PARAGON VAV d

Installation – Commissioning – Maintenance

17/01/2023
Art. 942428072

Contents

Symbols

Warning/Caution!

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

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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 VAV

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 such as hotels, an initial cleaning is recommended, about three months after use, as new textiles usually release more fibres. Thereafter, cleaning is recommended at an interval of one to two times per year.

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.

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.

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

Weight

PARAGON VAV 800

Length	Type	Dim.	Dry weight* (kg)		Water volume (l)	
mm		Ø	Without grille	incl. grille	cooling	heating
800 R	A	125	14.0	16.9	1.39	
800 L	A	125	14.0	16.9	1.38	
800 R	B	125	14.0	16.9	1.39	0.38
800 L	B	125	14.0	16.9	1.38	0.37
800 R	X	125	14.0	16.9	1.39	
800 L	X	125	14.0	16.9	1.38	
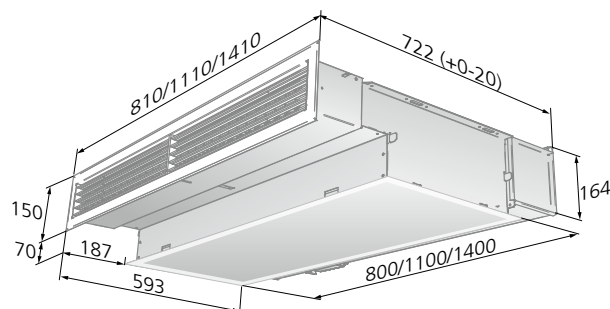
PARAGON VAV 1100

Length	Type	Dim.	Dry weight* (kg)		Water volume (l)	
mm		Ø	Without grille	incl. grille	cooling	heating
1100 R	A	125	18.8	22.6	1.93	
1100 L	A	125	18.8	22.6	1.92	
1100 R	B	125	18.8	22.6	1.93	0.52
1100 L	B	125	18.8	22.6	1.92	0.51
1100 R	X	125	18.8	22.6	1.93	
1100 L	X	125	18.8	22.6	1.92	
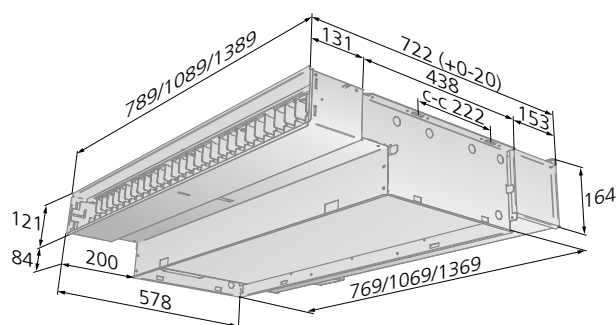
PARAGON VAV 1400

Length	Type	Dim.	Dry weight* (kg)		Water volume (l)	
mm		Ø	Without grille	Incl. grille	cooling	heating
1400 R	A	125	23.0	27.6	2.47	
1400 L	A	125	23.0	27.6	2.46	
1400 R	B	125	23.0	27.6	2.47	0.65
1400 L	B	125	23.0	27.6	2.46	0.64
1400 R	X	125	23.0	27.6	2.47	
1400 L	X	125	23.0	27.6	2.46	

*Added weight for:
Control equipment: 0.84 kg

Installation

Size of the opening

>40

135 ±10

70

800/1100/1400 ±5

187-207

390 ±10

>250

785/1085/1385 ±10

153

569 (+ 0-20)

164

121

205

91

378

0

405

315

231 (+0-20)

92,5

92,5

26

569 (+ 0-20)

153

205

121

164

91

378

0

405

231 (+0-20)

