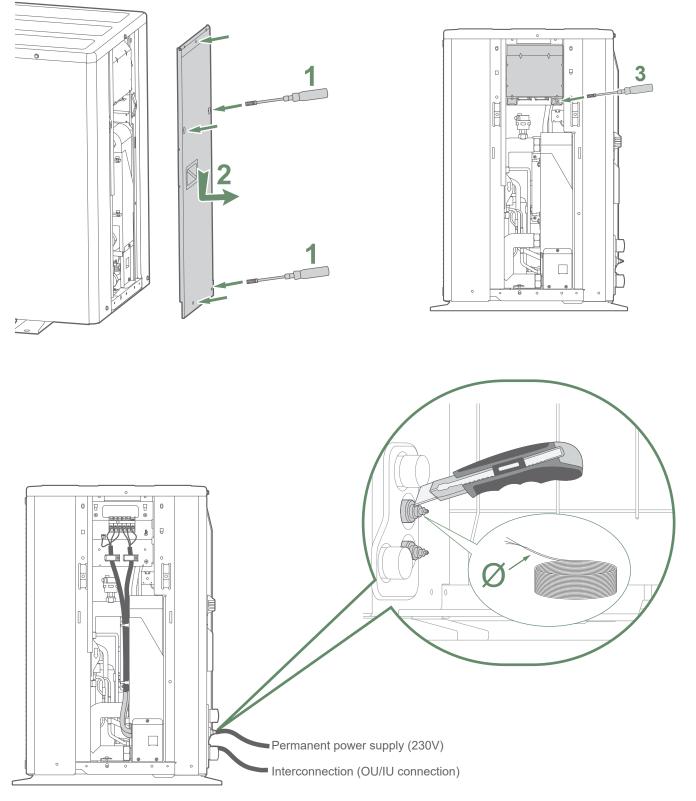
Electrical connection

Before performing any maintenance, make sure that <u>all power supplies</u> have been isolated. Electrical installation must be performed in accordance with current regulations.



Cable routing

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► Cable size and protection rating

These cable dimensions are provided for information purposes only and do not exempt the installer from checking that these dimensions match requirements and comply with current standards.

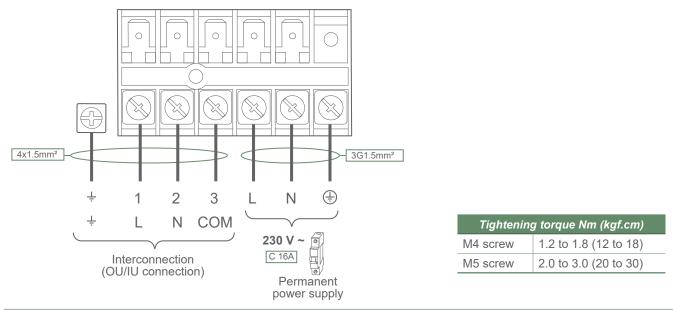
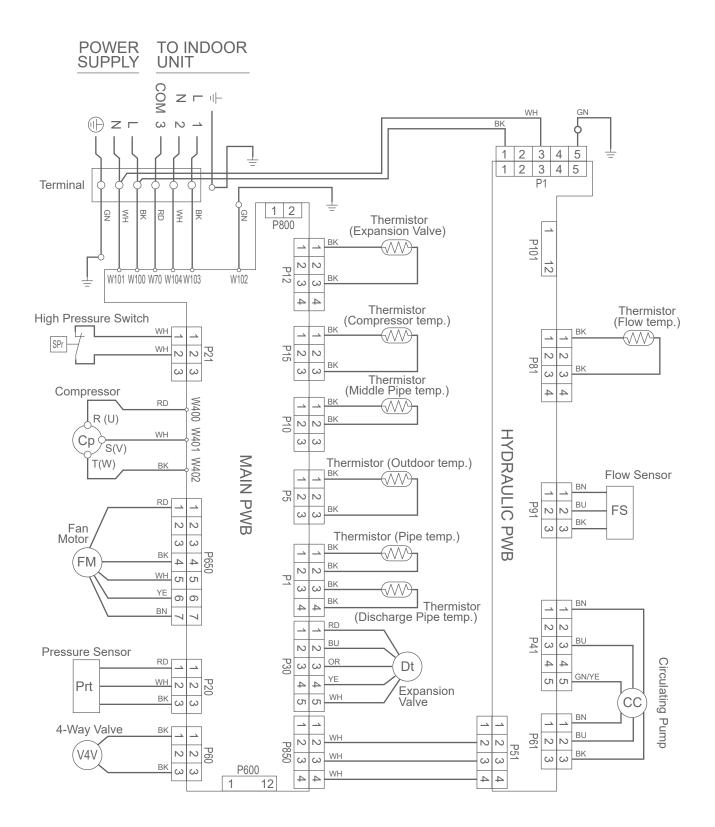


fig. 11 - Connections to outdoor unit's terminal block



Electrical cabling diagram



Commissioning



The outdoor unit must have the power active for a minimum of 6 hours prior to activation of the heat pump to protect the compressor.

