

ACCESSORIES INSTALLATION & OPERATING MANUAL

PRODUCTS CONCERNED: R-290 - AIR SOURCE HEAT PUMP

ACCESSORIES LIST

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INTRODUCTION AND SAFETY INSTRUCTIONS

Applicable for all accessories described in this manual.

For all safety instructions, please refer to the EH&S instructions. A hardcopy version is supplied with the machine, the digital version is available in the same place as the IOM by using the Digilink QR code available on the unit (contact your local distributor if needed).

The accessories described in this document were designed and certified to operate with R290 units.

1 - CONTROL & CONNECTIVITY KITS

1.1 - OPT_58 – Lead/lag operation

1.1.1 - Compatibility

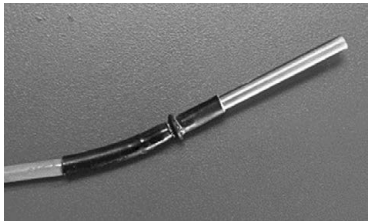
This accessory is compatible with other features.
Please note it only enables lead/lag operation with other R290 Air Source Heat Pump units.

1.1.2 - Description

The option enables to operate and control up to 4 units without requiring a BMS, only interacting with lead unit.
The kit content is always the same regardless of the number of machines (2 to 4).

1.1.3 - Kit contents

Unit size	Kit reference	Parts included
All	00PSG004277600A	1x Temperature sensor with 15-m cable



Please note, probe holder not supplied as an accessory. A probe holder that allows assembly with the 3/8"-24 UNF MP01802 nut will be required. The dimensions of the probe holder must be at least 5.8 cm to ensure a proper seal with the O-ring in the O-ring (see in picture).

1.1.4 - Handling & positioning

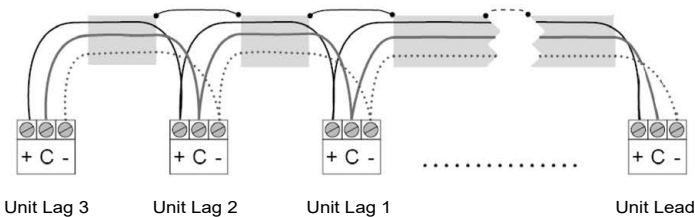
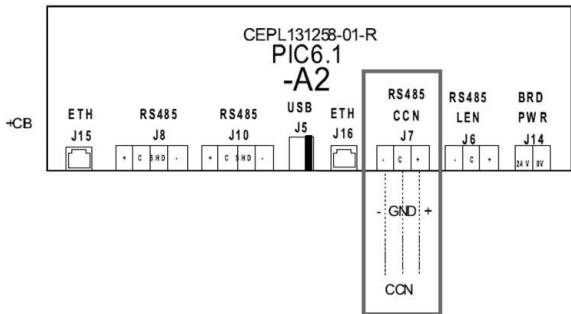
- Sensor position:
- On hydraulic manifold to measure the mixing temperature.
 - Connected to the lead unit.

1.1.7 - Electrical connection

Sensor Control type: Thermistor.

1.1.7.1 - Connection of units

To connect up to 4 machines, follow the diagram below, replicating the connections between each unit.



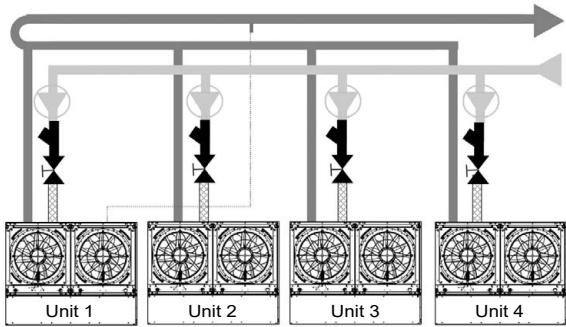
1.1.5 - Dimensions

The sensor is supplied with a 15-m cable.
Sensor dimensions:
■ Diameter = 0.5 cm
■ Length = 5.6 cm.

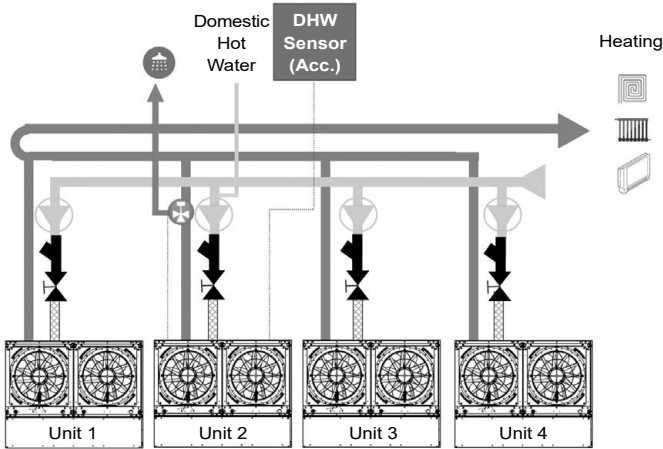
1.1.6 - Physical installation

The sensor must be placed at the outlet of the water manifold on a specific, adapted sensor holder.

LWT sensor (OPT-58)



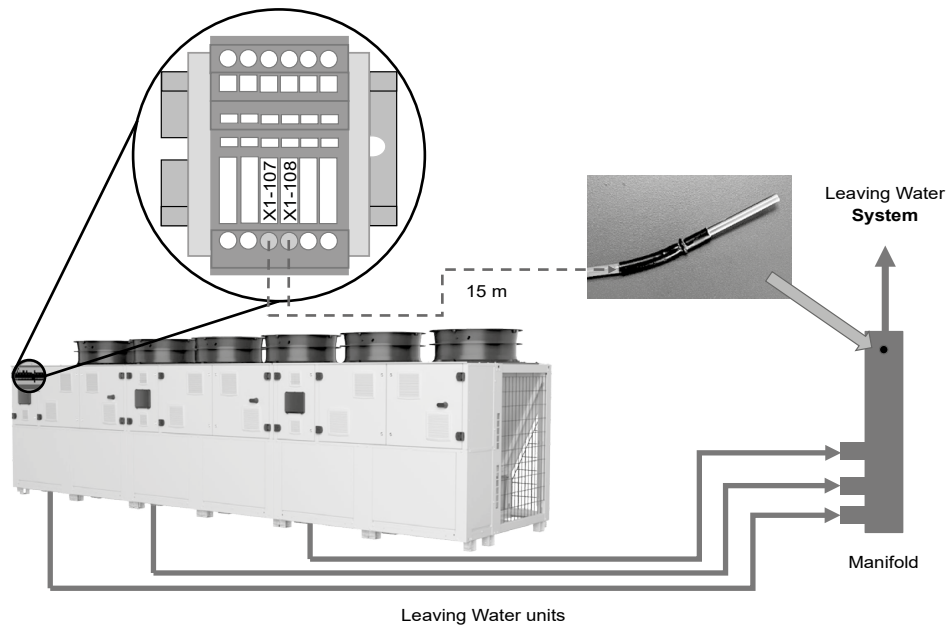
If the lead/lag option is combined with the domestic hot water function, options 312A and/or 347 must be connected to one of the lag units.



1 - CONTROL & CONNECTIVITY KITS

1.1.7.2 - Sensor connection

Connect the sensor to the input reference X1-107 & X1-108 on the customer terminals of the lead unit as shown below:



* Please note that the hydraulic feeder will be needed to position the sensor and ensure an accurate measurement.

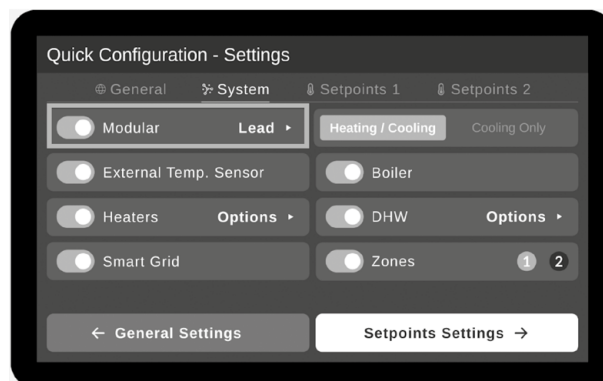
The cable must enter the electrical box through a dedicated cable gland present at the back of the cabinet.

* Use a free gland to insert the cable. The picture is given as an example only.



1.1.8 - Software settings

Select the role of each machine on the Quick Configuration SmartUse screen.



Please refer to the unit IOM (3.2.1 - Free spaces and installing several units & 12.2.2 - Operation of four units as a Lead/Lag Pair (OPT_58)) for further information on installing the units; See the Control IOM (6.13 - Lead/Lag assembly (OPT_58) & 4.1.3 – Modular configuration from SmartUse home Screen) for the software configuration of each machine.

1.1.9 - Standard maintenance

Refer to the unit IOM. The same maintenance rules apply for this accessory.

1 - CONTROL & CONNECTIVITY KITS

1.2 - OPT_81B - Remote electrical junction box

1.2.1 - Safety instruction

This electrical box remains under voltage even when the machine is disconnected via its power disconnect switch.

- Before carrying out any work, it is essential to disconnect and lock out the power supply at the point where the machine is connected to the mains.
- Check that there is no voltage present before handling any internal components.
- Ensure that the safety warning label is present, legible and in good condition on the box.

Failure to follow these instructions may result in serious risks to persons.

1.2.2 - Incompatibility

No incompatibility for this accessory with other features.

1.2.3 - Description

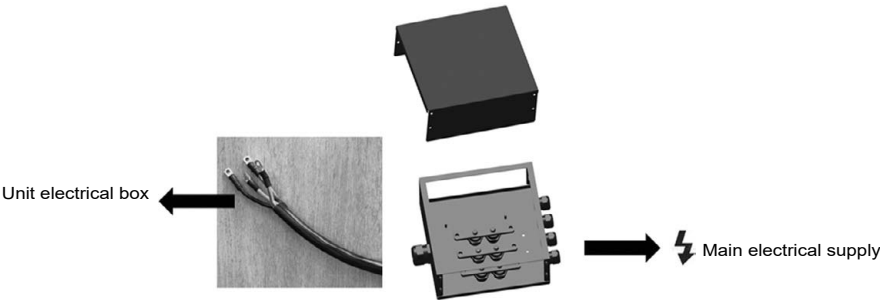
Optional main electrical connection is designed to support larger cable section as aluminum cables connections.

The system is based on an electrical panel with internal copper busbars and input/output bushings.

1.2.4 - Kit content

Unit size	Kit reference	Parts included
All	00PSG004283200A	1x Main connection box 1x Cable (2m)

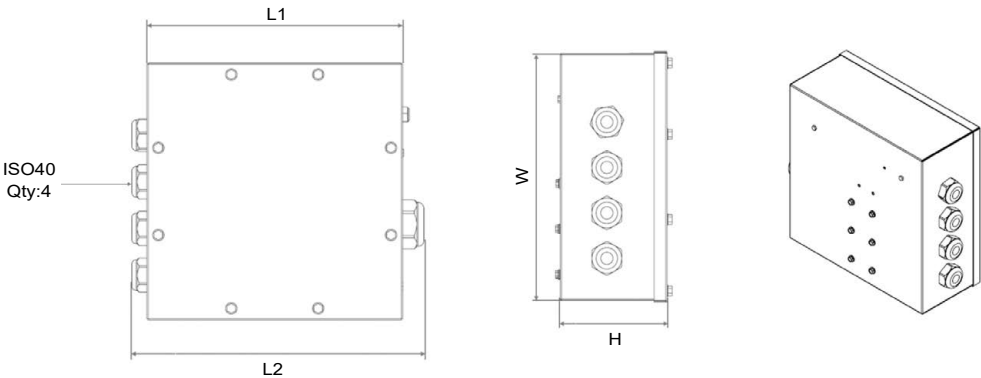
2 bolts and nuts (M6) needed for fixation



1.2.5 - Dimensions & weight

Main Connection Box

Unit	L1 [mm]	L2 [mm]	W [mm]	H [mm]	Weight [Kg]
All sizes	386	481	386	156	5,72



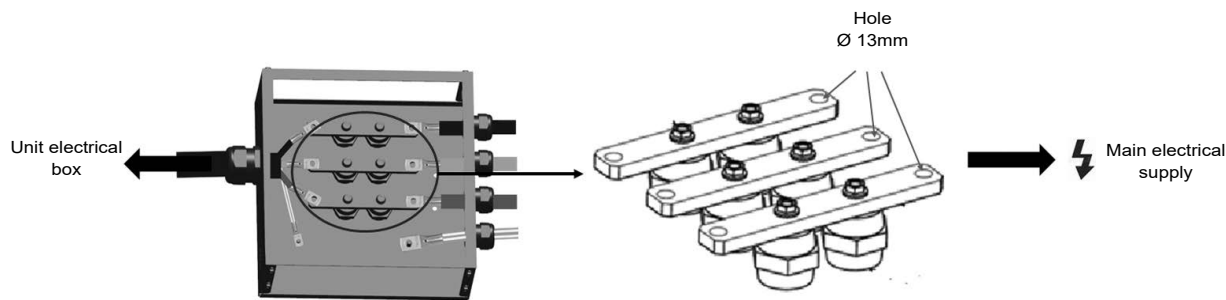
1 - CONTROL & CONNECTIVITY KITS

Copper Power Cable

- Cable length: 2m

Customer connection

- Customer electrical connection bar



1.2.6 - Physical data

The electrical box is produced in galvanized steel with paint finish. Fastening designed using M6x20 stud.