315

26

92,5

92,5

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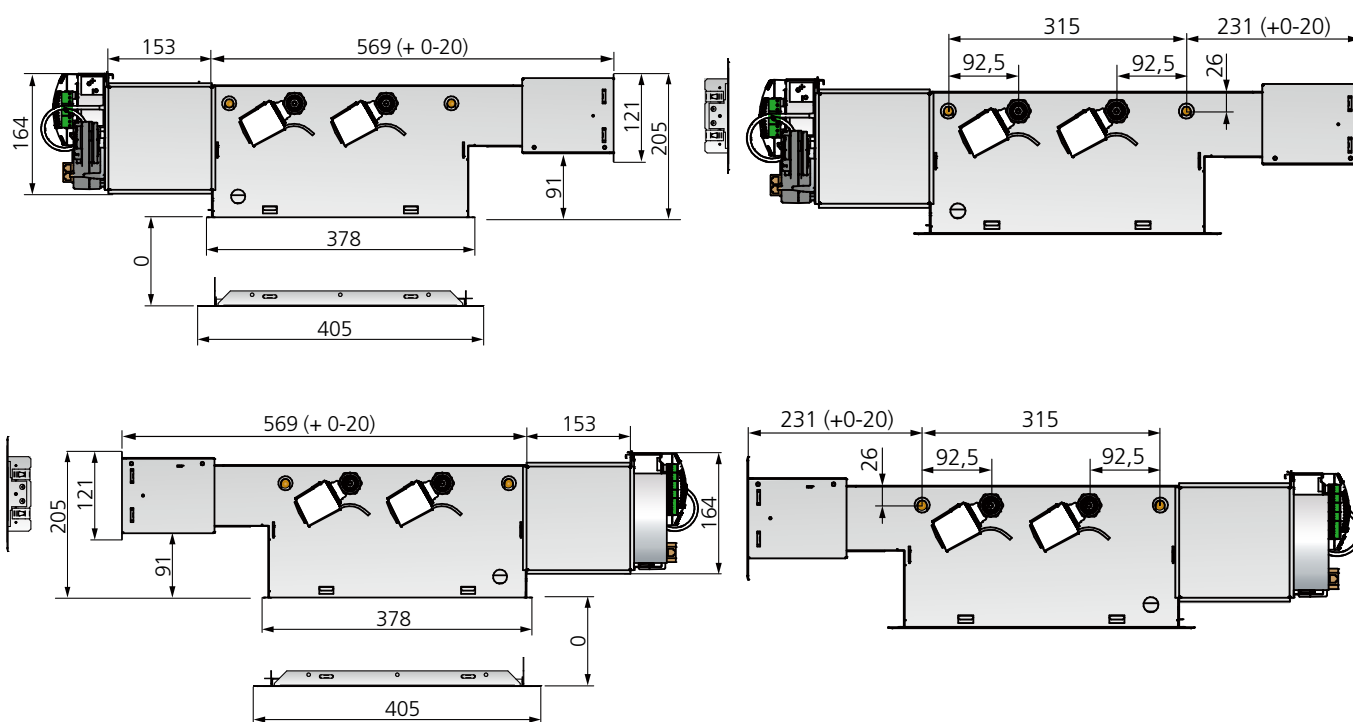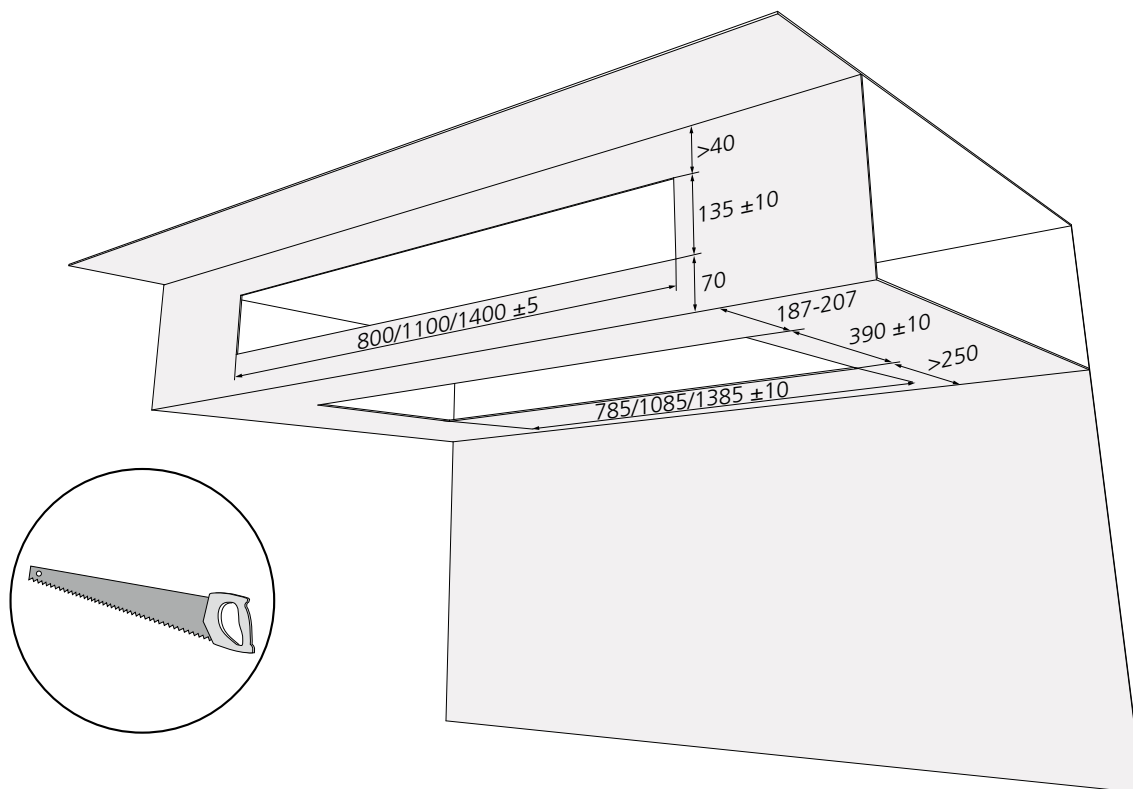
