# PARAGON Wall AWC

Installation - Commissioning - Maintenance

23/12/2024
Art. 942428075

## Content



**The document refers to version "d"**

### Symbols

Warning/Caution!

See also the following documents at www.swegon.com:
- PARAGON Wall AWC Product datasheet
- VAV Modbus
- Comfort modules, operation and maintenance (IOM)
- LOCUS Product datasheet
- LOCUS Instructions for Use (IOM)

# Application area

The product is a comfort module designed for demand-controlled climate indoors.

The product is used to ventilate, cool and heat premises exactly as needed.

The product may not be used for anything other than its intended use.

## General

Read through the entire instructions for use before you install/use the product and save the instructions for future reference. It is not permissible to make changes or modify this product other than those specified in this document.

## Contents

1 x PARAGON Wall AWC

1 x Instructions for use

## Protective equipment

Always use appropriate personal protective equipment for the work in question, in the form of gloves, respirators, protective glasses and helmets during handling, installation, cleaning and service/maintenance.

## Electrical safety

Permitted voltage, see Electrical data.

It is not permissible to insert foreign objects into the product's contactor connections or ventilation openings; risk for short circuiting.

24 V isolation transformer to be connected should comply with the provisions of IEC 61558-1.

Cable sizing must be carried out for cabling between the product and the power supply source.

Disconnect the power supply when working on products that are not required to run.

Always follow the local/national rules for who shall be permitted to carry out this type of electrical installation.

## Handling

Always use appropriate transport and lifting devices when the product is to be handled to reduce ergonomic loads.

The product must be handled with care.

## Installation

- Moist, cold and aggressive environments must be avoided.
- Assemble the product according to this instruction and applicable industry regulations.
- Install the product for easy access during service/maintenance.
- Avoid installing the product near a heat source.
- Check to make sure that the product does not have any visible defects.
- Check that the product is properly secured after it has been installed.
- Secure cables with cable ties.
- Check that all cables are properly secured in place after installation.

## Cleaning

Ideally the product should be cleaned twice a year by vacuuming the coil to remove loose dust. In fibre dense environments a more frequent interval is recommended.

A simple visual inspection of connections is recommended when cleaning.

For cleaning grilles and other painted surfaces: Avoid aggressive cleaning agents which may harm painted surfaces. Normally a mild soap or alcohol solution is fully adequate for cleaning. See also the maintenance section in this instructions for use.

## Cleaning of electrical components

- If needed, use a dry cloth to clean the components.
- Never use water, detergent and cleaning solvent or a vacuum cleaner.

## Service/maintenance

- In connection with a service, mandatory ventilation inspection or cleaning of the ventilation system, check that the general condition of the products looks ok. Pay particular attention to the suspension, cables and that they sit firmly in place.
- It is not permissible to open or repair electrical components.
- If you suspect that the product or a component is defective, please contact Swegon.
- A defective product or component must be replaced by an original spare part from Swegon.

## Environment and waste disposal

Help to protect the environment by ensuring correct disposal of the packaging and use the products in accordance with applicable environmental regulations.

## Disposal of the product

The product must not be disposed of as ordinary household refuse. They must be collected in separate containers according to applicable local rules.

## Product warranty

The product warranty or service agreement will not be in effect/will not be extended if: (1) The product is repaired, modified or changed, unless such repair, modification or change has been approved by Swegon AB; or (2) the serial number on the product has been made illegible or is missing.

# Dimensions and weight

### PARAGON Wall AWC 800

| Length | Type | Dim. | Dry weight* (kg) | | Water volume (l) | |
|---|---|---|---|---|---|---|
| mm | | Ø | Without grille | incl. grille | cooling | heating |
| 800 R | A | 125 | 17.4 | 19.6 | 1.39 | |
| 800 L | A | 125 | 17.4 | 19.6 | 1.38 | |
| 800 R | B | 125 | 17.4 | 19.6 | 1.39 | 0.38 |
| 800 L | B | 125 | 17.4 | 19.6 | 1.38 | 0.37 |
| 800 R | X | 125 | 17.4 | 19.6 | 1.39 | |
| 800 L | X | 125 | 17.4 | 19.6 | 1.38 | |

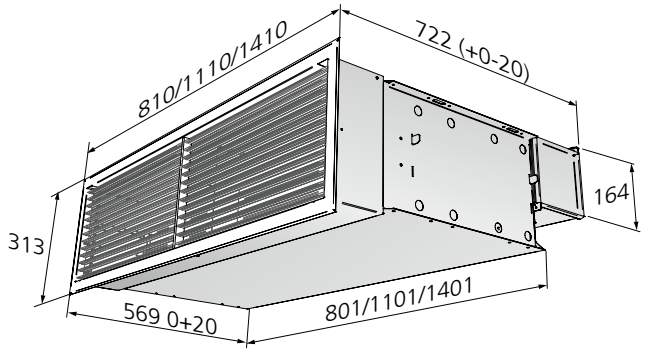
### PARAGON Wall AWC 1100

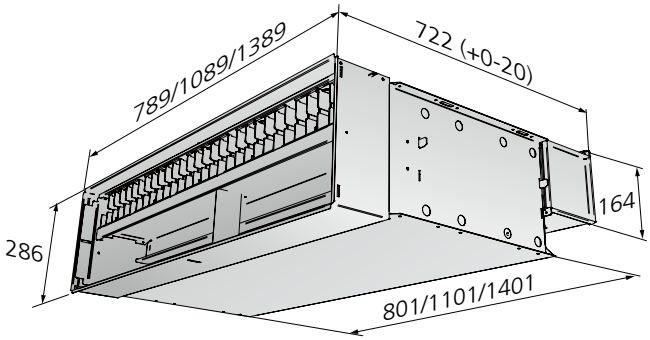
| Length | Type | Dim. | Dry weight* (kg) | | Water volume (l) | |
|---|---|---|---|---|---|---|
| mm | | Ø | Without grille | incl. grille | cooling | heating |
| 1100 R | A | 125 | 22.6 | 25.5 | 1.93 | |
| 1100 L | A | 125 | 22.6 | 25.5 | 1.92 | |
| 1100 R | B | 125 | 22.6 | 25.5 | 1.93 | 0.52 |
| 1100 L | B | 125 | 22.6 | 25.5 | 1.92 | 0.51 |
| 1100 R | X | 125 | 22.6 | 25.5 | 1.93 | |
| 1100 L | X | 125 | 22.6 | 25.5 | 1.92 | |

### PARAGON Wall AWC 1400

| Length | Type | Dim. | Dry weight* (kg) | | Water volume (l) | |
|---|---|---|---|---|---|---|
| mm | | Ø | Without grille | Incl. grille | cooling | heating |
| 1400 R | A | 125 | 27.6 | 31.2 | 2.47 | |
| 1400 L | A | 125 | 27.6 | 31.2 | 2.46 | |
| 1400 R | B | 125 | 27.6 | 31.2 | 2.47 | 0.65 |
| 1400 L | B | 125 | 27.6 | 31.2 | 2.46 | 0.64 |
| 1400 R | X | 125 | 27.6 | 31.2 | 2.47 | |
| 1400 L | X | 125 | 27.6 | 31.2 | 2.46 | |

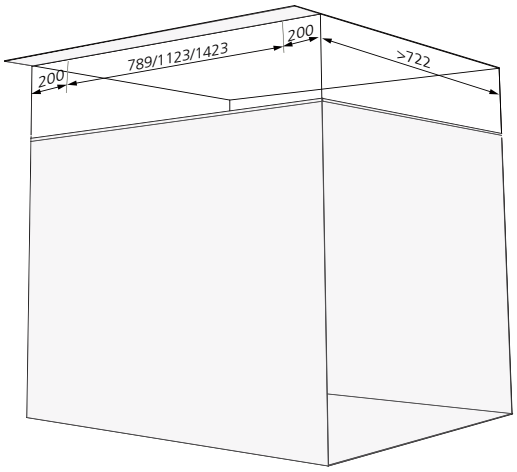
**Added weight for control equipment: 0.84 kg*