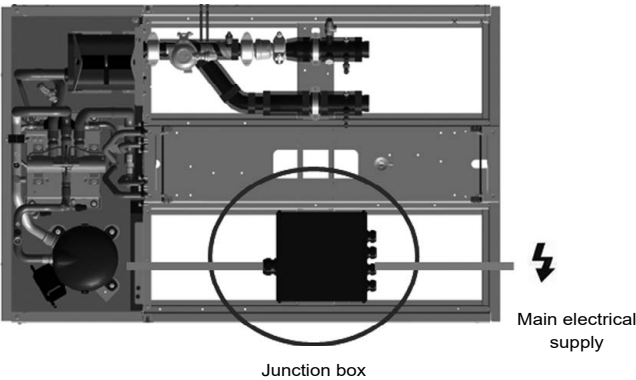
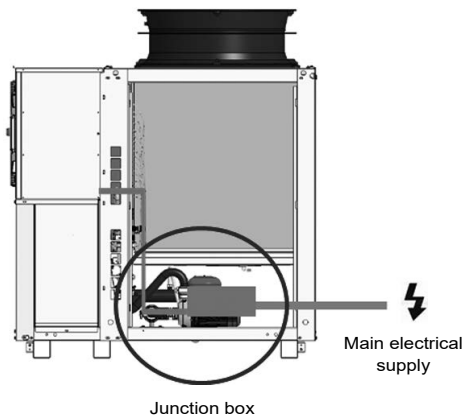
Protection index **IP54**

The cable gland ISO40 (Qty 4) for the client connection allows cables with diameters between 22 and 32 mm.

It is the customer's responsibility to check that the choice of equipment is suitable for the actual conditions of use.

1.2.7 - Handling & positioning

The accessory is designed to install the connection box on the frame of the unit as shown below.



To ensure the integrity and tightness of the cable gland, make sure to secure the cable to the unit chassis and/or to the cable tray provided for this purpose.

To ensure secure attachment between the electrical box and the machine chassis, both have holes with a diameter of 7.3 mm.

The connection box must be installed in a position that ensures:

- Safe accessibility for maintenance personnel.
- Sufficient space for the bending radius of the power cables.
- Protection against moisture, dust or vibrations, if not in a controlled environment.

IMPORTANT:

The circuit breaker upstream of the machine must be rated at a maximum of *200 A, type gG***.**

Unit size	All sizes
Value with upstream electrical protection⁽¹⁾	
Rated conditional short circuit current - Icc kA eff	25
Associated protection - type / supplier	Fuse (gL/Gg) / ABB
Associated protection - rating / part number	200

This option modifies the "6.2 - Short-circuit current withstand capability" table in the machine's IOM.

1.2.8 - Standard maintenance

Periodic inspection: Check the condition of the connections, especially in aluminum installations, where there may be a greater risk of losing.

Cleaning: Keep the panel free of dust and moisture. Check the condition of the bushings and the tightness of the seal.

Retightening: It is recommended to retighten the connections after the first 100 hours of operation and then every 1 Year.

1 - CONTROL & CONNECTIVITY KITS

1.3 - Option 156D – System Management Module (SMM)

1.3.1 - Incompatibility

This option is not compatible with option 275A (System Management Sequencer 4 units (SMS)) as Option 275A already includes the functionality of option 156D

The option is available only for monobloc units.

1.3.2 - Description

This accessory is a remote-control box that can be installed in a technical room room.

All of the customers' input and output connections will be relocated from the main heat pump control panel to this remote-control box.

It connects heating accessories (Boiler, Heaters, DHW 3WV, Heating zones, external pump, ...) and heat pumps via a Len communication cable.

This option is delivered as an accessory.

A 230 V power supply is required.

Main advantage: easy connection of heating system accessories.

Box features:

- Includes: a CIOB card, a voltage transformer, and protective components.
- Metal external structure.
- Protection indice: IP43.
- Can only be connected to one unit at a time.

1.3.3 - Kit content

Unit size	Kit reference	Parts included
All size - Monobloc unit	00PSG004407800A	1x Electrical cabinet

1.3.4 - General & safety requirements

The electrical installation and mechanical mounting of the cabinet shall be performed exclusively by a qualified and authorized electrical technician, in accordance with applicable national and local regulations, including electrical safety standards and occupational health requirements.

All work shall be carried out in a de-energized condition.

Lock-out/Tag-out (LOTO) procedures must be applied prior to any intervention.

Personal Protective Equipment (PPE)

During transport, handling, installation, wiring, and commissioning, personnel shall wear appropriate Personal Protective Equipment (PPE), including at minimum:

- Safety shoes with reinforced toe protection
- Protective gloves suitable for mechanical handling and electrical work
- Safety glasses
- Protective helmet (when required by site conditions)
- Arc-flash protective equipment where applicable during commissioning.

PPE selection shall comply with the site risk assessment and local regulatory requirements.

1.3.5 - Installation

1.3.5.1 - Installation requirements

The cabinet shall be installed in accordance with the following mechanical and ergonomic installation requirements:

- Must be installed by a qualified technician.
- Secure the cabinet at breast height so switch buttons are at user's eye level.
- Use a mounting bracket that can support the load of the cabinet.
- Take care to preserve the seal of the cabinet at the level of the mounting bracket.

Strictly prohibited installation locations:

- Outdoors without protection from rain.
- Areas exposed to flammable gases: it cannot be installed in an ATEX zone.
- Environments where temperature exceeds 50°C or drops below 0°C.
- Near significant heat sources.
- Recessed into a wall or partition.
- Close to sources of electromagnetic interference.

1.3.5.2 - Dimensions & Weight

- Dimensions (L * H * D - mm): 400 × 600 × 250 mm.
- Weight : 20 kg.



1 - CONTROL & CONNECTIVITY KITS

1.3.5.3 - Handling

According to weight of the electrical cabinet manual handling shall be avoided whenever possible.

The following precautions shall be observed:

- Use appropriate lifting equipment (lifting straps, mechanical lift, trolley, or hoist) rated for the load.
- Do not lift the cabinet by the door, cable glands, or internal components.
- Protect the cabinet from shock, vibration, and moisture during transportation and storage.
- If you need to store the cabinet prior to installation, do it in a clean environment that respects the storage recommendation written in the technical datasheet.

If manual handling is unavoidable, it shall be performed by at least two operators trained in safe lifting techniques.

1.3.5.4 - Positioning and Clearances

The installation location shall:

- Be protected from direct water exposure unless otherwise rated.
- Be compatible with the environmental conditions specified for the equipment (temperature, humidity).

The cabinet shall be mounted:

- At chest height so that the touchscreen interface is approximately at eye level for the operator.
- In a vertical position, ensuring proper ventilation and drainage characteristics.

The installation site must:

- Be protected from direct water exposure unless otherwise rated.
- Be compatible with the environmental conditions specified for the equipment (temperature, humidity).

Minimum clearances shall be respected as follows:

- A minimum of 700 mm clearance in front of the cabinet to allow full door opening, safe access for maintenance, and emergency intervention.
- A minimum of 300 mm clearance on lateral and upper sides to allow electrical connections and adequate heat dissipation for the regulator and display.

1.3.5.5 - Physical installation

Wall Mounting Requirements (Threaded Rod Fixing)

The cabinet shall be mounted on a structurally suitable wall capable of supporting:

- Additional dynamic loads during operation,
- A minimum safety factor in accordance with local structural standards.

When mounting using threaded rods:

- Use threaded rods of appropriate diameter and mechanical strength.
- Ensure proper anchoring into concrete or structural masonry using certified anchor systems.
- Verify load-bearing capacity of anchors before installation.
- Use flat washers and locking nuts to prevent loosening due to vibration.
- Tighten fasteners to the specified torque values.

The cabinet sealing integrity (IP43) shall not be compromised during mounting. All mounting holes shall use designated fixing points only.

1.3.6 - Electrical connection

1.3.6.1 - Electrical supply of the cabinet

Electrical data

Protection index	IP43
Electrical supply	230VAC, 1,6 A (1ph +N + Earth)
Maximum cable	4mm ²
Operating temperature	From 0 °C to 40°C
Operating humidity	From 10 % to 90% non-condensing
Storage temperature	From -20 °C to 60°C
Storage humidity	From 10 % to 90% non-condensing
Operating installation	Usage indoor location only

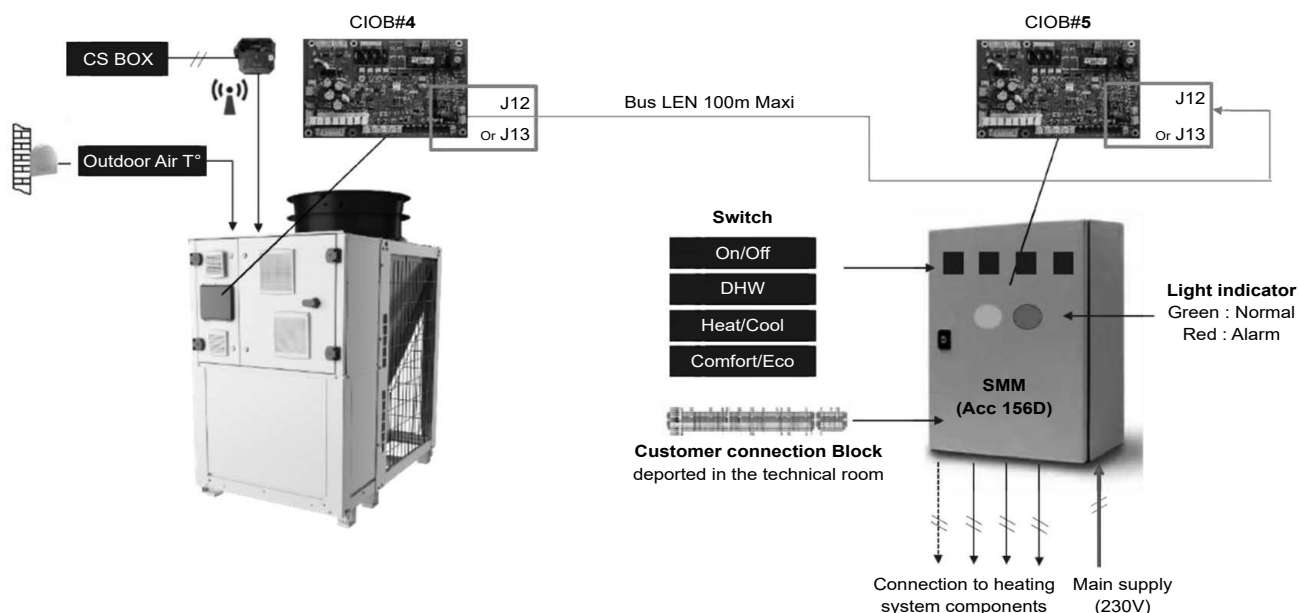
Additional requirements:

- Earthing is mandatory (high-quality earth in compliance with standard C15.100).
- We accept no liability or warranty for damage resulting from incorrect installation.
- Any user modification **of the device voids all warranty rights.**

1 - CONTROL & CONNECTIVITY KITS

1.3.6.2 - Connect the cabinet to the heat pump

Detailed information regarding electrical connections and their layout is available in the electrical box schematic



1.3.6.3 - Connections of heating accessories (DHW, 3-way valve heating zones, boiler, etc.) to the Electrical box

All the heating accessories has to be connected to the customer terminal blocs present on the electrical box.

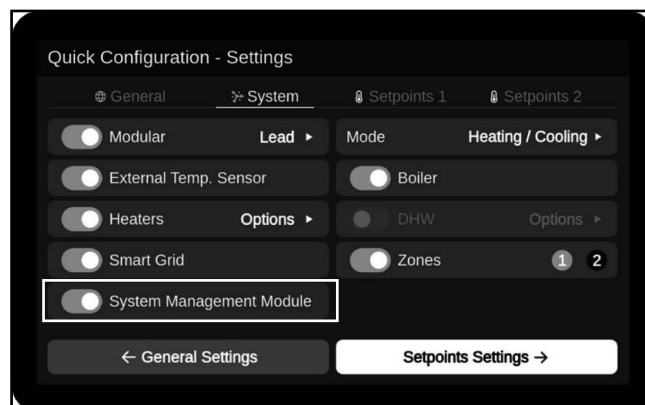
Refer to the electrical diagrams supply on the Electrical box accessory (Option 156D – System Management Module -SMM).

Connection	Terminal block
BOILER	XA3 109 -12
EHS3	XA3 138 -12
EHS2	XA3 137 -12
EHS1	XA3 136 -12
RUN	XA3 118
ALARM	XA3 129 - 133
DHW ELECTRIC HEATER	XA3 134-132
DWH VALVE CLOSE	XA3 130 - 131
DWH VALVE OPEN	XA3 128
CUSTOMER WATER PUMP	XA3 120 - 113
DHW TEMPERATURE	XA3 120 - 122
DHW VALVE FEEDBACK CLOSED	XA3 119 - 123
DHW VALVE FEEDBACK OPENED	XA3 117 - 123
DHW CALOSTAT	XA3 116 - 123
HEAT / COOL SELECT	XA3 126 - 123
NIGHT MODE	XA3 127 - 123
ECO / COMFORT SETPOINT SWITCH	XA3 124 - 123
ON / OFF SWITCH	XA3 125 - 123
HEATING PUMP ZONE 2	XA4 151 -12
HEATING PUMP ZONE 2	XA4 150 -12
DHW ELECTRIC HEATER	XA4 147
DHW ELECTRIC HEATER	XA4 146 -148
DWH VALVE CLOSE	XA4 144 - 145
DWH VALVE OPEN	XA4 143
DHW TEMPERATURE	XA4 141-139
DHW TEMPERATURE	XA4 140 - 139
FLOOR SENSOR	XA4 139 - 142
OFF PEAK	XA4 167 - 168
OFF PEAK	XA4 165 - 166
SGR1 LCK	XA4 162 - 163
SG SW1/OFF PEAK	XA4 160 - 161

1.3.7 - Software settings

In order to activate the System Management Module:

- Change the software setting: OPT_SEL_ext_job = Yes.
- Or enable it from the simplified interface.