Suspension
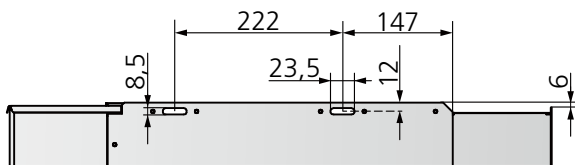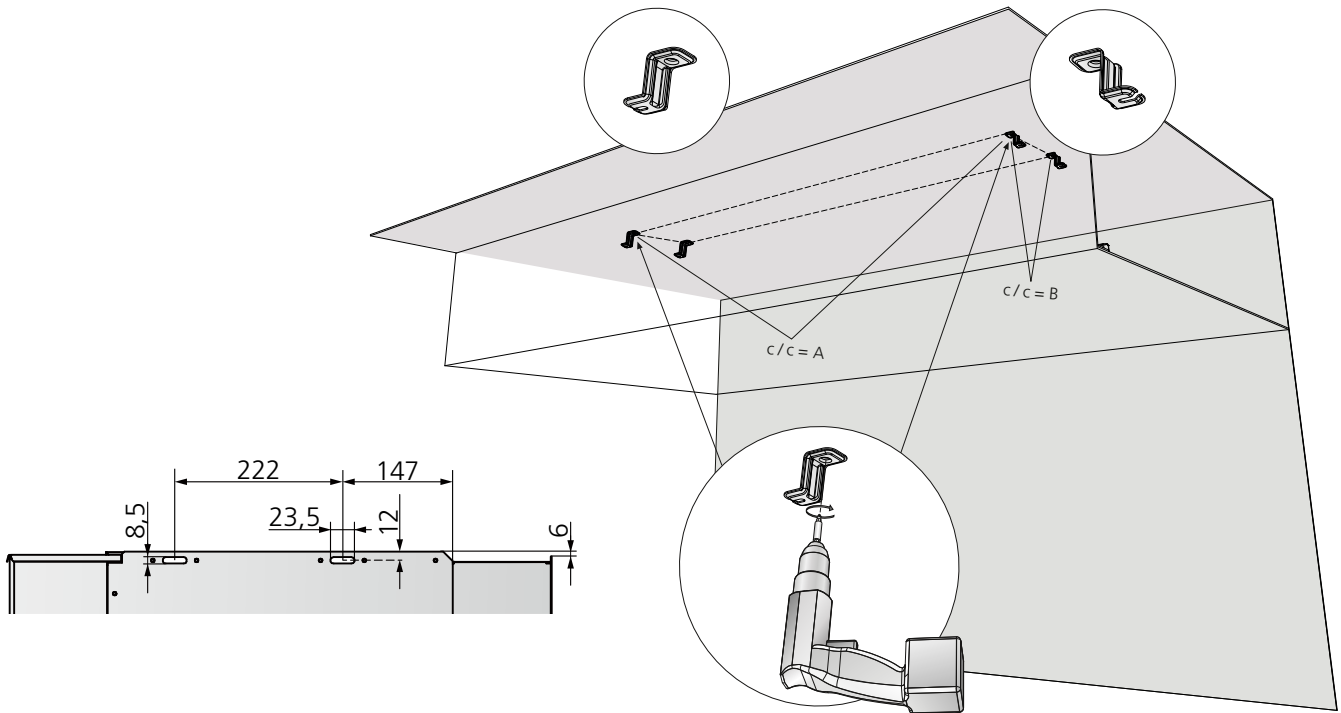
L	A	B
800	778	222
1100	1078	222
1400	1378	222