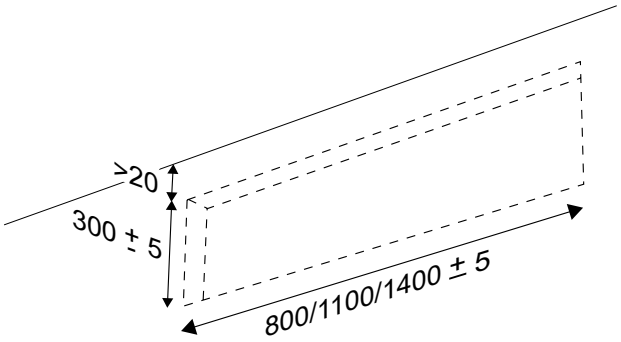


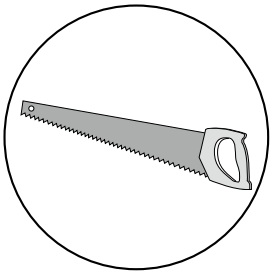



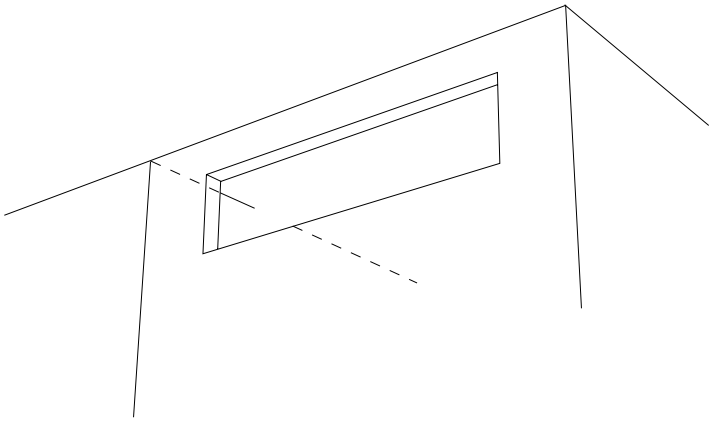
# Mounting

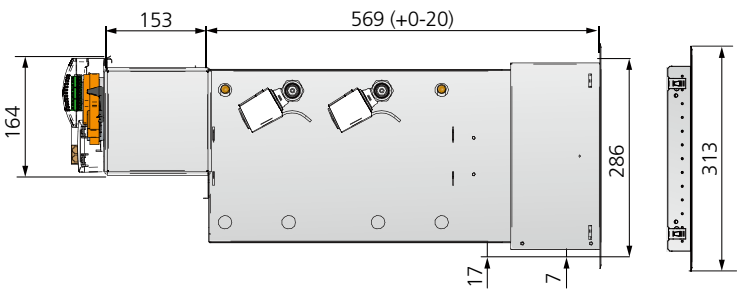
## Size of the opening

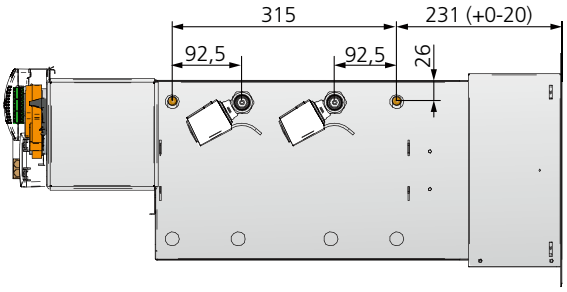


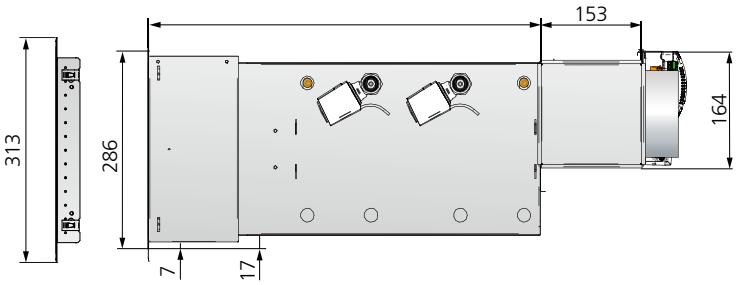



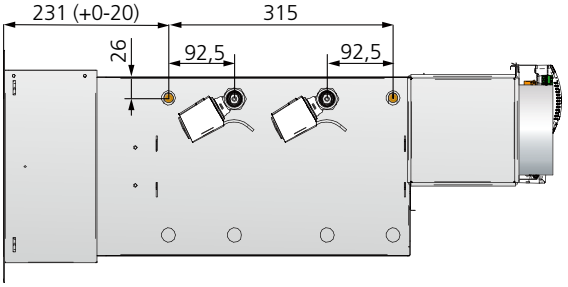





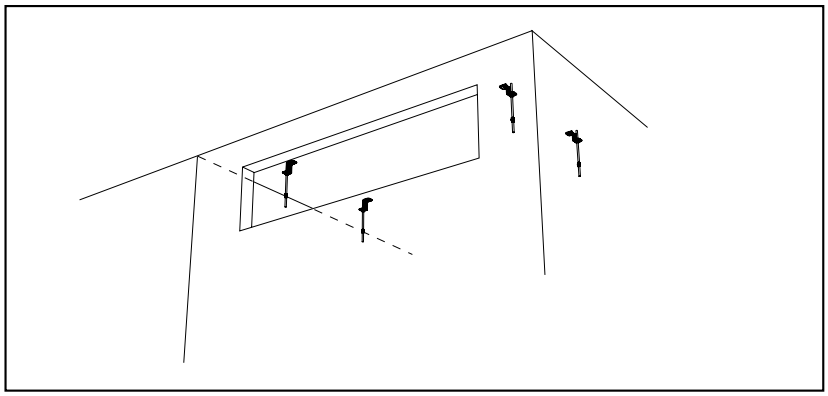


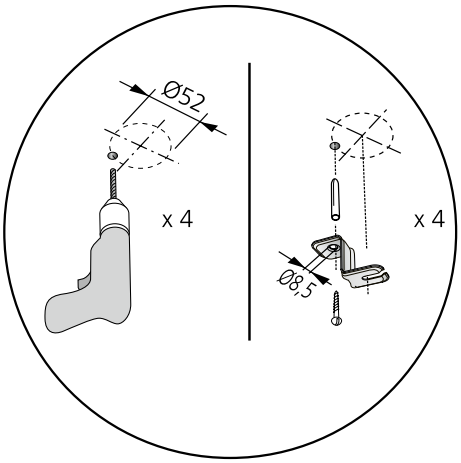



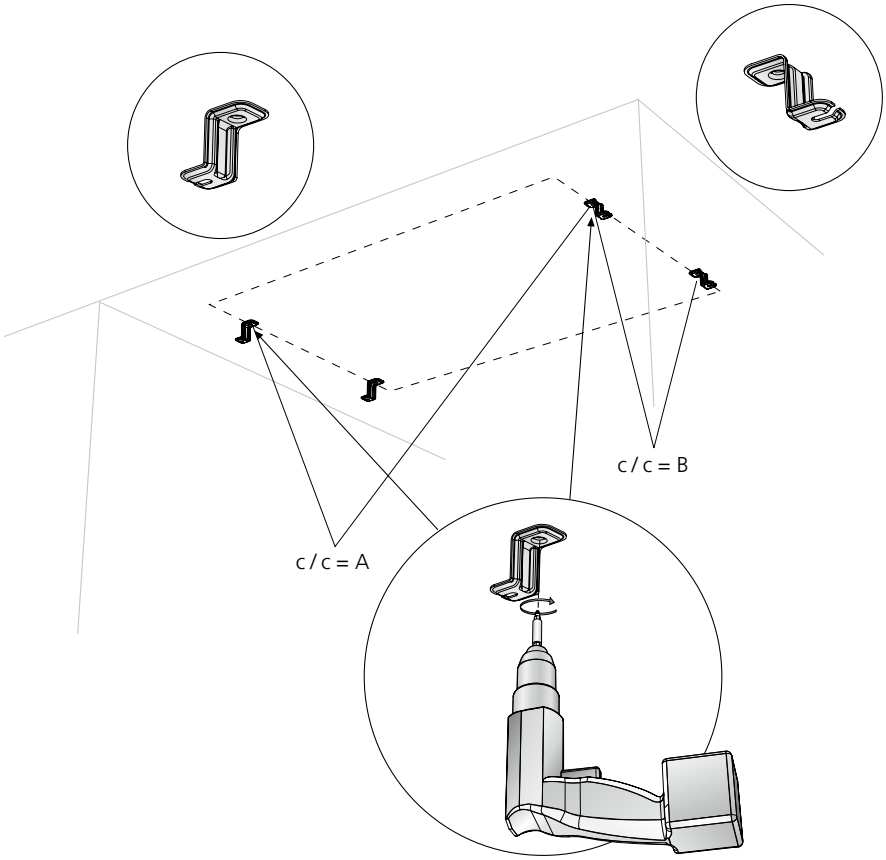



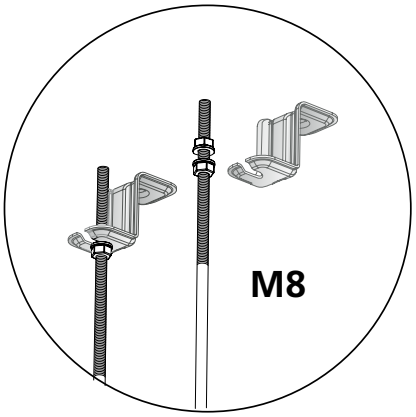



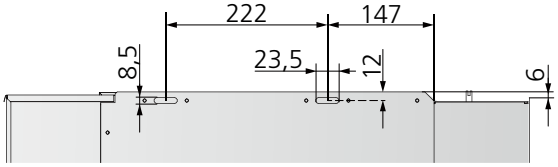
## Suspension



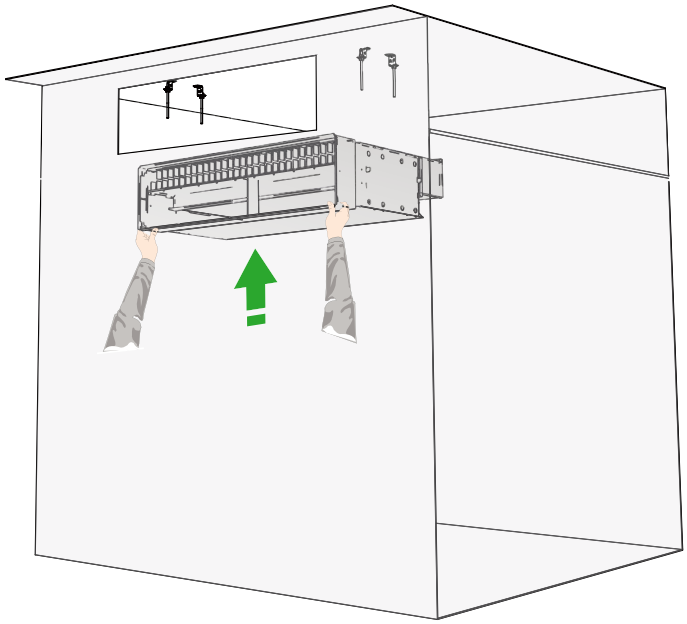


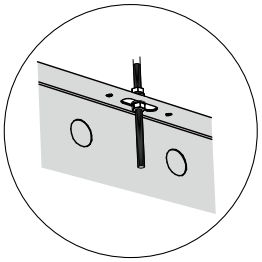



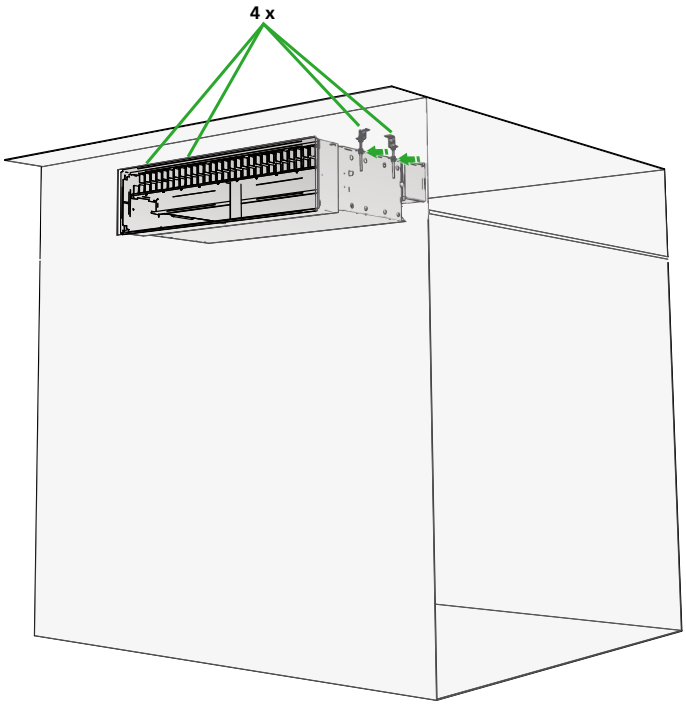




| L (mm) | A (mm) | B (mm) |