1.3.8 - Standard maintenance

Level 2 maintenance in unit IOM.

1 - CONTROL & CONNECTIVITY KITS

1.4 - Option 275A – System Management Sequencer (SMS)

1.4.1 - Option 275A

Electrical box to place on the technical room to:

- Manage the cascade of 4 units
- Connect heating accessories (DHW & Heating zones 3WV, boiler, ...).

1.4.2 - Incompatibility

This option is not compatible with option 156D System Management Module (SMM).

This option is not compatible with option 298C Abound CS BOX

The option is not available for monobloc units. 2, 3 or 4 units can be connected to this electrical box.

1.4.3 - Description

The SMS is a control/command electrical cabinet and does not include the power supply of the controlled components (pumps, etc.). The SMS can control up to 4 units in parallel, as well as pumps, valves, and tanks (buffer tank or domestic hot water tank).

The System Management Sequencer (SMS) will manage and sequence air-cooled heat pump in cooling and/or heating mode in function of the unit selection. The hydraulic configuration must correspond to one of the cases defined in the compatible hydraulic diagrams. SMS allows among others:

- Optimized cascade from 2 to 4 units.
- Temperature regulation of 2 production areas (zone 1 and 2) and Domestic Hot Water with auxiliary equipment (3-way valves, pumps, heaters, boiler, etc.).
- Production priorities using schedules.
- Control of heat pump regulation tables.
- Shifting unit setpoint according to outside air temperature and system's heat losses.
- Control of unit capacity via their capacity limits.

Strictly prohibited installation locations:

- Outdoors without protection from rain.
- Areas exposed to flammable gases.
- Environments where temperature exceeds 50 °C or drops below 0 °C.
- Direct sunlight or near significant heat sources.
- Recessed into a wall or partition.
- Close to sources of electromagnetic interference.

Additional requirements:

- Earthing is mandatory (high-quality earth in compliance with standard C15.100).
- We accept no liability or warranty for damage resulting from incorrect installation.
- Any user modification of the device voids all warranty rights.

Important restrictions:

This device must not be used for:

- Surveillance intended solely for protecting people from danger or injury.
- Emergency stop functions on installations or machines.
- Any safety-related functions.

This option is delivered as an accessory.

1.4.4 - Kit content

Unit size	Kit reference	Parts included
All modular system	000PSG004407400A	1x Electrical cabinet 2x Temperature sensors and immersion sleeves

1.4.5 - General & Safety Requirements

The electrical installation and mechanical mounting of the cabinet shall be performed exclusively by a qualified and authorized electrical technician, in accordance with applicable national and local regulations, including electrical safety standards and occupational health requirements.

All works shall be carried out in a de-energized condition. Lock-out/Tag-out (LOTO) procedures must be applied prior to any intervention.

Personal Protective Equipment (PPE)

During transport, handling, installation, wiring, and commissioning, personnel shall wear appropriate Personal Protective Equipment (PPE), including at minimum:

- Safety shoes with reinforced toe protection
- Protective gloves suitable for mechanical handling and electrical work
- Safety glasses
- Protective helmet (when required by site conditions)
- Arc-flash protective equipment where applicable during commissioning

PPE selection shall comply with the site risk assessment and local regulatory requirements.

1.4.6 - Handling & positioning

1.4.6.1 - Dimensions & Weight

Electrical box:



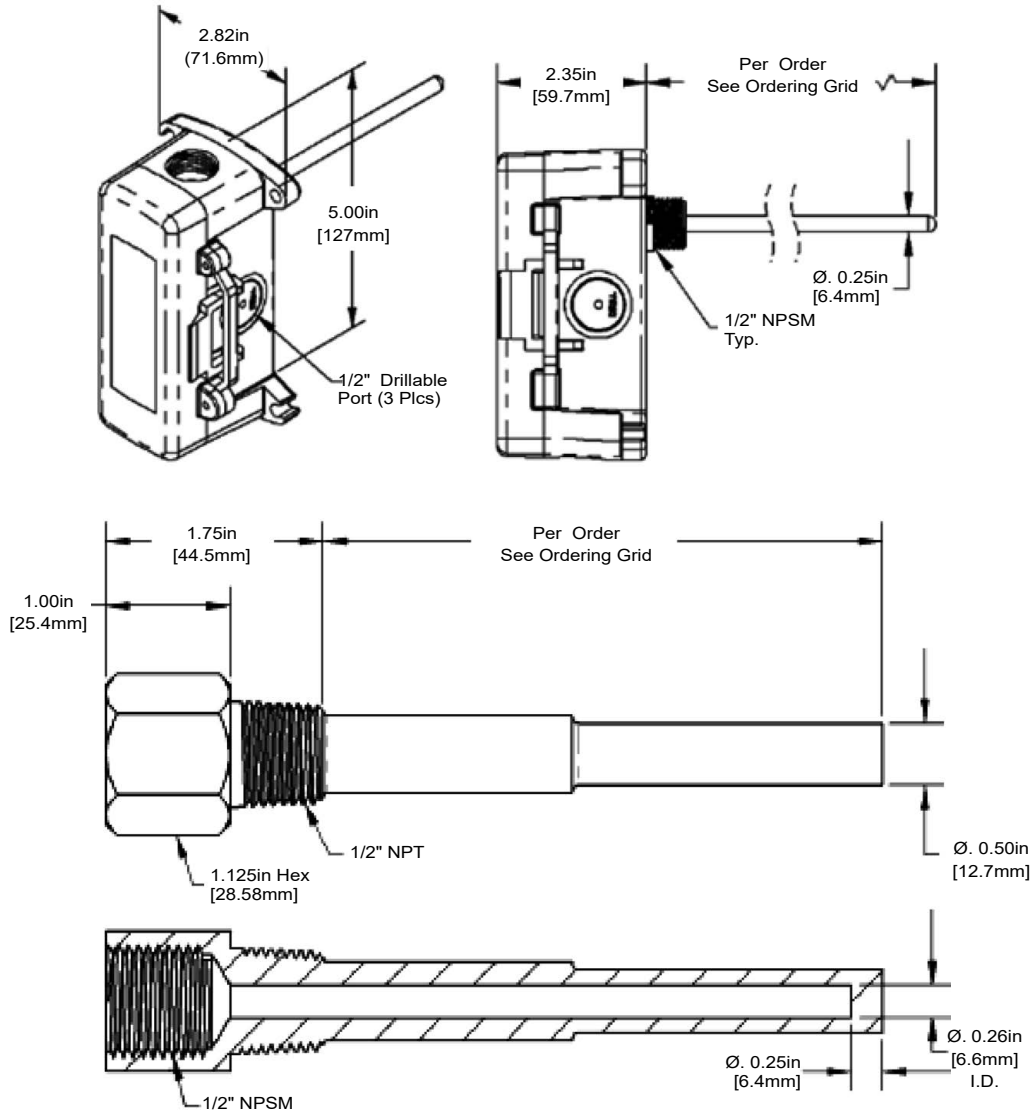
- Dimensions (L * H * D - mm): 760 x 760 x 300.
- Weight: 50 kg.
- Screen: 10".

■ The following precautions shall be observed:

- Use appropriate lifting equipment (lifting straps, mechanical lift, trolley, or hoist) rated for the load.
- Do not lift the cabinet by the door, cable glands, or internal components.
- Protect the cabinet from shock, vibration, and moisture during transport and storage.
- If you need to store the cabinet prior to installation, do it in a clean environment that respects the storage recommendation written in the technical datasheet .

Temperature sensor and immersion sleeve:

- Sensor 4" (101,6 mm).



1 - CONTROL & CONNECTIVITY KITS

1.4.6.2 - Physical installation

Electrical box:

The electrical installation must be performed by an approved professional, following the installation instructions and complying with local regulations.

Wall Mounting Requirements (Threaded Rod Fixing)

The cabinet shall be mounted on a structurally suitable wall capable of supporting:

- The cabinet weight (50 kg),
- Additional dynamic loads during operation,
- A minimum safety factor in accordance with local structural standards.
- When mounting using threaded rods:
- Use threaded rods of appropriate diameter and mechanical strength.
- Ensure proper anchoring into concrete or structural masonry using certified anchor systems.
- Verify load-bearing capacity of anchors before installation.
- Use flat washers and locking nuts to prevent loosening due to vibration.
- Tighten fasteners to the specified torque values.
- The cabinet sealing integrity (IP rating) shall not be compromised during mounting. All mounting holes shall use designated fixing points only.

Installation Position and Clearances

The cabinet shall be mounted:

- At chest height so that the touchscreen interface is approximately at eye level for the operator.
- In a vertical position, ensuring proper ventilation and drainage characteristics.
- Minimum clearances shall be respected as follows:
- A minimum of 1 meter clearance in front of the cabinet to allow full door opening, safe access for maintenance, and emergency intervention.
- A minimum of 300 mm clearance on lateral and upper sides to allow electrical connections and adequate heat dissipation for the regulator and display.
- The installation location shall:
- Be protected from direct water exposure unless otherwise rated.
- Be compatible with the environmental conditions specified for the equipment (temperature, humidity).

Temperature sensor and immersion sleeve:

Temperature sensor and immersion sleeve must be positioned on the supply and return lines of the installation.

Refer to the installation manual provided with the sensors.

1.4.7 - Electrical data

Protection index	IP54
Electrical supply	230 VAC, 0.59 A
Inrush current	Typ. 35 A (at 25°C)
Operating temperature	0 °C to 50 °C
Operating humidity	10 % to 90 % non-condensing
Storage temperature	-20 °C to 60 °C
Storage humidity	10 % to 90 % non-condensing
Operating recommendations:	Usage location: indoor or outdoor

1.4.8 - Electrical connection

1.4.8.1 - Electrical supply of the cabinet

Refer to the installation manual provided with the electrical cabinet (SMS Electrical diagram).

Electrical connections shall:

- Comply with the wiring diagrams and installation instructions provided.
- Follow applicable electrical codes and standards.
- Ensure proper grounding (protective earth connection mandatory).
- All conductors shall be correctly sized according to current rating and protection devices.

Energization

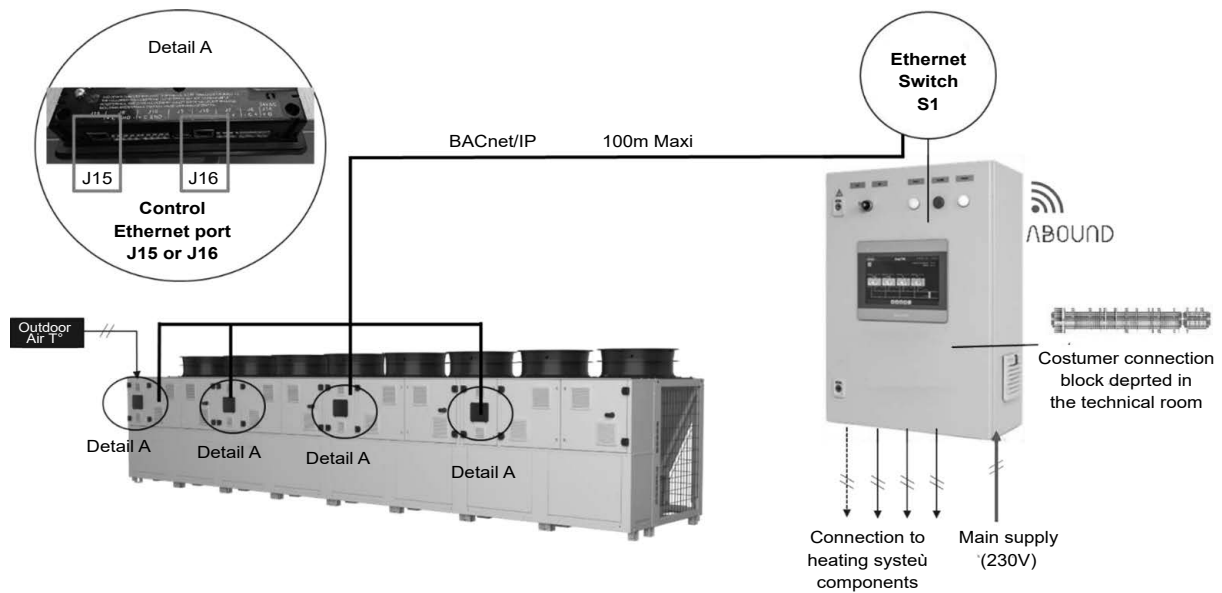
Prior to energization:

- Verify mechanical fixation of the cabinet.
- Check torque of all power terminals.
- Confirm protective earth continuity.
- Inspect cable routing and gland tightness.
- Ensure no foreign objects remain inside the enclosure.
- Energization shall be performed in accordance with approved commissioning procedures.
- After commissioning:
- Verify power supply value and correct operation of the circuit breakers.
- Check absence of abnormal heating.