M8

4 x

Swegon reserves the right to alter specifications   17/01/2023

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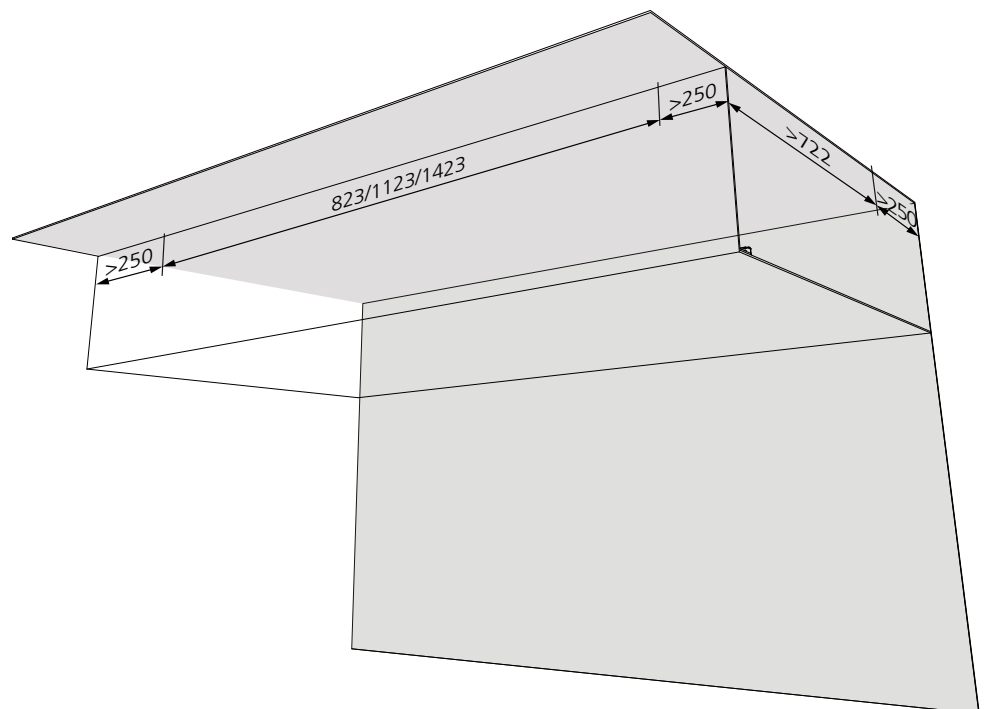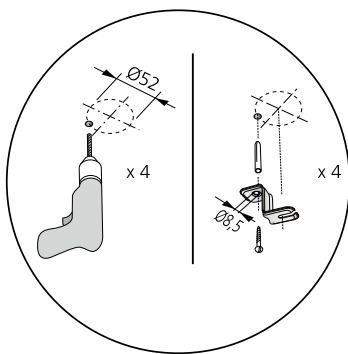