|---|---|---|
| 800 | 778 | 222 |
| 1100 | 1078 | 222 |
| 1400 | 1378 | 222 |






4 x

# Connection - Water

## Connection sizes

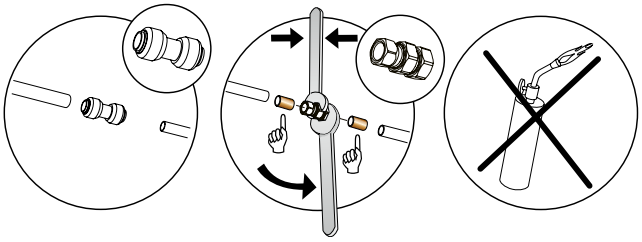
**Standard variant with factory-fitted valves:**

| Length | Cooling | Heating |
|---|---|---|
| (mm) | Return | Return |
| 800, 1100, 1400 | DN15 male thread | DN15 male thread |

**Standard variant without factory fitted valves:**

| Length | Cooling | Heating |
|---|---|---|
| (mm) | Supply and return | Supply and return |
| 800, 1100, 1400 | plain pipe ends | plain pipe ends |
| | (Cu) Ø 12 x 1.0 mm | (Cu) Ø 12 x 1.0 mm |

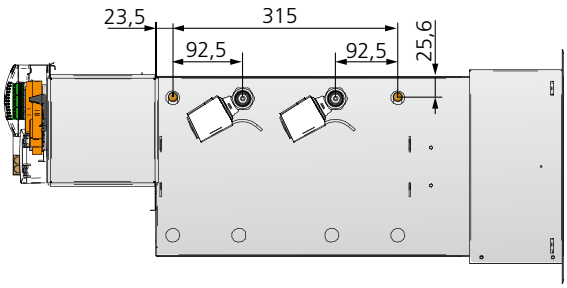
Note that compression ring couplings require support sleeves inside the pipes.