1 - CONTROL & CONNECTIVITY KITS

1.4.8.2 - Connection of the cabinet to the heat pumps units (Max.4)

A BACnet/IP bus as to be connected between the Heat Pump (CIOB#4 – Port J15 or J16) and the electrical box (Ethernet Switch S1).



1.4.8.3 - Connections of heating accessories (DHW, 3-way valve heating zones, boiler, etc.) to the Electrical box

All the heating accessories has to be connected to the customer terminal blocs present on the electrical box.

Refer to the electrical diagrams supply on the Electrical box accessory (Option 275A – System Management Sequencer - SMS).

1.4.9 - Software settings

Units:

Units must be configured in "Network" to be controlled by the SMS Sequencer.

Refer to the IOM Control of the unit.

SMS Sequencer: refer to the See SMS IOM.

1.4.10 - Standard maintenance

Level 2 maintenance in unit IOM.

1 - CONTROL & CONNECTIVITY KITS

OPT_298C – Connected services (4G modem)

1.4.11 - Compatibility

This accessory is compatible with other features.

This accessory can manage up to 5 units.

1.4.12 - Safety instructions & description

For all safety instructions, please refer to the EH&S instructions. A hardcopy version is supplied with the machine, the digital version is available in the same place as the IOM (contact your local distributor).

The accessory described in this document was designed and certified to operate with R290 units.

The Connected Services is an advanced solution that enables users to monitor and manage the performance of the unit system in real time. This option is designed to maximise performance, optimise investments and ensure that the system remains up-to-date through the BluEdge service platform.

Key Features:

- **Real-Time Monitoring:** Connected Services enable tracking and monitoring of HVAC equipment performance in real time, providing machine health notifications and analytics to improve staff efficiency and reduce unplanned downtime.
- **Preventive and Predictive Maintenance:** Includes comprehensive preventive maintenance and technical expertise, with proactive monitoring of equipment health, efficiency and performance. This helps identify opportunities to reduce operating costs and prevent failures.
- **Digital Connectivity:** Digital connectivity within the customised BluEdge service levels enables efficient management and optimisation of the HVAC system.
- **24/7 Emergency Support:** Customers with service agreements are prioritised for emergency service calls, available 24/7.
- **Operational Inspections:** Carrier conducts thorough inspections and adjustments of the equipment to keep it running smoothly and efficiently.

1.4.13 - Kit contents

Unit size	Kit reference	Parts included
All	00PSG004284000A	1x Connected Services Box

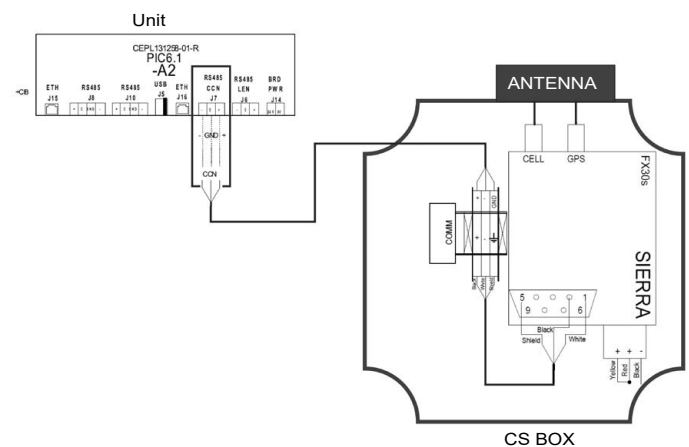


1.4.14 - Handling & positioning

Please refer to the BluEdge Brochure and the Control IOM for all the available information.

1.4.15 - Electrical connection

Please refer to the diagram below to replicate direct connection at J7 on the unit controller



For details of the power supply, and for multi unit system (Up to 5 units) please refer to the information supplied with the accessory.

2 - SENSORS

2.1 - OPT_312 – External air temperature sensor

2.1.1 - Compatibility

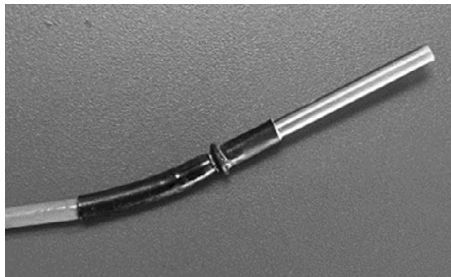
This accessory is compatible with other features.

2.1.2 - Description

It enables the sensor to be positioned so it is not exposed to weather conditions, sunlight and machine thermal load, for a more accurate external temperature measurement.

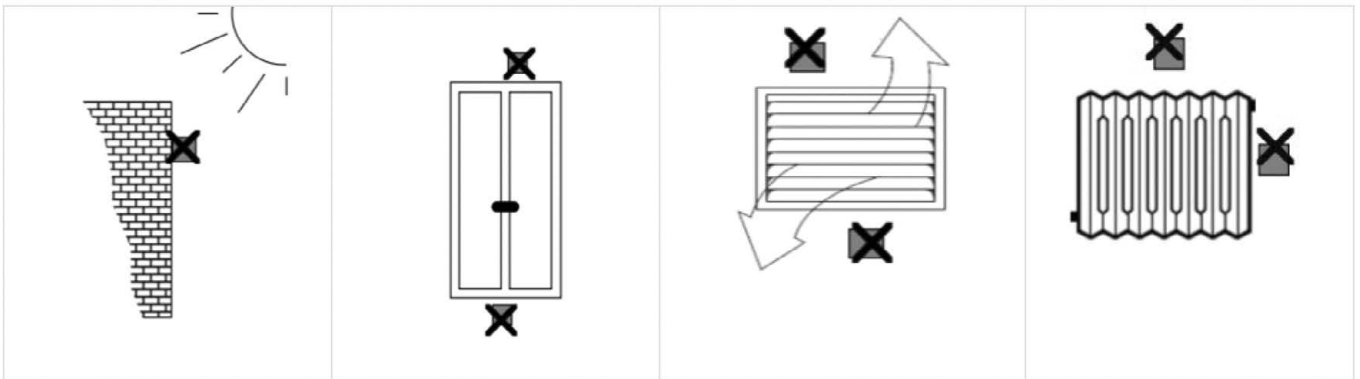
2.1.3 - Kit contents

Unit size	Kit reference	Parts included
All	00PSG004282800A	1x Temperature sensor with 25m cable



2.1.4 - Handling & positioning

The sensor must be placed at a minimum height of 2 m, in a location away from external heat sources (e.g. air ducts, exhaust fans, roofs or places exposed to direct sunlight).



2.1.5 - Dimensions

The sensor is provided with a 15-m cable to facilitate installation in a suitable location.

2.1.6 - Installation instructions

2.1.6.1 - Mechanical connection

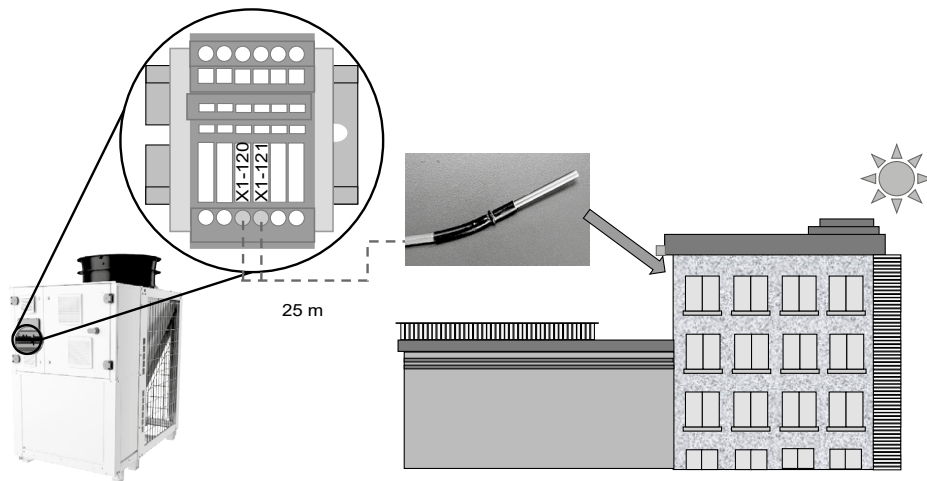
A cable gland and installation box must be available to maintain the sensor in the correct position.

2 - SENSORS

2.1.6.2 - Electrical connection

Sensor Control type: Thermistor.

Connect the sensor to the input reference X1-120 & X1-121 on the customer terminals.



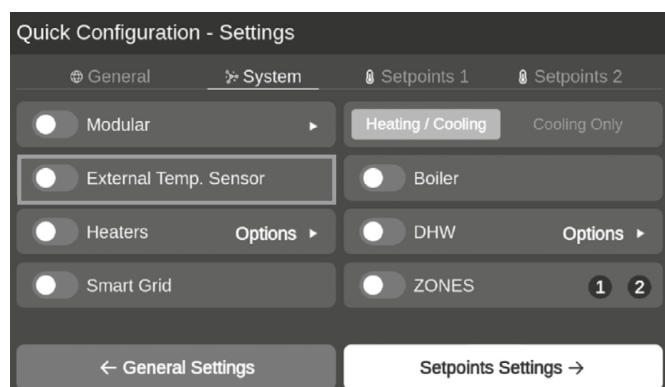
The cable must enter the electrical box through a dedicated cable gland present at the back of the cabinet.

* Use a free gland to insert the cable. The picture is given as an example only.



2.1.7 - Software settings

Activate External Temp. Sensor on the Quick Configuration SmartUse screen.



Please refer to the unit IOM (12.1 -Table of Options and Accessories) for further information and the Control IOM (4.1.3 – External Temp. Sensor from System Settings).

2.1.8 - Standard maintenance

Level 2 maintenance in the unit IOM.

2 - SENSORS

2.2 - OPT_312A – Domestic hot water sensor

2.2.1 - Compatibility

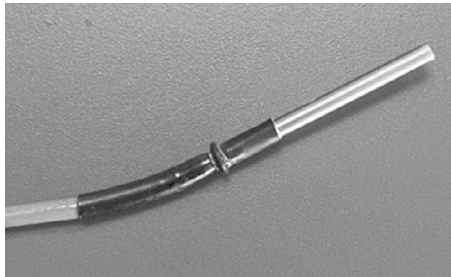
This accessory is compatible with other features.

2.2.2 - Description

The Domestic Hot Water (DHW) Sensor is used when production of DHW is required. The sensor is located in the water tank in a specific place and connected to the board.

2.2.3 - Kit contents

Unit size	Kit reference	Parts included
All	00PSG004277700A	1x Temperature sensor with 15-m cable



2.2.4 - Handling & positioning

Sensor position:

- On the Domestic Hot Water storage device.
- To ensure the correct temperature of the water tank is obtained.
- Must be maintained in the water tank using a bulb well or cable gland.

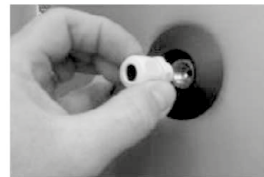
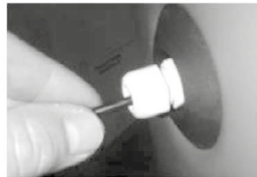
2.2.5 - Dimensions

The sensor is provided with a 15-m cable.

Sensor dimensions:

- Diameter = 0.5 cm
- Length = 5.6 cm.

2.2.6 - Installation instructions



Push the sensor up to the tip of the thermowell. Then screw the cable gland to fix the sensor in the thermowell. Refer to Electrical Connection or the wiring diagram for details on the sensor electrical connections.

2 - SENSORS

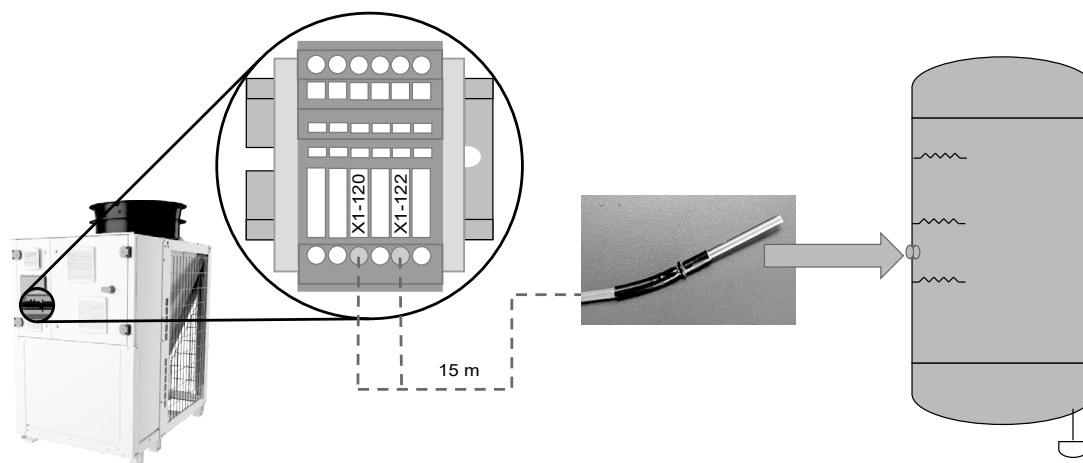
2.2.7 - Electrical connection

Sensor Control type: Thermistor.

If the System Management Module (SMM) (OPT_156D) box is present, refer to the box instructions to connect the accessory.

If the box is absent, the accessory is connected to the heat pump terminal block according to the instructions below.

Connect the sensor to the input reference X1-122 & X1-120 on the customer terminals.



The cable must enter the electrical box through a dedicated cable gland present at the back of the cabinet.