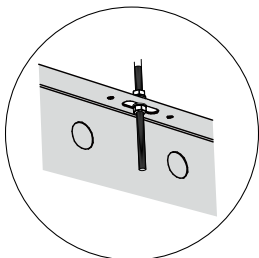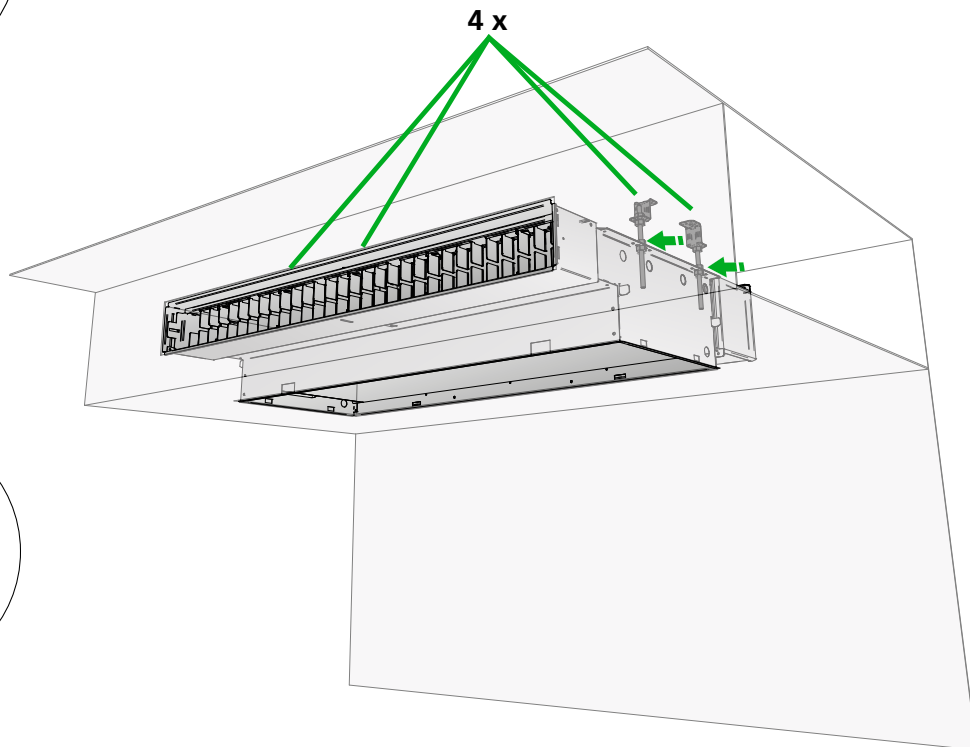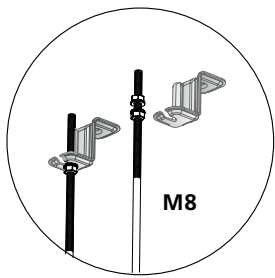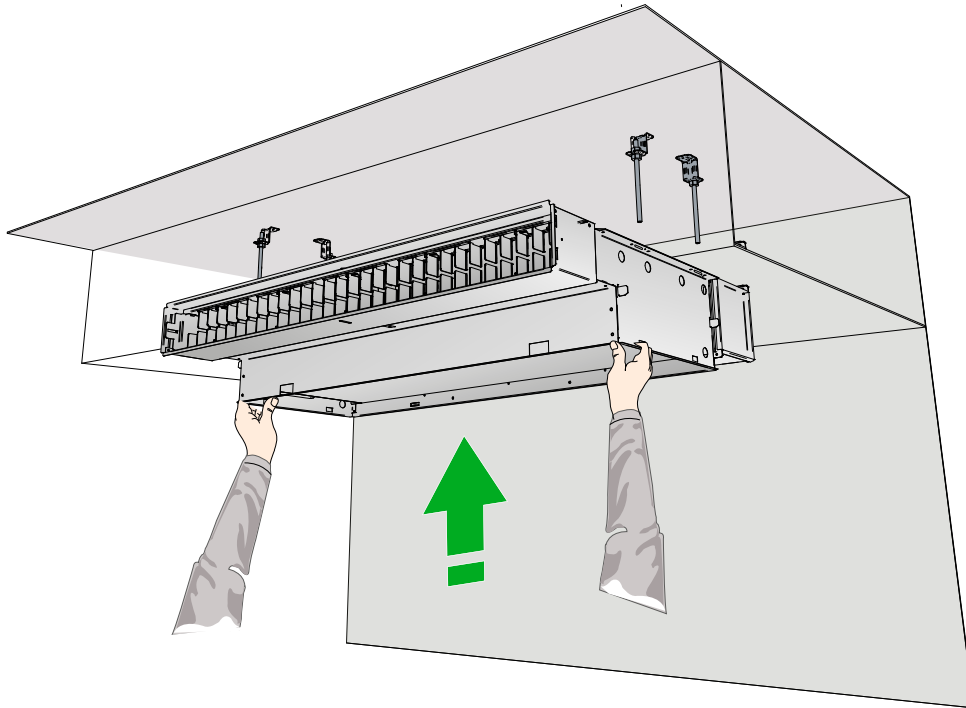
Connection - Water