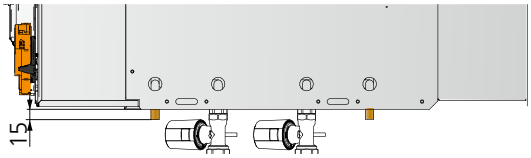


## Connecting water

Connect the water pipes using push-on couplings or compression ring couplings.

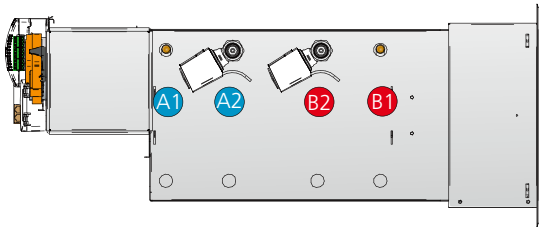
Note that compression ring couplings require support sleeves inside the pipes. Do not use solder couplings to connect the water pipes. High temperatures can damage the unit's existing soldered joints.



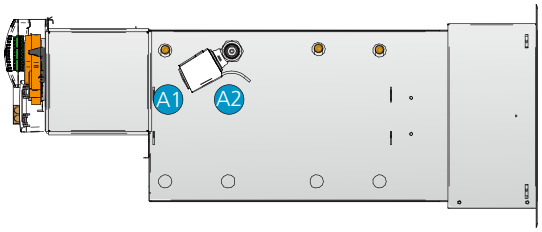




### Water connection on the right-hand side "R"

### Cooling and heating R, all sizes



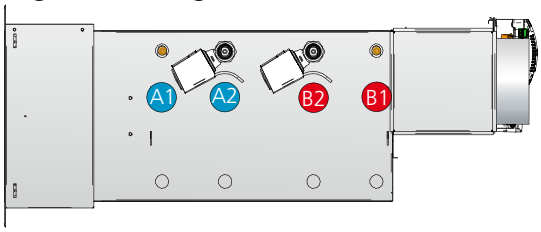

### Cooling R, all sizes



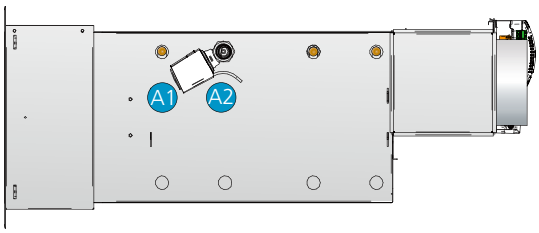

*Water connection on right-hand side (R).*
*A1 = Cooling water, supply*
*A2 = Cooling water, return*
*B1 = Heating water, supply*
*B2 = Heating water, return*

### Water connection on the left-hand side "L"

### Cooling and heating L, all sizes

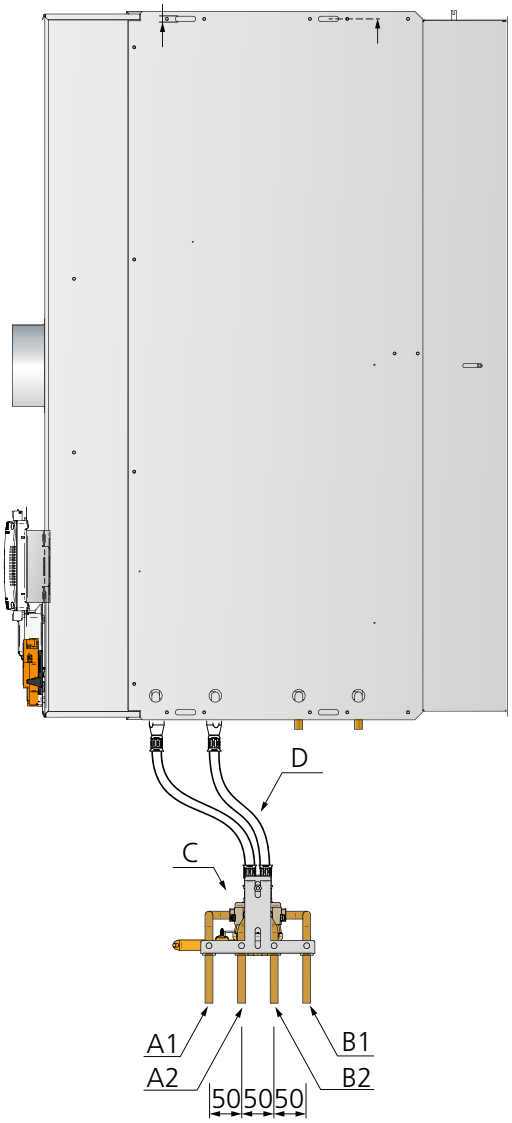



### Cooling L, all sizes




*Water connection on left-hand side. (L).*
*A1 = Cooling water, supply*
*A2 = Cooling water, return*
*B1 = Heating water, supply*
*B2 = Heating water, return*

### Connection of CCO valve




*Water connection, CCO valve.*
*A1 = Cooling water, supply*
*A2 = Cooling water, return*
*B1 = Heating water, supply*
*B2 = Heating water, return*
*C = CCO valve*
*D = Flexible hose*

## Water quality

Swegon recommends water quality according to VDI 2035-2 for both the heating and cooling systems. In order to maintain the oxygen content in the water below the levels (<0.1 mg/l) prescribed in VDI 2035-2, it is recommended to install a vacuum degasser, particularly in the cooling system where it's more challenging to dissolved gas. It is also important that the pre-pressure in the expansion vessel is dimensioned according to EN-12828 for both the heating and cooling systems and that regular checks are made of the pre-pressure. The cooling and heating systems must be designed to prevent oxygen from entering the system, this is particularly important to consider when selecting flex hose, pipes and expansion vessels.

When the system is filled with fresh water, it has an oxygen content of approximately 8 mg/l, however, this oxygen is consumed quickly through corrosion processes and within a few days the oxygen in the water should be consumed. Nevertheless, it is important to avoid filling the system with fresh water unnecessarily.

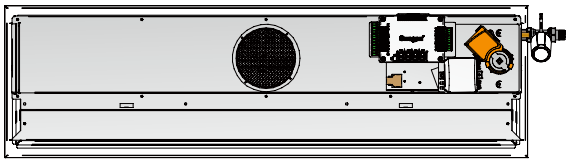
Automatic deaerators are often installed to facilitate filling of the system. It is recommended that the automatic deaerators are turned off once the system has been fully vented to avoid these drawing in air in the system if the pre-pressure in the expansion vessel should drop.

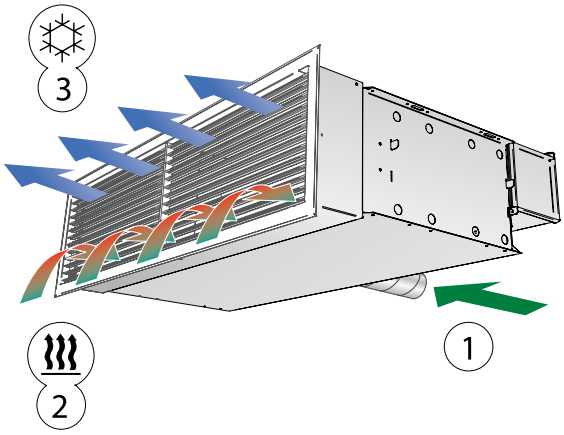
## Connection - Air

All sizes have the air connection Ø125.