* Use a free gland to insert the cable. The picture is given as an example only.



2.2.8 - Software settings

Activate DHW “Domestic Hot Water” on the Quick Configuration SmartUse System page and set the DHW setpoint & Legionella prevention setpoint on the Setpoints 2 page.



Please refer to the unit IOM for further information and the Control IOM for the optional settings.

Modular system

If multiple units are connected in lead/lag configuration (option 58), the domestic hot water function (e.g. option 312A) **must be connected to one of the lag units**.

2.2.9 - Standard maintenance

Refer to the unit IOM. The same maintenance rules apply for this accessory.

2 - SENSORS

2.3 - OPT_159C – Refrigerant leak detector

2.3.1 - Compatibility

This accessory is compatible with other features.

2.3.2 - Introduction and safety instructions/description

For all safety instructions, please refer to the EH&S instructions. A hardcopy version is supplied with the machine, the digital version is available in the same place as the IOM (contact your local distributor).

The accessory described in this document was designed and certified to operate with R290 units.

The leak detector is used to quickly notify the customer of refrigerant losses to the atmosphere, so corrective actions can be taken. It is not a safety device as per EN378-3. This device ensures:

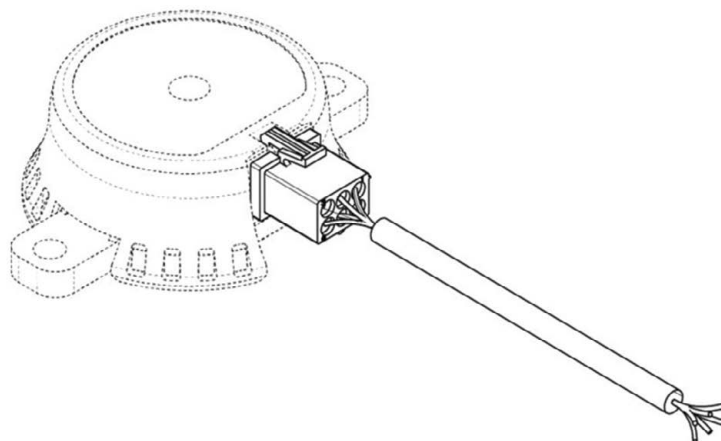
- Rapid and accurate leak detection according to the F-Gas regulation
- Protection from oil, dust and water
- No impairment of performance from exposure to other gases.
- An alert can be generated (information only) or an alarm triggered (to shut off the unit). See Control IOM for more details.
- No Field Service Requirements (Permanent Calibration)

The sensor is located inside the machine on the refrigerant side. The position is always the same for single- and dual-circuit units. Refer to the Handling & Positioning section for more information.

Using the photoacoustic principle (by modulating the light in a resonant cavity)

2.3.3 - Kit contents

Unit size	Kit reference	Parts included
All	00PPG000600500A	1x Leak Detector
All	00PPG000600600A	1x Cable for leak detector



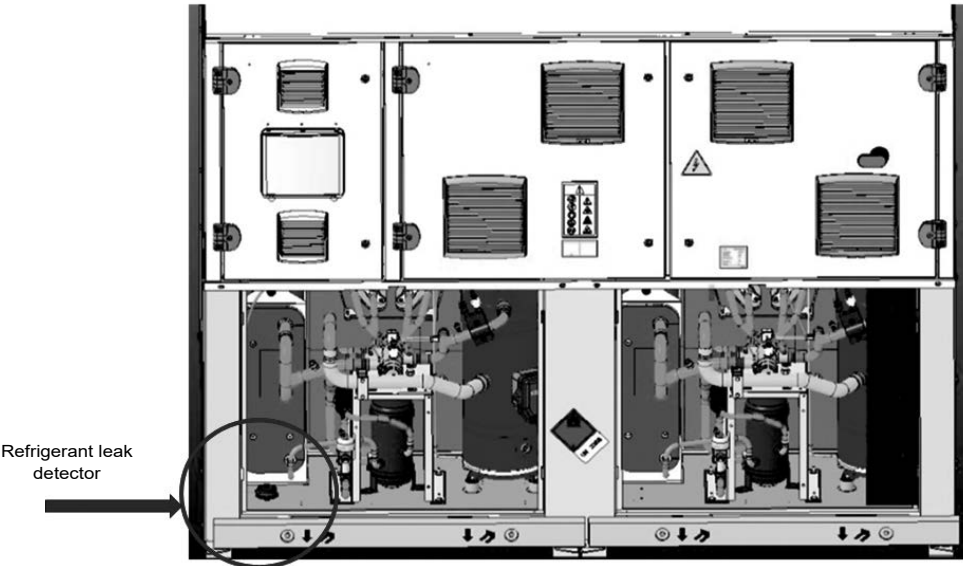
2 - SENSORS

2.3.4 - Handling & positioning

The leak detector must be install on the refrigerant casing as shown below

Sensor position:

- Dedicated space for this sensor inside the refrigerant box.
- Most critical position calculated for maximum reactivity and efficiency recommended.
- Fastening with screws.
- Any orientation except for “open-up” (Refer to the diagram to replicate the recommended example).



2.3.5 - Dimensions

The sensor is supplied with a 1.5m cable. This distance is long enough to connect the terminal block to the end position of the device.

2.3.6 - Physical data

Guarantees high performance for over 15 years without clogging or damage.

The sensor has a LED providing operational information:

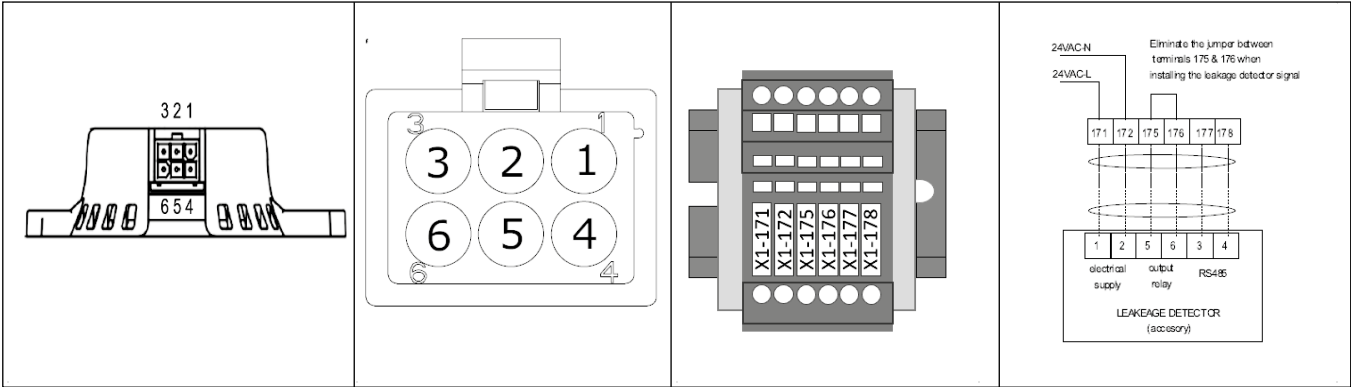
LED Status	Green	Solid	Sensor power-up and self-test
		Blinking	Normal operation
	Red	Solid	Alarm Status - Gas detected
		Blinking	Sensor Fault

2 - SENSORS

2.3.7 - Electrical connection

All the connections of the different elements are described below:

Numbering of connector position	Cable connector position	Customer Terminal	Electrical Connection
1	3	X1-171	Supply Voltage
2	2	X1-172	Neutral
3	1	X1-177	Mod A
4	6	X1-178	Mod B
5	5	X1-175	Relay IN
6	4	X1-176	Relay OUT



For further information, refer to the electrical diagram.

3 - MECHANICAL INSTALLATION KITS

3.1 - OPT_194 - Dual relief valves on 3-way valve

3.1.1 - Incompatibility

No incompatibility for this accessory with other features.

3.1.2 - Description

It allows the valve to be tested without having to empty the machine's refrigerant circuit.

When required by local regulation, this option will need to be approved by local inspection body or local authorities, as such option is not part of the standard configuration covered by its PED presumption of conformity.

3.1.3 - Kit content

Unit size	Kit reference	Single circuit unit	Dual circuit unit
All	00PSG004451000A	1 kit	2 kits

Composition of the kit

Component reference	Designation	Qty
00PPG000612200A	Flexible	1
00PPG000612201A	Flexible with elbows	1
00PSG004450300A	Brass Adapter	2
00PPG000612100A	Three-way Dual Shut-Off Valve	2
00PPG000612000A	Relief Valve	4
00PSG004420800B	Support	1
00PPE000000601A	Metal plate	2
00PPE000000701A	Metal plate nutted	2
00PPE000000101	Plastic Support	4
00PPE000001002	Thin Screws	4
00PPG000551003	Fixation Screws	4
00PPG000598505A	O-rings	4

3.1.4 - Introduction and safety instructions / description

For all safety instructions, please refer to the EH&S instructions. A paper version is delivered with the unit; the digital version is available in the same place as the IOM (contact your local distributor).

The accessory described in this document was designed and qualified to operate with R290 units.

The relief valves + change-over kit allows the valves to be tested without having to empty the machine's refrigerant circuit.

Key Points:

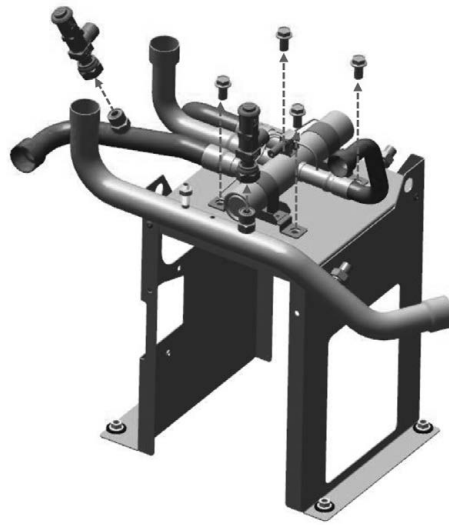
- **Tightness:** For the proper function of the unit, tightness must be ensured.
- **Preventive and Predictive Maintenance:** Before and after each handling operation, it is recommended that a leak detection test be carried out on the items that have been handled or are to be handled.
- **Installation:** To ensure this seal, it is necessary to use adhesive/Loctite only on the NPT connections indicated in this manual refer to Table 2 Section 3.1.6 for consulting this.
- **Security cable path:** The cable routing must be secured. It must not be in contact with any part of the refrigeration system. It is essential to add insulation if there is no other option, or to use cable ties to prevent the cables from moving.

3 - MECHANICAL INSTALLATION KITS

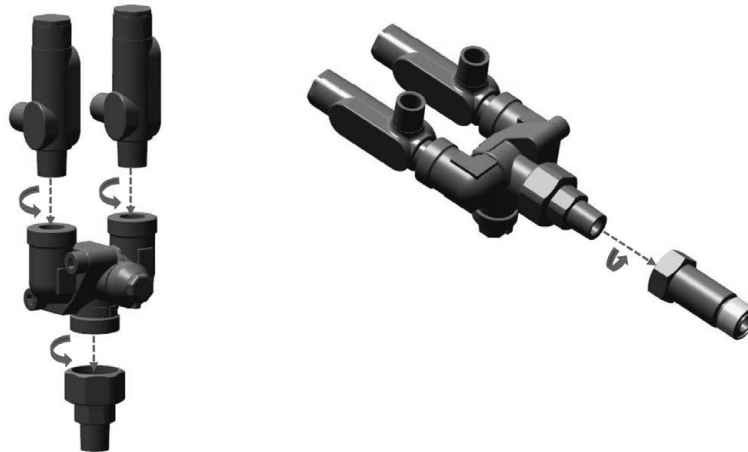
3.1.5 - Handling & positioning

As space inside the refrigeration compartment is limited, please follow these instructions carefully:

1. Empty the machine to remove relief valves installed as standard and remove the screws from the 4-way valve to allow install the new support.



2. It is essential to distinguish between the discharge and suction change-over assemblies. Start by fully assembling the suction assembly, applying Loctite to the NPT connections (Refer to Table 2 Section 3.1.6 to check the tightening torque and use the Loctite ONLY in NPT connections).



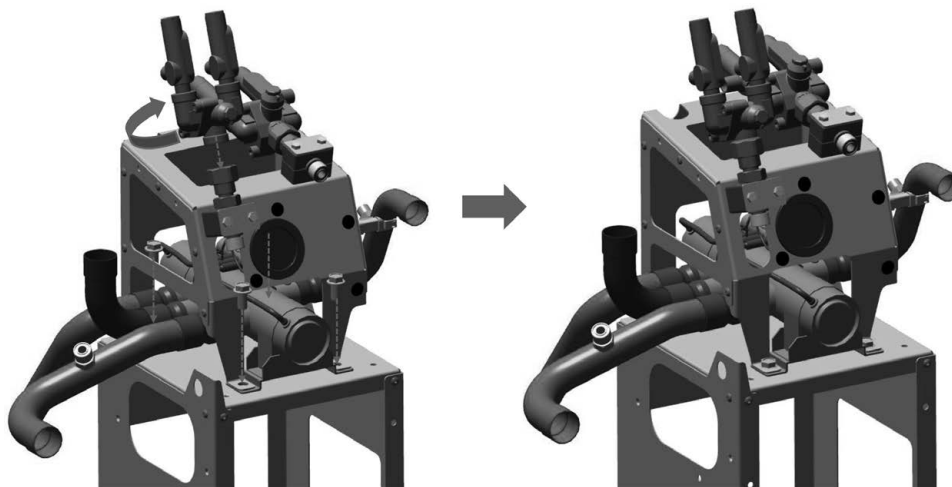
3. Continue by assembling the discharge sub-assembly. At this stage, only connect the brass adapter to the locking nut on the change-over assembly, which will be mounted on the metal bracket.