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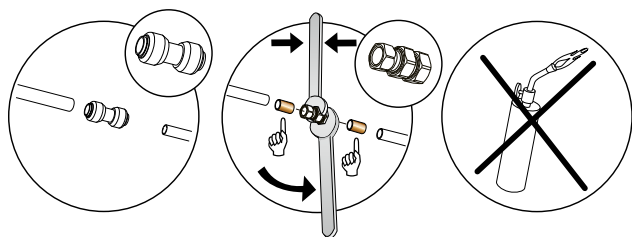
Note that compression ring couplings require support sleeves inside the pipes.

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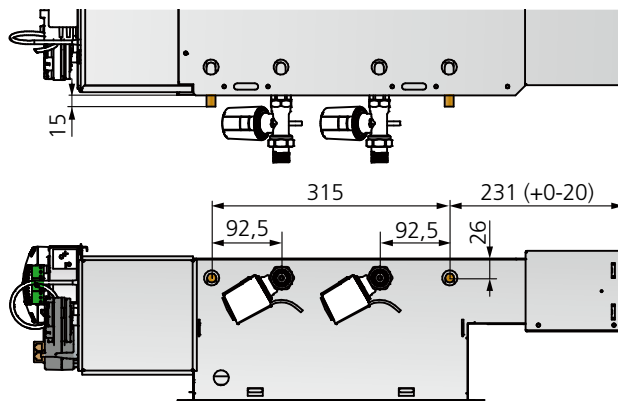
Water connection on the right-hand side "R"

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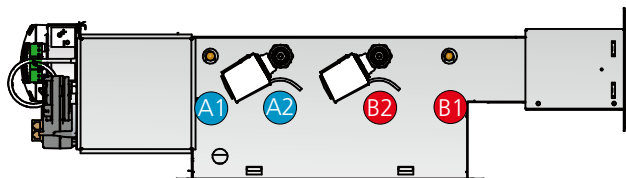
Cooling R, all sizes
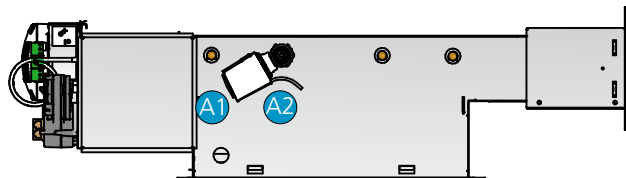
Water connection on right-hand side (R).
A1 = Cooling water, supply
A2 = Cooling water, return
B1 = Heating water, supply
B2 = Heating water, return

Water connection on the left-hand side "L"