The air connection is centred at the rear of the product for easy access from both ends and the rear.

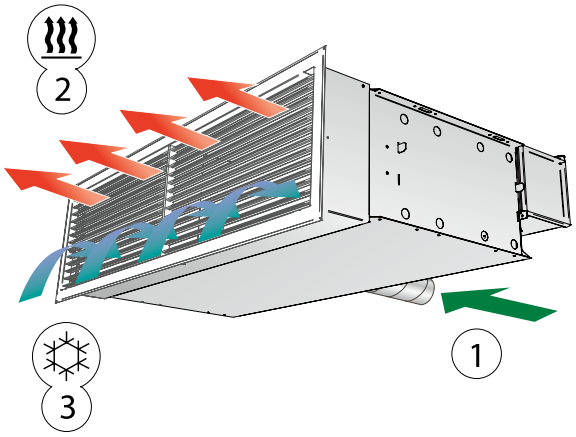
Back view



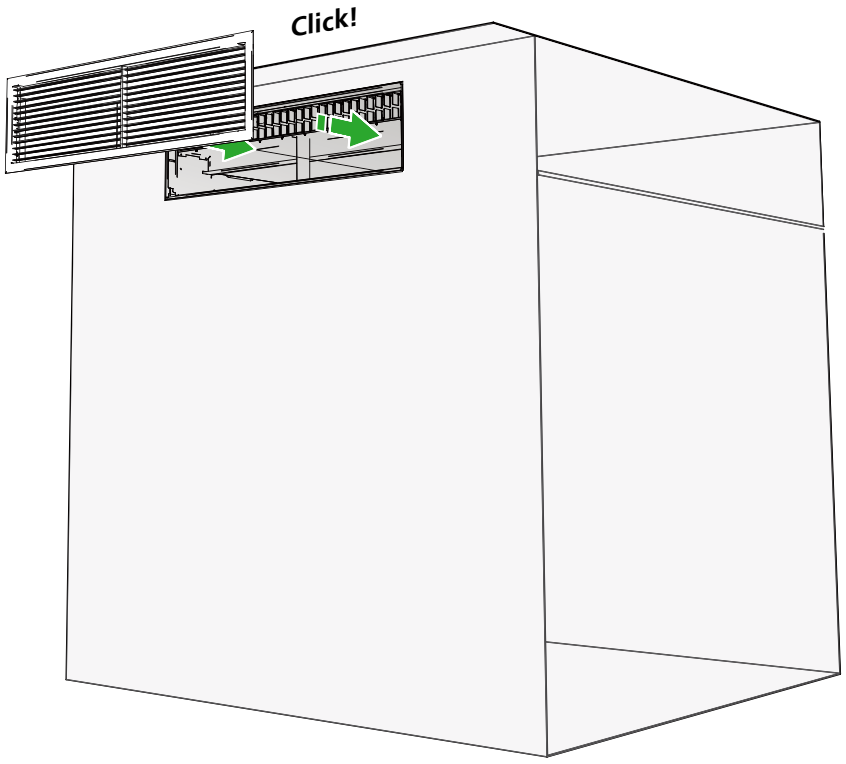



**Connection dimensions, air**

| Length (mm) | Air connection (mm) |
|---|---|
| 800, 1100, 1400 | Ø 125 |

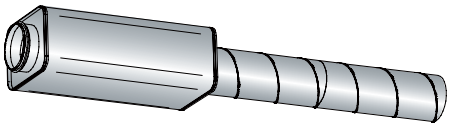