See the Installation manual of the indoor unit.

Q Instructions for the user

Explain to the user how the installation operates, in particular the functions of the room thermostat and the programmes accessible via the user interface.

Emphasise that a heated floor has significant inertia and that therefore any adjustments must be made progressively.

Also explain to the user how to check the filling of the heating circuit.

양 Heat pump error code

Flashing of the diode visible on the interface board in the indoor unit

x N : LED blink N time

	Interfac	e Board	
Error	Green LED	Red LED	Error designation
44	x 1	x 1	Serial forward transmission error immediately after operation
11	x 1	x 1	Serial forward transmission error during operation
23	x 2	х 3	Combination error
32	х 3	x 2	Outdoor unit PCB model information error
62	х б	x 2	Communication error in outdoor unit
65	x 6	х 5	IPM error
71	х 7	x 1	Discharge temp. sensor error
72	x 7	x 2	Compressor temp. sensor error
70	x 7	х 3	Heat Ex. middle temp. sensor error
73	x 7	х 3	Outdoor unit Heat Ex. liquid temp. sensor error
74	х 7	x 4	Outdoor temp. sensor error
77	х 7	x 7	Heat Sink temp.Sensor error
78	х 7	x 8	Electric expansion valve sensor error
79	х 7	x 9	Water outlet temp. sensor error
84	х 8	x 4	Current sensor error
	x 8	x 6	High pressure switch error
86	x 8	x 6	Pressure sensor error
94	x 9	x 4	Trip detection
95	x 9	x 5	Compressor motor control error
97	x 9	x 7	Outdoor unit fan motor 1 error
9B	x 9	x 11	Circulation pump error
A1	x 10	x 1	Discharge temp. error
A3	x 10	х 3	Compressor temp. error
A5	x 10	x 5	Low pressure error
AB	x 10	x 11	Heat Sink Temp. error
AE	x 10	x 14	Low water flow error



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CE

- are in conformity with the relevant Union harmonized directives and regulations: - Low Voltage Directive (LVD) - 2014/35/EU
- Machinery Regulation (EU) 2023/1230
- ElectroMagnetic Compliance (EMC) Directive 2014/30/EU
- Ecodesign [Space heaters and combination heaters] 2009/125/EC [813/2013]
- RoHS 2011/65/EU
- Pressure Equipment Directive (PED) 2014/68/EU

Pressure equipment: Compressor (including its accumulator), Pressure switch, Sub-assembly SKD.

Risk Category II, conformity assessment procedure : module A2 (internal production control plus supervised pressure equipment checks at random intervals) by the Notified Body: TÜV Rheinland Industrie Service GmbH, D-51105 Köln (Identification N° : 0035) EU declaration of conformity is available on the following Fujitsu General website. https://www.fujitsu-general.com/global/support/downloads/index.html



This unit is identified by this symbol. It means that all electrical and electronic products must not be included in household waste. A specific recycling system for this type of product has been set up in European Union countries (*), Norway, Iceland and Liechtenstein. Do not try to dismantle this product yourself. It may have damaging effects on your health or on the environment. Reprocessing of the refrigerant, lubricant and other parts may be performed by a qualified installer in compliance with the local and national legislation in force. This unit must be recycled by a specialised service and in no case may it be thrown away with household waste, rubble or in a landfill.

Please contact your installer or local representative for more . * Depending on the national regulations of each member state.

The energy label supplied with this heat generator in accordance with Regulation (EU) $N^{\circ}811/2013$ concerns the combination of the space heater referenced at the top of this label.

The energy labels of the other possible combinations of space heater with this heat generator are freely available on the site: https://eprel.ec.europa.eu/screen/product/spaceheaters

Commissioning date:



Fujitsu General (Euro) GmbH Fritz-Vomfelde-Strasse 26-32 40547 Düsseldorf - Germany