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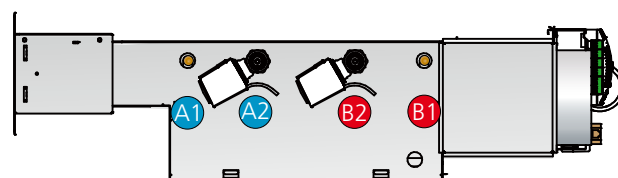
Cooling L, all sizes
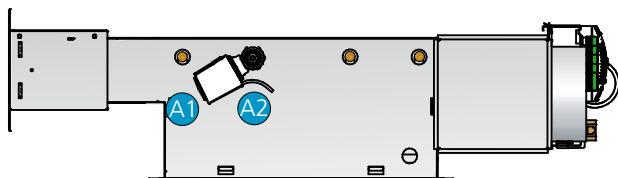
Water connection on left-hand side. (L).
A1 = Cooling water, supply
A2 = Cooling water, return
B1 = Heating water, supply
B2 = Heating water, return

Water connection at the rear edge "WB"
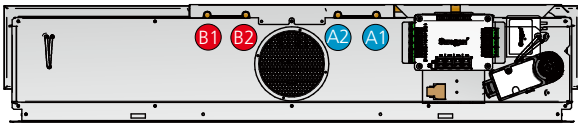
Water connection at the rear edge (WB).
A1 = Cooling water, supply
A2 = Cooling water, return
B1 = Heating water, supply
B2 = Heating water, return

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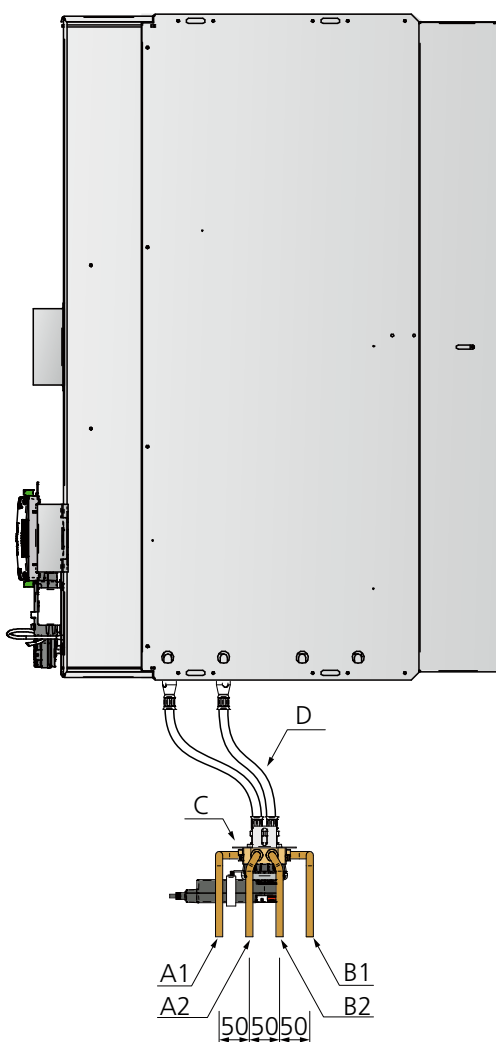
Water connection with CCO valve.
A1 = Cooling water, supply
A2 = Cooling water, return
B1 = Heating water, supply
B2 = Heating water, return
C = CCO valve
D = Flexible hose

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.

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Connection - air

All variants have the air connection Ø125.