## Grille installation

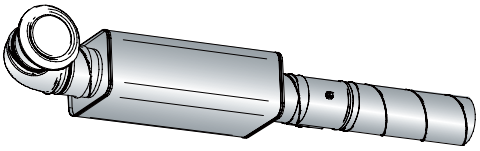


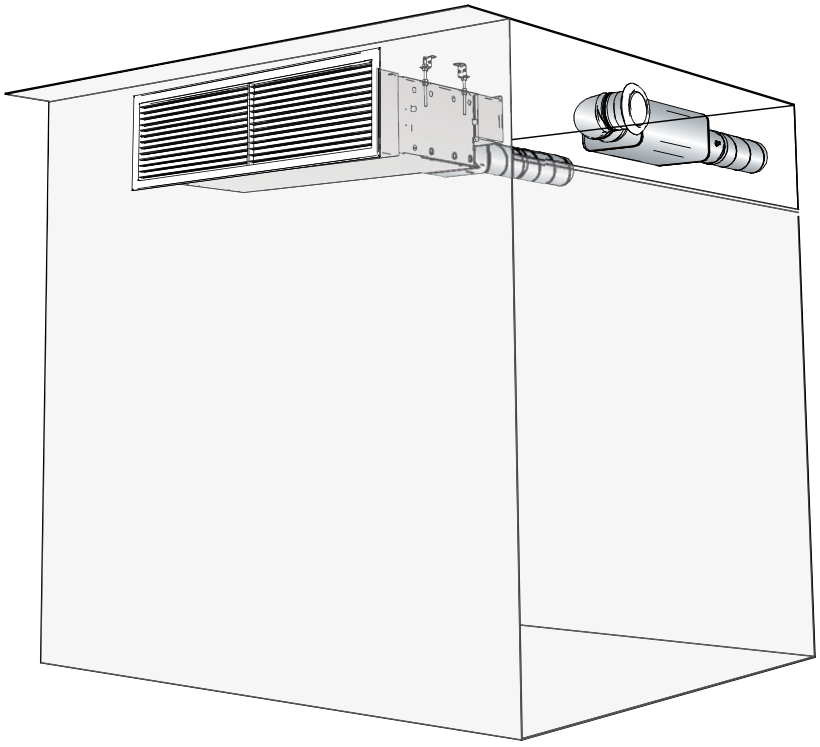
## Supply and extract air kit

**Supply air**



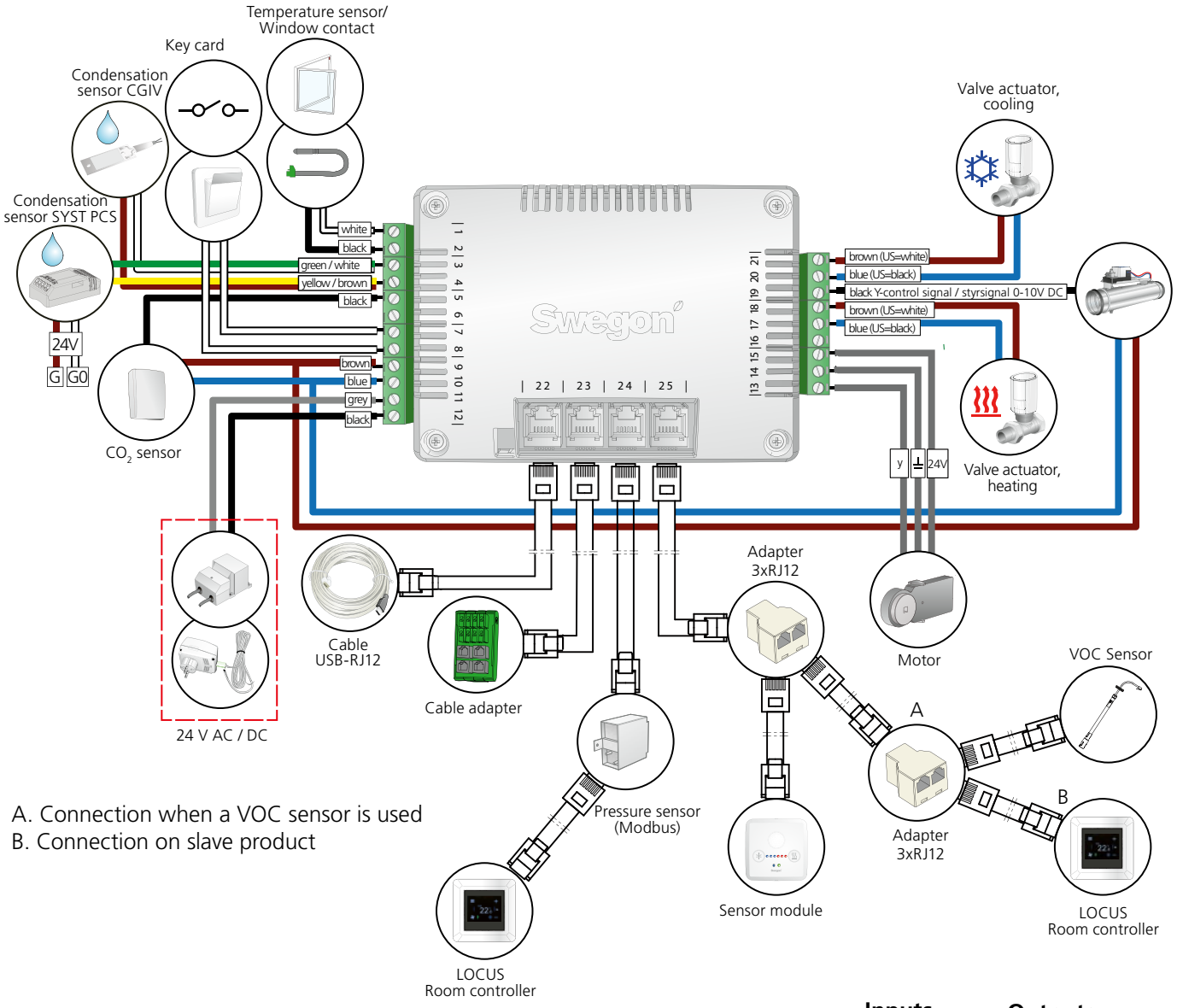
**Extract air**





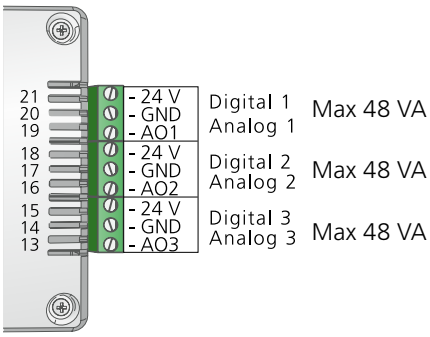
# Connections control equipment

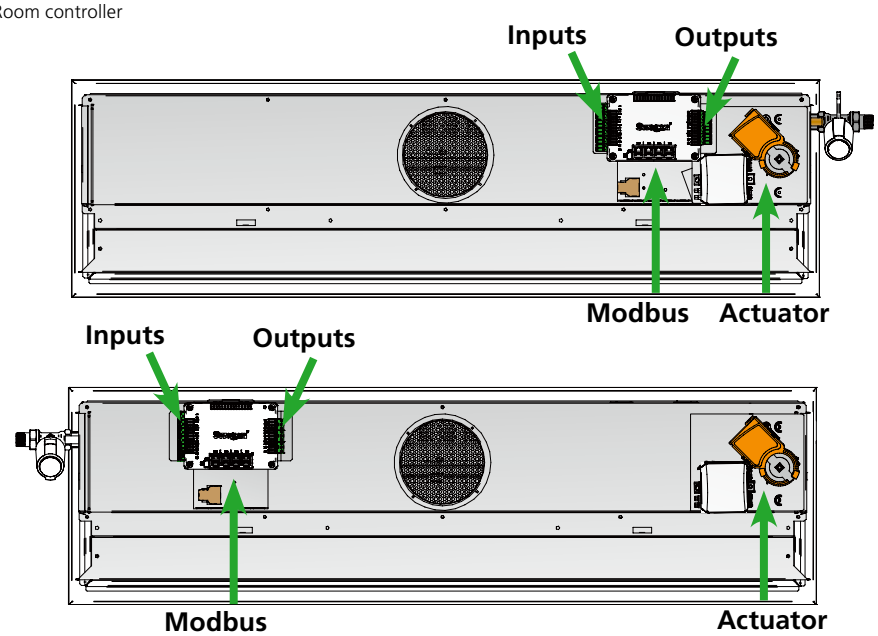
**Wiring diagram for controller (URC1) with accessories**