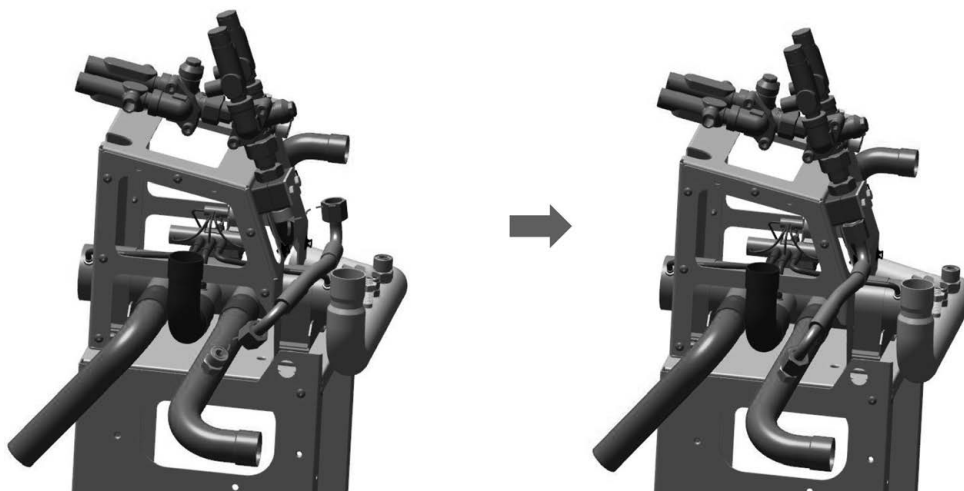
3 - MECHANICAL INSTALLATION KITS

Once both sub-assemblies (changeover and relief valves) are ready, place them inside the plastic brackets

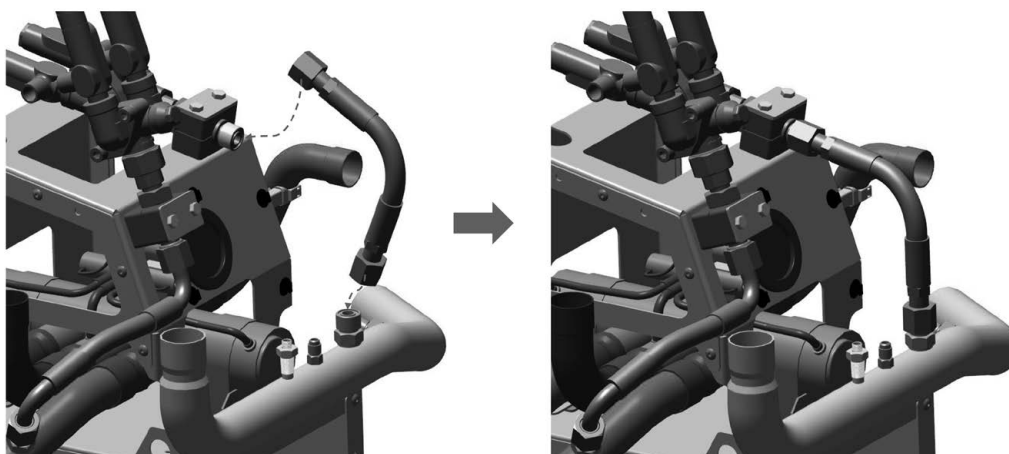
1. Once the sub-assembly is in place, secure the metal bracket using the four fixing screws: in the same hole as the 4-way valve for larger sizes, and in the holes provided for the bracket on smaller sizes. Fit the change-over and relief valves onto the locking nut in the correct orientation.



2. Finish by fitting the hoses to the machine. Recommended to start by the discharge. Do not forget to place correctly the O-rings.



3. And then the suction hose

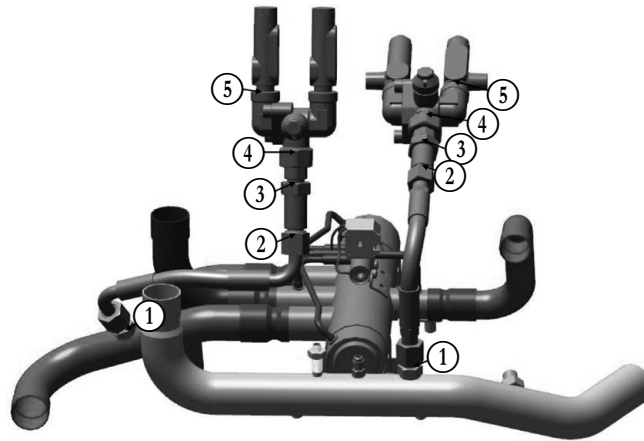


3 - MECHANICAL INSTALLATION KITS

3.1.6 - Physical installation

Check the following table to verify the correct assembly of the accessory.

Number	Assembly	Type	Tightening Torque [Nm]	Diameter [mm]
1	Pipe coupling - Flexible	ORFS	31-45	1/2"
2	Flexible - Brass Adapter	ORFS	31-45	1/2"
3	Brass Adapter - Inlet Three-way Dual Shut-Off Valve	NPT	29	3/8"
4	Rotalock - Joint PTFE - Three-way Dual Shut-Off Valve	ORFS	29	5/8"
5	Outlet Three-way Dual Shut-Off Valve - Relief Valve	NPT	29	3/8"



- ① Thread sealing compounds used to install valves should be applied with care to external NPT threads only to avoid getting compound into the valve inlet.
- ② Two spanners should be used to tighten/loosen the locking nut adaptors – one on the upper section and one on the lower. Ensure the orientation of the three-way valve and/or the relief devices as desired before tightening. Over-tightening of the adaptors beyond 30Nm is not advised.
- ③ When installing angled relief valves, ensure the outlet is orientated so that discharge does not cause an anticlockwise moment on the assembly. Alternatively, provide support so that the assembly cannot rotate once tightened.
- ④ Make sure there is no dirt that could accumulate at the outlet of the relief valves; the outlet should be positioned horizontally or pointing downwards.
- ⑤ Make sure the O-rings are clean before tightening to ensure a tight seal.

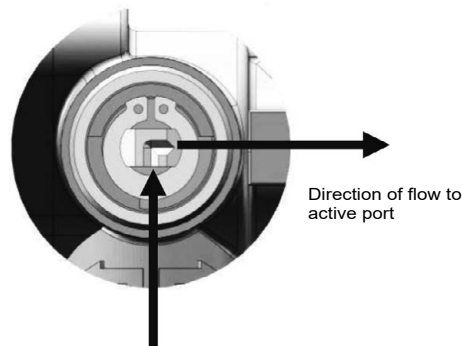
3.1.7 - Electrical pathing

Make sure to route the cable so that it does not be in contact with any copper pipes. Use the brackets to secure the cable pathing.

3.1.8 - Standard maintenance

Refer to unit IOM. Same maintenance rules apply for this accessory.

When checking the relief valve, ensure that the flow is correctly directed before handling it



Warnings

1. **The application and installation should only be undertaken by suitably qualified or experienced personnel.**
2. **The system should be depressurized before attempting to remove or install a three-way valve. Failure to do so may result in bodily injury.**
3. **Never leave a three-way valve in mid position. The stem should always be fully seated in either direction. Failure to do so could result in incorrect operation of relief devices fitted to the three-way valve.**

3 - MECHANICAL INSTALLATION KITS

3.2 - OPT_308 – Anti-vibration mounts (AVM)

3.2.1 - Compatibility

This accessory is compatible with other features.

To improve efficiency, it is recommended to combine the AVM with flexible water hose connection (OPT_309A)

3.2.2 - Description

This accessory:

- Has been chosen and adapted to the machine to reduce vibrations and noise in the environment in which it is installed, avoiding transmission to structures or equipment.
- Improves the lifespan of the equipment, as well as component maintenance.
- Provides operator comfort.

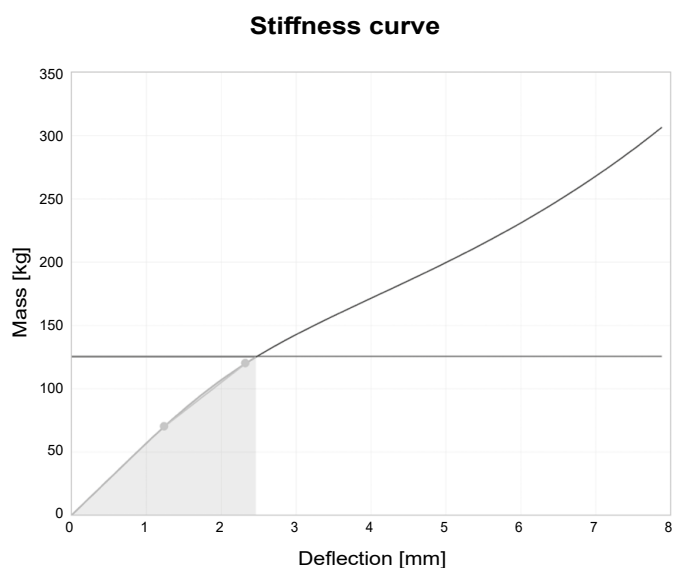
3.2.3 - Kit contents

Unit	Kit reference	Parts included
Single circuit	00PSG004283400A	1x Bag with 6 AVM
Dual circuit	2 x 00PSG004283400A	2x Bag with 6 AVM

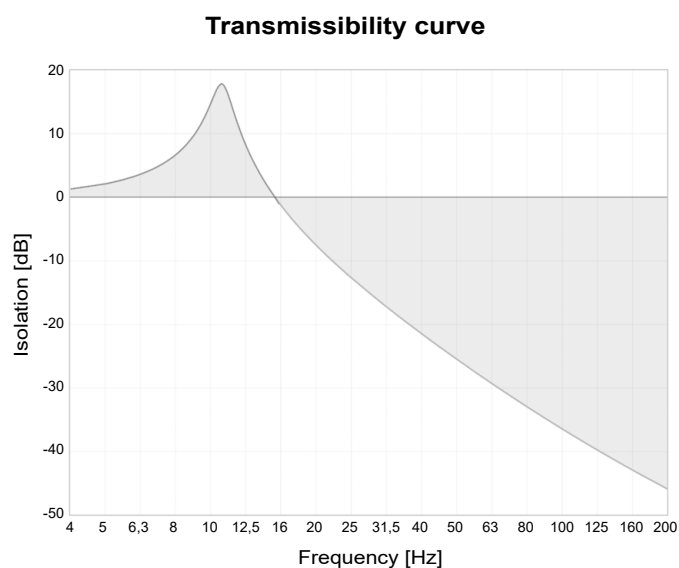


3.2.4 - Physical data

Stiffness curve



Transmissibility curve

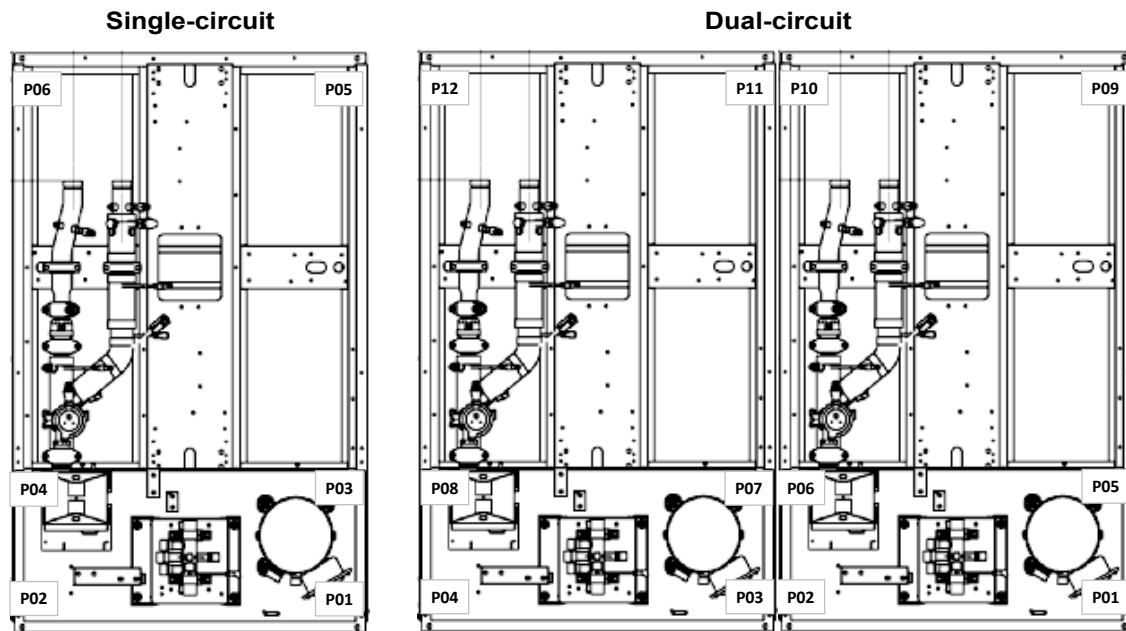


Frequency	Isolation
4 Hz	1,3 dB / -16%
5 Hz	2,1 dB / -27%
6.3 Hz	3,6 dB / -51%
8 Hz	6,8 dB / -118%
10 Hz	14,7 dB / -443%
10.8 Hz	17,8 dB / -676%
12.5 Hz	8,6 dB / -170%
16 Hz	-1,6 dB / 16%
20 Hz	-7,6 dB / 58%
25 Hz	-12,6 dB / 76%
31.5 Hz	-17,1 dB / 86%
40 Hz	-21,5 dB / 92%
50 Hz	-25,4 dB / 95%
63 Hz	-29,3 dB / 97%
80 Hz	-33 dB / 98%
100 Hz	-36,4 dB / 98%
125 Hz	-39,6 dB / 99%
160 Hz	-43 dB / 99%
200 Hz	-45,9 dB / 99%