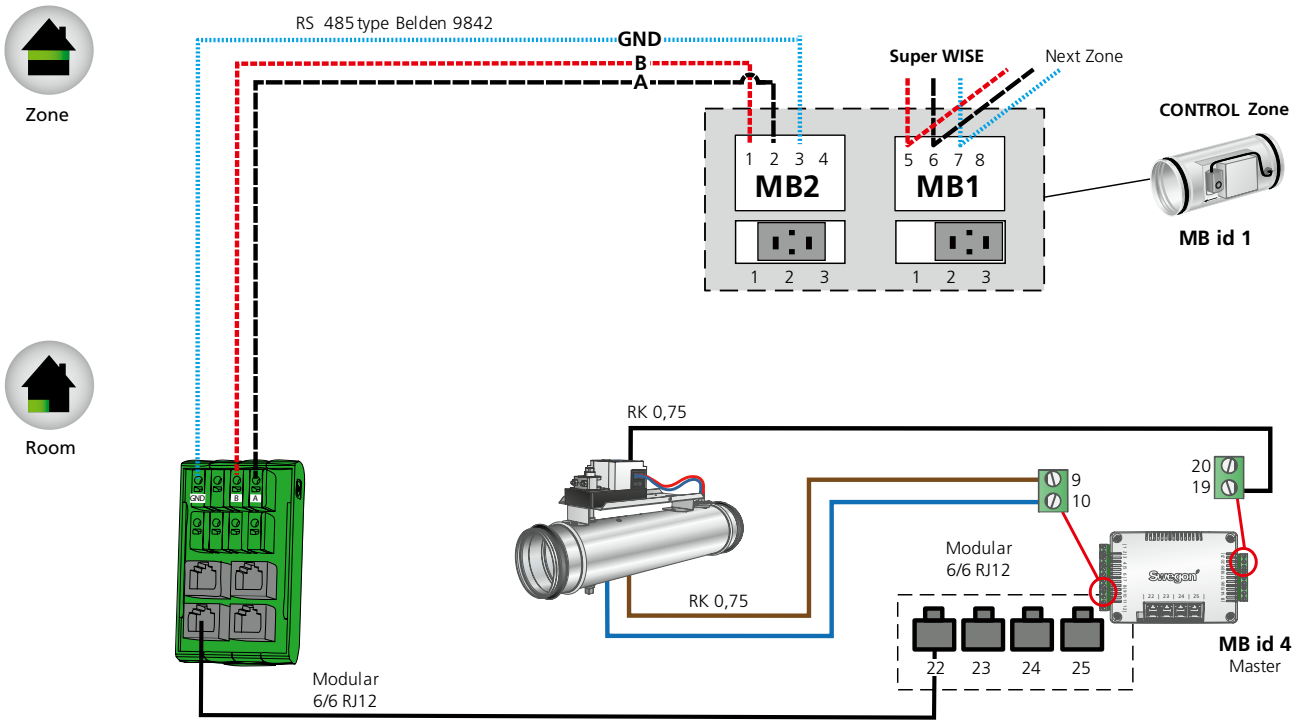


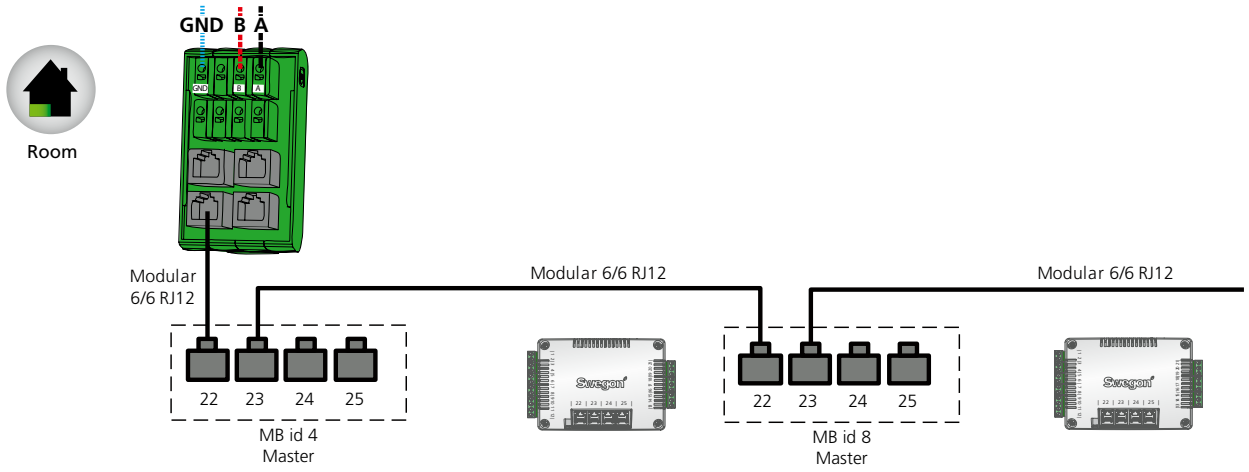

A. Connection when a VOC sensor is used
B. Connection on slave product

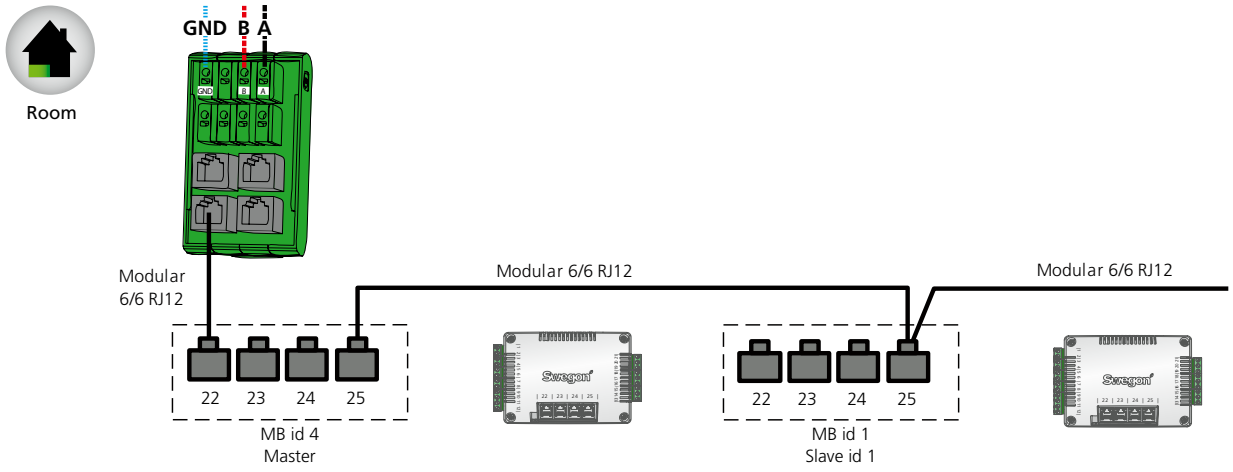
## Controller outputs



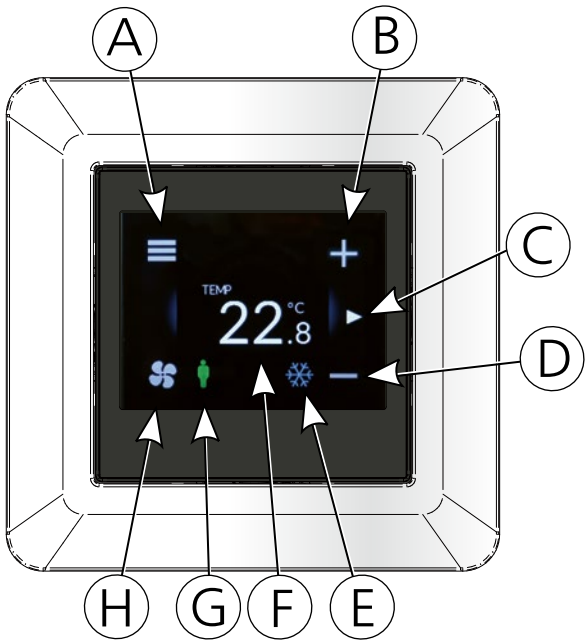


# Room controller, LOCUS

Main menu and explanation of symbols




A. menu
B. increase
C. swipe left to go to the next page
D. decrease
E. symbol showing ongoing cooling or heating
F. shows programmed setpoint or measured temperature
G. shows occupancy in the room
H. press to activate boost flow

## Technical data

| | |
|---|---|
| Display | Capacitive touch TFT Display QVGA 2.3" |
| Screen resolution | 320x240 |
| Communication | Modbus RTU via RS-485 |
| Temperature sensor | Internal 10K NTC sensor |
| Operating temperature | +5 ... +40°C |
| Degree of protection | IP20 |
| Dimensions | 88 x 88 x 35 mm |
| Operating voltage | 12-40 VDC |
| Current requirement | 0.5 W |

## Connection

| LOCUS | Connection | Description |
|---|---|---|
| VDD | RJ12 | 12-40 VDC power supply |
| A+ | RJ12 | RS-485 bus connection |
| B- | RJ12 | RS-485 bus connection |
| GND | RJ12 | Earth for 12-40 VDC power supply |
| Memory card slot | | The user panel's software can be updated via a Micro SD card |

## Standards and directives

The following standards have been observed:

| | |
|---|---|
| EC Directive: | 93/68/EEC |
| Low Voltage Directive: | 2014/35/EU |
| Machinery Directive: | 2006/42/EEC |
| EMC Directive: | 2014/30/EU |
| RoHS Directive: | 2002/95/EC |
| Vibrations: | EN-60721-3-3 |

## Description of display

If the screen is in standby mode, it is activated again by clicking.

| Display | Description | Explanation |
|---|---|---|
|  | Display in standby mode | Activated with a click |
|  | Active main menu | Increase/decrease the setpoint temperature by clicking on the + or – signs |
|  | Activated boost mode | |
|  | Swipe left for next page | Shows values from connected sensors |
|  | Swipe right to go back to the main menu | |

For more detailed information about LOCUS room controller. See documentation at www.swegon.com

- LOCUS Product datasheet
- LOCUS Instructions for Use (IOM)

## Sensor module

Menu sensor module:

Press and hold the left and right-hand buttons for five seconds to access the menu.

Use the left-hand button ( ❄ ) to steps through the menus. Use the right-hand button ( ♨ ) to confirm your selection.

Press the left-hand button and select:
**1**. Alarm list
**2**. Commissioning air
**3**. Commissioning water
**6**. Return to menu

Confirm selections by pressing the right-hand button

**1. Alarm list:** See the complete alarm list to the right.
In the commissioning menus:

- Navigate between the menus by pressing the left-hand button
- Confirm selections by pressing the right-hand button
- When a selection has been confirmed, the blue LED will flash for about 60 seconds.
- In order to return to normal operation, select "no adjustment"

**2. Commissioning, air:**

2.1. Min. airflow, no occupants

2.2. Min. airflow, occupancy

**2.3. Max. air flow, occupancy**

2.4. Min. airflow, holiday/longer period of no occupancy

2.5. No adjustment

**3. Commissioning, water:**

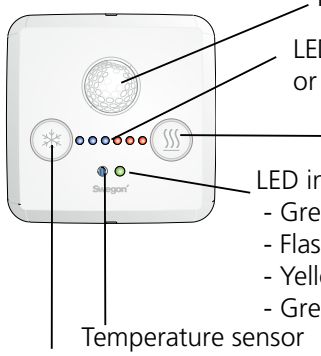
3.1. Open the chilled water valve

3.2. Open heated water valve

3.3. No adjustment

4, 5 are not used

**6. Return to menu**




### Alarm list for the sensor module

| Alarm no. | Type of alarm | 32 | 16 | 8 | 4 | 2 | 1 |
|---|---|---|---|---|---|---|---|
| Alarm 1 | Supply voltage low | | | | | | ● |
| Alarm 2 | Supply voltage critical low | | | | | ● | |
| Alarm 3 | Ext temp missing | | | | | ● | ● |
| Alarm 4 | Ext temp error | | | | ● | | |
| Alarm 5 | Condensation sensor error | | | | ● | | ● |
| Alarm 6 | SM temp sensor error | | | | ● | ● | |
| Alarm 7 | SM button error | | | | ● | ● | ● |
| Alarm 8 | $CO_2$ sensor missing | | | ● | | | |
| Alarm 9 | VOC Error | | | ● | | | ● |
| Alarm 10 | Low pressure | | | ● | | ● | |
| Alarm 17 | SM comm error | | ● | | | | ● |
| Alarm 18 | Slave comm error | | ● | | | ● | |
| Alarm 19 | Pressure sensor comm error | | ● | | | ● | ● |
| Alarm 20 | VOC sensor comm error | | ● | | ● | | |
| Alarm 21 | No master request (slave) | | ● | | ● | | ● |
| Alarm 22 | Slave incompatible version | | ● | | ● | ● | |
| Alarm 25 | Heating comfort alarm | | ● | ● | | | ● |
| Alarm 26 | Cooling comfort alarm | | ● | ● | | ● | |
| Alarm 27 | Temp. Set point overlap alarm | | ● | ● | | ● | ● |
| Alarm 28 | Air quality comfort alarm | | ● | ● | ● | | |
| Alarm 29 | Condensation | | ● | ● | ● | | ● |
| Alarm 33 | 24 V Out 1 overload error | ● | | | | | ● |
| Alarm 34 | 24 V Out 2 overload error | ● | | | | ● | |
| Alarm 35 | 24 V Out 3 overload error | ● | | | | ● | ● |
| Alarm 41 | Slave input sum alarm | ● | | ● | | | ● |
| Alarm 42 | Slave output sum alarm | ● | | ● | | ● | |

The alarm is shown with a number of LEDs when you select Alarm list (1) in the menu.

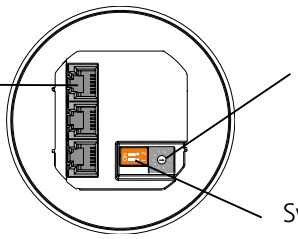
Each LED represents a number as per the table above and the numbers are added to form an alarm number.

E.g. Middle blue and the two last red are lit (xoxxoo)

Middle blue corresponds to 16, next last red 2 and last red 1. The sum of these is 19, which is the alarm number.

Return to normal operation by pressing the right-hand button.

3 parallel RJ12 ports (Modbus) for connections e.g. controller, additional sensor module or PC with the help of Cable converter USB-RJ12



Addressing the sensor module. 10 sensor modules can be connected to each master unit, each one must have a unique address to work.

Switch for termination resistance. On the last sensor module in the circuit switch 1 is set to On.

# Recommendation for electrical installations

- Swegon recommends that all electrical installations are carried out by a qualified electrician.
- Swegon recommends that a 24 V power supply is connected with a 1.5 mm² copper cable to minimise the risk of voltage drops in the case of long cable runs.
- Swegon recommends the use of Swegon-marked transformers for supplying power to Swegon's products

**Voltage drop table at different loads (amperes) with a 1.5 mm² cable**

| Metres | Current/Amperes | | | | | |
|---|---|---|---|---|---|---|
| (m) | 1 | 2 | 3 | 4 | 5 | 6 |
| 10 | 0.24 | 0.48 | 0.72 | 0.96 | 1.20 | 1.44 |
| 20 | 0.48 | 0.96 | 1.44 | 1.91 | 2.39 | 2.87 |
| 30 | 0.72 | 1.44 | 2.15 | 2.87 | 3.59 | 4.31 |
| 40 | 0.96 | 1.91 | 2.87 | 3.83 | 4.78 | 5.74 |
| 50 | 1.20 | 2.39 | 3.59 | 4.78 | 5.98 | 7.18 |
| 60 | 1.44 | 2.87 | 4.31 | 5.74 | 7.18 | 8.61 |
| 70 | 1.67 | 3.35 | 5.02 | 6.70 | 8.37 | 10.05 |
| 80 | 1.91 | 3.83 | 5.74 | 7.65 | 9.57 | 11.48 |
| 150 | 3.59 | 7.18 | 10.76 | 14.35 | 17.94 | 21.53 |
| 160 | 3.83 | 7.65 | 11.48 | 15.31 | 19.13 | 22.96 |

The largest permitted voltage drop is 3.6 V

## Description of problem:

Swegon's electrical units and machines are designed to work within specific voltage intervals. If the voltage drops below the nominal value, this can lead to impaired performance or even damage to the equipment.

Voltage drops also entail increased resistance in cables and components, which generates heat. This heat represents a loss of electrical energy. Depending on the voltage drop, the energy losses can be significant.

A general guideline for a 24 V system is that a 15% voltage drop is acceptable (3.6 volts).

## How is the voltage drop in the cable calculated:

Resistance (R) = (Resistivity (p) x Length (L)) / Area (a).

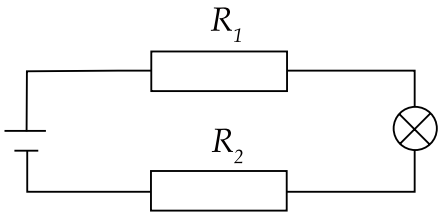
Voltage drop in wire (UL) = Resistance (R) x current (I)

$$R_1 = \frac{p \cdot L}{a}$$

$$R_2 = \frac{p \cdot L}{a}$$

$$R = R_1 + R_2$$

$$UL = R \cdot I$$




For example, the resistivity for copper is 0.0175 ohm mm²/m at 15°C. Bear in mind that the resistance increases by 0.4% per degree Celsius.

**Examples of voltage drops in cables:**

| Input data | value | Unit |
|---|---|---|
| Supply voltage | 24 | Volts |
| Current (load) | 1.25 | Amperes |
| Cable area | 1.5 | mm |
| Cable length (phase + neutral wire) | 50 | M |

| | | |
|---|---|---|
| Voltage drop | 1.5 | Volts |

*Example 1 at 22°C*

| Input data | value | Unit |
|---|---|---|
| Supply voltage | 24 | Volts |
| Current (load) | 1.25 | Amperes |
| Cable area | 1.5 | mm |
| Cable length (phase + neutral wire) | 200 | M |

| | | |
|---|---|---|
| Voltage drop | 6 | Volts |

*Example 2 at 22°C*

# Maintenance