3 - MECHANICAL INSTALLATION KITS

Output reactions & balance check

Positioning P01 to P06/12 See dimensional drawing:



	Size	P01	P02	P03	P04	P05	P06	Total Mass
Single-circuit Base unit	40 kW	100,6	99,0	93,6	91,9	71,8	70,2	527
	50 kW	104	100,7	96,4	93	72,6	69,3	536
	60 kW	114,6	114,3	104,1	103,9	71,7	71,4	580
	70 kW	117,8	117,5	107,0	106,7	73,6	73,3	596
Single-circuit Base unit + Optional 116-V pump	40 kW	102,4	104,1	96,1	97,8	76,5	78,2	555
	50 kW	104,1	105,8	97,6	99,4	77,7	79,4	564
	60 kW	116,4	119,5	106,7	109,7	76,3	79,4	608
	70 kW	119,3	122,4	109,3	112,4	78,2	81,3	623

	Size	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12	Total Mass
Dual-circuit Base unit	80 kW	93,4	95,2	93,4	95,2	87	88,8	87	88,8	67,1	68,9	67,1	68,9	1001
	100 kW	95,2	97,0	95,2	97	88,7	90,5	88,7	90,5	68,4	70,2	68,4	70,2	1020
	120 kW	103,3	106,2	103,3	106,2	96	98,9	96	98,9	73,1	76	73,1	76	1107
	140 kW	106,2	109,2	106,2	109,2	98,6	101,6	98,6	101,6	75,2	78,2	75,2	78,2	1138
Dual-circuit Base unit + Optional 116-V pump	80 kW	96,2	94,9	96,2	94,9	91,9	90,6	91,9	90,6	78,6	77,3	78,6	77,3	1059
	100 kW	97,9	96,6	97,9	96,6	93,5	92,3	93,5	92,3	80	78,7	80	78,7	1078
	120 kW	102,1	106,1	102,1	106,1	98	102,0	98	102	85,2	89,2	85,2	89,2	1165
	140 kW	104,8	108,9	104,8	108,9	100,6	104,7	100,6	104,7	87,4	91,6	87,4	91,6	1196

3.2.5 - Handling & positioning

The anti-vibration mounts must be centred on each foot of the machine.

Each mount has an adhesive side, to facilitate positioning.

Remove the adhesive backing from each AVM and place it on the foot or end position of the machine.

3.2.6 - Dimensions

	Length (mm)	Width (mm)	Thickness (mm)
Foot of Unit	88	76	N/A
AVM	140	125	25

3.2.7 - Standard maintenance

Check for material hardness and any signs of external damage (Level 1 maintenance in the unit IOM). Replace any damaged component, to prevent transmission of vibrations to the building.

4 - HYDRAULIC INSTALLATION KITS

4.1 - OPT_307-307D/E - Water buffer tank without or with electrical heaters

The option exists in three forms: the buffer tank without heaters (OPT.307), with heaters (OPT.307D / 307E).
In the case of installation with heaters, an electrical box is added.

4.1.1 - Incompatibility

The option is available only for monobloc units.

The option is only compatible with unit equipped with an option pump (OPT_116V)

4.1.2 - Description

Water tank's option declined within three version:

- OPT_307 = 400L buffer tank.
- OPT_307D = 400L buffer tank with two stages electrical heaters 12kW (2x6kW).
- OPT_307E = 400L buffer tank with three stages electrical heaters 18kW (3x6kW).

Customer water connections are available in two sizes (2" and 2"^{1/2})

Air vent & water drainage tap are included.

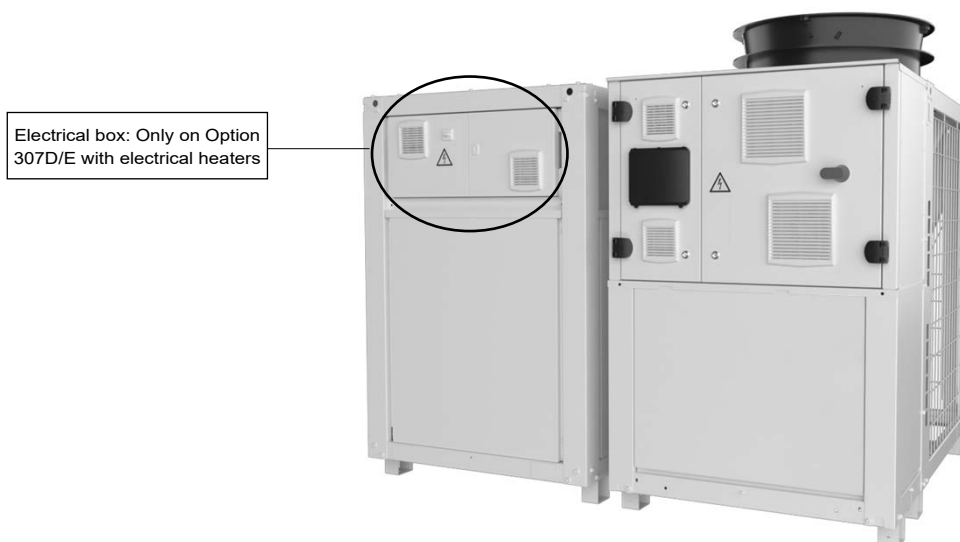
The design of the water tank was created to integrate best with the R-290 Air source Heat Pump.

The two blocks are made to be installed side by side or separated.

This option is delivered as an accessory.

For heating performances, a thermal insulation of 19mm is installed all around the buffer tank.

For application with external temperature below 0°C it's recommended to protect unit against frost and use version with electrical heaters (OPT_307D/E).



4.1.3 - Kit content

Details and references are visible below:

N° Option	Réf	Part included
307	00PSG004279800	1x Watter buffer tank
307D	00PSG004280200	1x Watter buffer tank with 2 heaters (12kW)
307E	00PSG004280300	1x Watter buffer tank with 3 heaters (18kW)

4 - HYDRAULIC INSTALLATION KITS

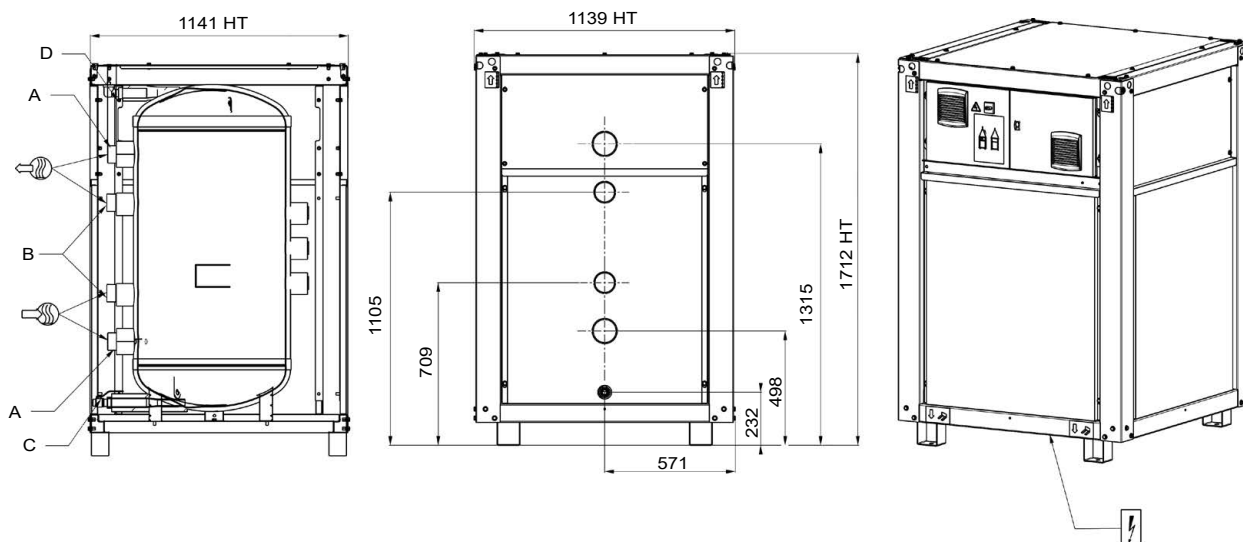
4.1.4 - Handling & positioning

The buffer tank can be handled by forklift following the instructions below:

- Take the buffer tank as close as possible to the mast (at the heel of the fork).
- The forklift forks must completely pass through the buffer tank.
- When descending a slope with a buffer tank, proceed in reverse gear with the mast tilted backward.
- When ascending a slope with a buffer tank, proceed in forward gear with the mast tilted backward.

Refer to the dimension's diagrams, for position of the lifting points. Do not lift the tank when it contains water.

4.1.4.1 - Dimensions & weight



Connection	Type	Diameter
A	Connection hydraulic	G 2" 1/2
B	Connection hydraulic	G 2"
C	Water drainage tap	G 3/4"
D	Air vent	N/A

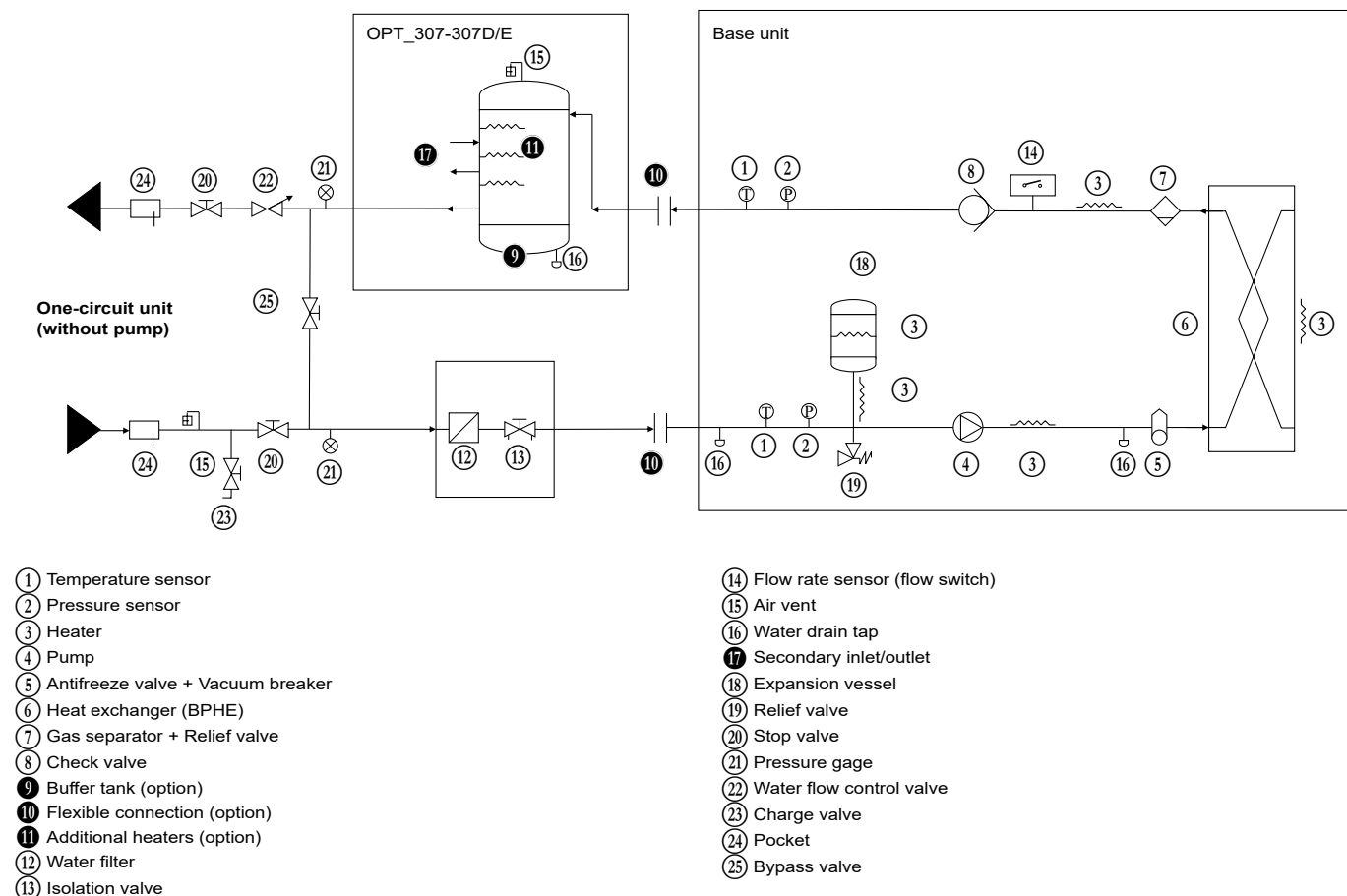
Option	Transport weight	Operating weight
307-	241 kg	654 kg
307D	260 kg	674 kg
307E	262 kg	675 kg

4 - HYDRAULIC INSTALLATION KITS

4.1.4.2 - Physical installation

Installation components

Key Components of the unit with hydraulic module



□ Standard scope of delivery

4.1.5 - Electrical datas (OPT_307D/E only)

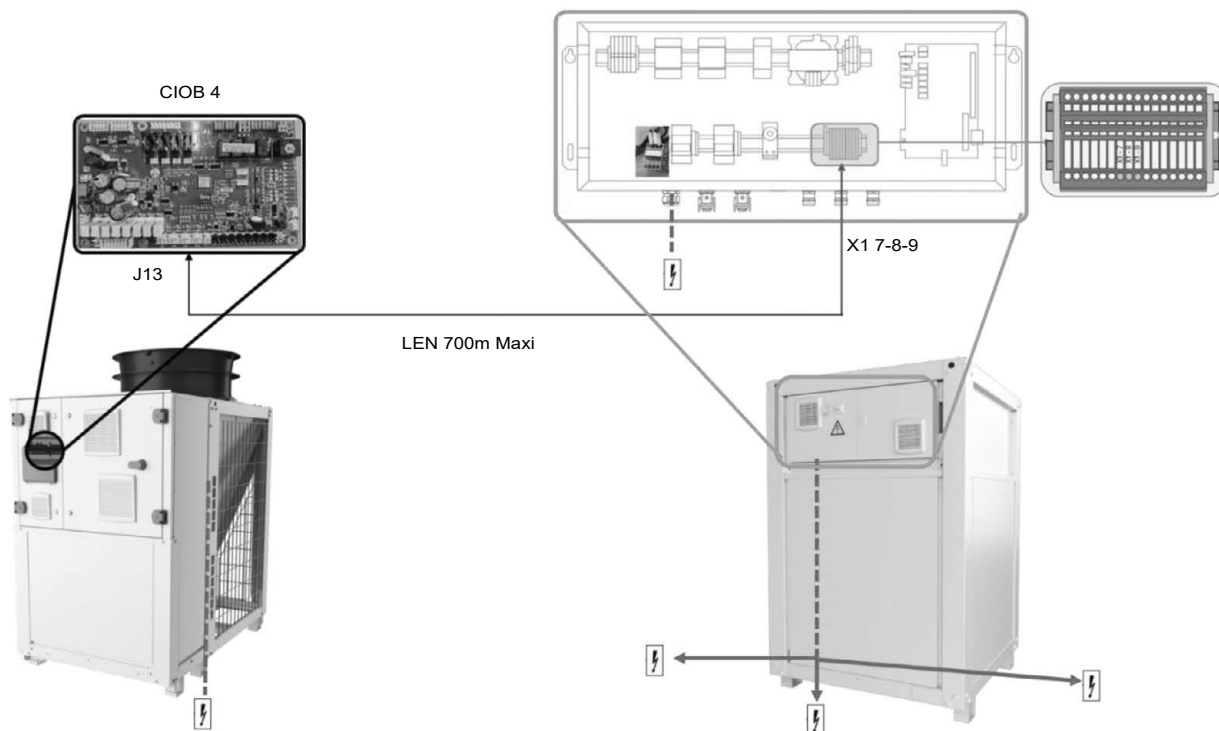
Rated electrical power	12 kW (OPT_307D)	18 kW (OPT_307E)
kW power stages	6 + 6	6 + 6 + 6
Power supply	3-ph 50 Hz 400 V + Earth	
Max rated current ⁽¹⁾	17	26
Control circuit voltage	24 VAC	
Number of stages possible	2	3
Max temperature setpoint	60°C	
ICW/sec	0,5kA	0,5kA
Customer protection to ensure ICC	Fuse 40A (50kA)	Fuse 40A (50kA)
Max service pressure	10 bar	

(1) **Warning: the current shown in the table above is to be added to the maximum nominal current of the the heat pump base unit. This value is essential for calculating the sizing of the power supply cable and protection for the assembly.**

4 - HYDRAULIC INSTALLATION KITS

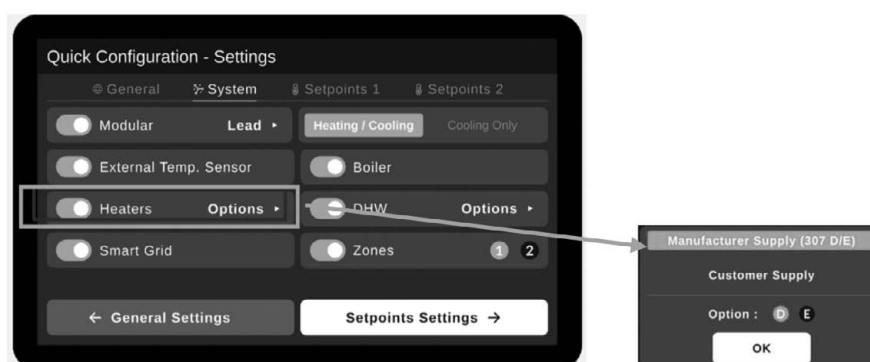
4.1.6 - Electrical connection (OPT_307D/E only)

Option D and E are equipped with an electrical cabinet with two or three heaters and one temperature sensor. Electrical supply of the buffer tank (OPT_307D/E) as to be independent of the Air Source Heat Pump supply. The power cable entry is made through the chassis of the hydraulic module and can come from different directions. The maximum cross-section of the connection cables for the power terminal block is 6 mm². A bus LEN as to be connected between the Heat Pump (CIOB 4 – Port J13) and the water buffer tank module (terminal X1 7-8-9)



4.1.7 - Software settings

Activate “Heaters” on the Quick Configuration SmartUse System page and set the option D or E .



4.1.8 - Standard maintenance

Level 2 maintenance in unit IOM.

4 - HYDRAULIC INSTALLATION KITS

4.2 - OPT_309A – Flexible hose connection

4.2.1 - Compatibility

This accessory is compatible with other features.

To improve efficiency, it is recommended to combine the flexible water hose connection with Anti-vibration Mounts (AVM OPT_308)

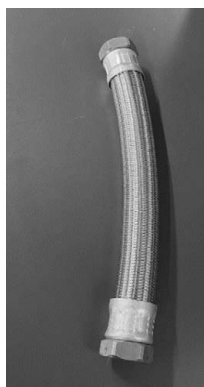
4.2.2 - Description

This accessory:

- Makes it easier to adapt the inlet and outlet ducts of the machine to the installation, to accommodate for variability in the position of the connections.
- Isolates machine vibrations from the customer water loop installation.

4.2.3 - Kit contents

Machine	Kit reference	Parts included
Single-circuit	2x 00PSG002574100A	2x 2" flexible hoses
Dual-circuit	2x 00PSG002574102A	2x 2" 1/2 flexible hoses



The kit does not include the flat gaskets required to ensure a hermetic seal at each end of the flexible hose connection.

4.2.5 - Dimensions & weight

DN (Inch)	Diameter, Inner x Outer (mm)	Bending radius Static (mm)	Bending radius Dynamic (mm)	Length (mm)	Weight (kg)
2"	50,8 x 67	120	280	500	1,5
2"1/2	65,6 x 83	180	410	500	2

4.2.6 - Physical data

These hoses were designed to suit the installation needs of the units, covering the entire range of temperatures and pressures achievable, and can withstand a pressure of up to 6 bar.

The hoses are composed of a stainless steel mesh (outer part of the tube in AISI 304) and a stainless steel corrugated tube (inner part in 321 L).

The fittings are welded to the hose body and made of 316 stainless steel (316 L).

4.2.7 - Mechanical connection

Both ends of the flexible tube are BSP female threaded. The gasket ensures watertightness. There is no specific torque requirement.

4.2.4 - Handling & positioning

The flexible hoses are connected as an extension of the inlet and outlet pipes of the machine. They can be installed either between the machine outlet and the filter, or at the filter outlet (if the installation requires it).

4.2.8 - Standard maintenance

Check that there are no leaks or signs of external damage (Level 1 maintenance in the unit IOM).

4 - HYDRAULIC INSTALLATION KITS

4.3 - OPT_347 – DHW 3-way valve assembly & management

4.3.1 - Introduction

This option enables the direction of the water loop to be modified, to change heat production for different uses.

4.3.2 - Compatibility

This accessory is compatible with other features.

Please note it only enables lead/lag operation with other R290 Air Source Heat Pump units.

4.3.3 - Kit contents

Unit size	Kit reference	Parts included
All	00PPG000600100A	1x Hydraulic 3-Way Valve



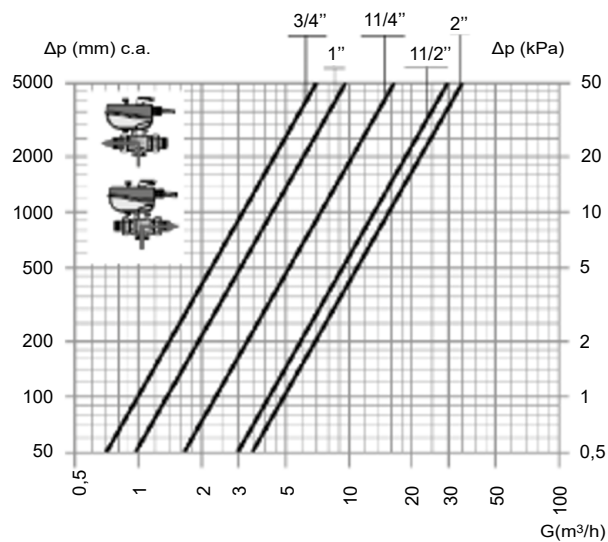
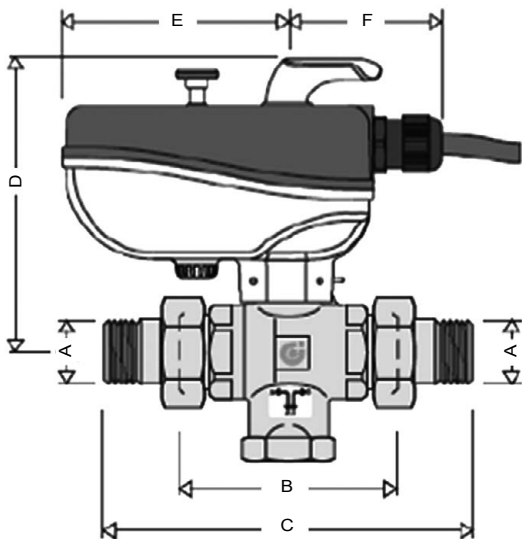
4.3.4 - Handling & positioning

For the different applications, please refer to the various machine assembly drawings in the manual.

4.3.5 - Dimensions

The valve provided is equipped with three 2" hydraulic connections.

Cable length: 75 cm



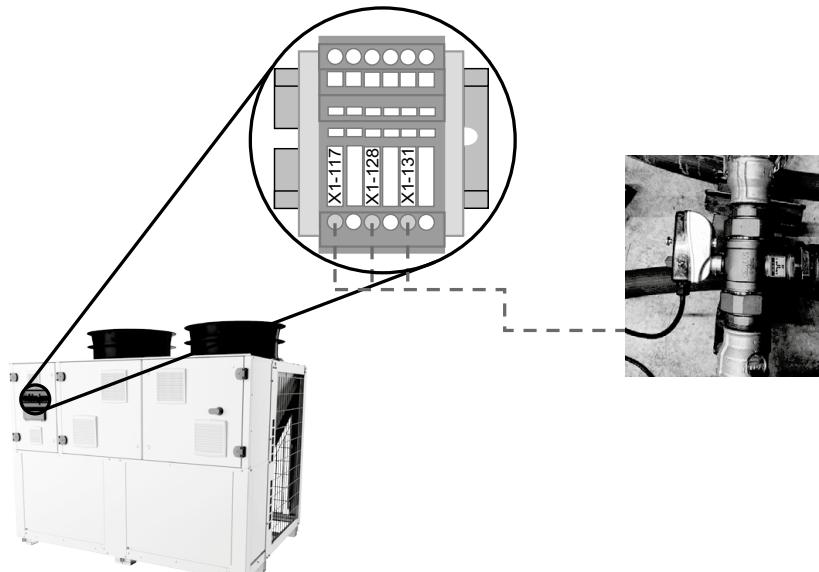
DN	A	B	C	D	E	F	Weight (kg)
50	2"	120	240	194	85	59	5,83

DN	50
Connections	2"
Kv (m³/h)	50

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4.3.6 - Electrical connection

If the System Management Module (SMM) (OPT_156D) box is present, refer to the box instructions to connect the accessory.
If the box is absent, the accessory is connected to the heat pump terminal block according to the instructions below.
Locate the input reference Connections X1-117, X1-128, X1-131 on the customer terminals.



The cable must exit/enter the electrical box through a dedicated cable gland present at the back of the cabinet.

* Use a free gland to insert the cable. The picture is given as an example only.



Modular system

If multiple units are connected in lead/lag configuration (option 58), the domestic hot water function (e.g. option 347) **must be connected to one of the lag units**.

4.3.7 - Standard maintenance

Refer to the unit IOM. The same maintenance rules apply for this accessory.

The quality management system of the assembly site for this product has been certified as compliant with the requirements of ISO 9001 (latest version) after an audit conducted by an authorised independent third party.
The environmental management system of the assembly site for this product has been certified as compliant with the requirements of ISO 14001 (latest version) after an audit by an authorised independent third party.
The occupational health and safety management system of the assembly site for this product has been certified as compliant with the requirements of ISO 45001 (latest version) after an audit by an authorised independent third party.
Please contact your sales representative for more information.

Order No.: 10862, 05.2026. Supersedes order No.: 10862, 12.2025.
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