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

The suite version, which is only available in 1400 mm length, has two parallel air connections at the rear, i.e. 2x Ø125.
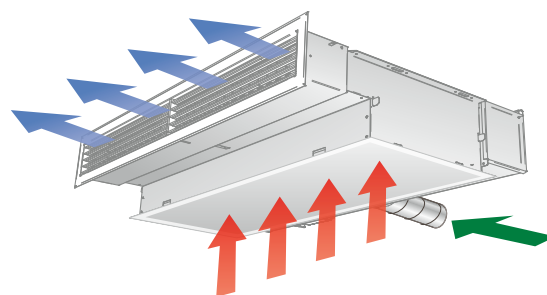
Standard, Rear view
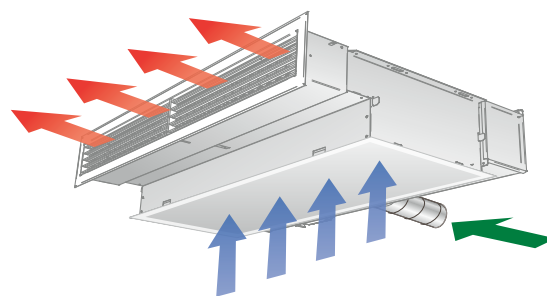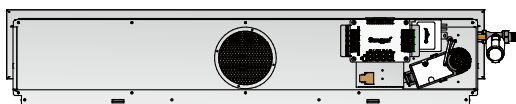
Suite, Rear view
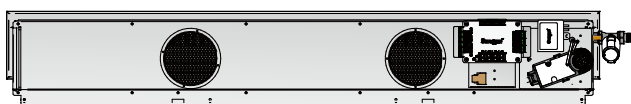
Connection dimensions, air

Variant	Length	Air connection	
	(mm)	1 x Ø 125	2 x Ø 125
1: Standard	800, 1100, 1400	Yes	No
2: Suite	1400	No	Yes

Supply and extract air kit
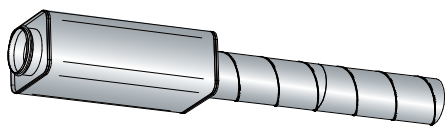
Supply air kit   **Extract air kit**
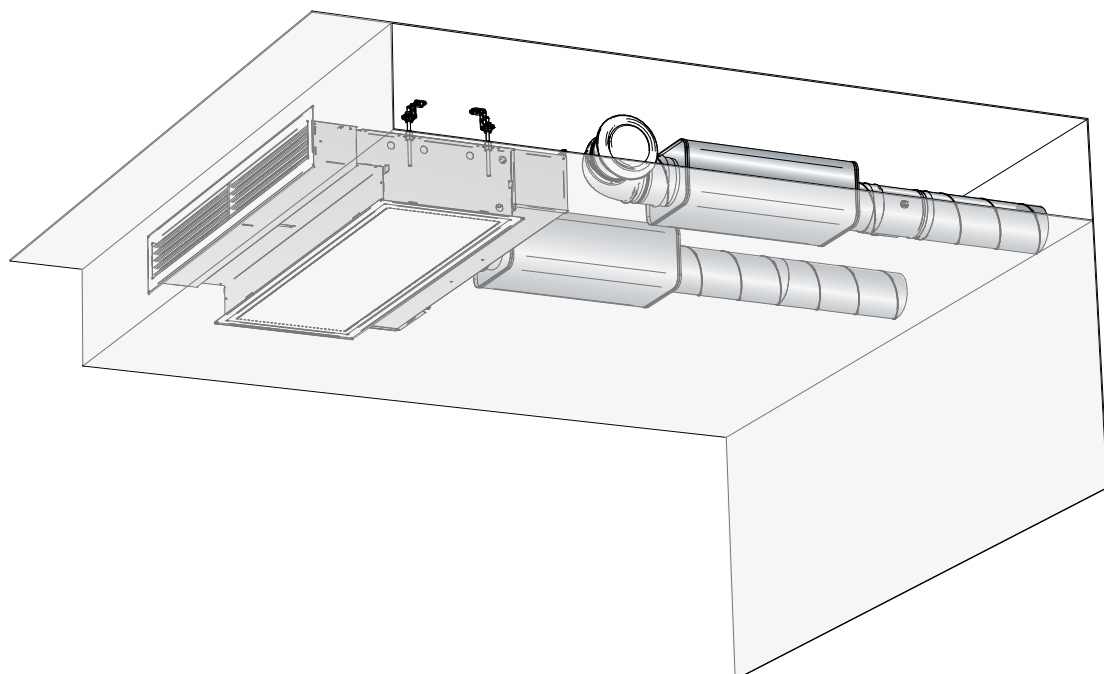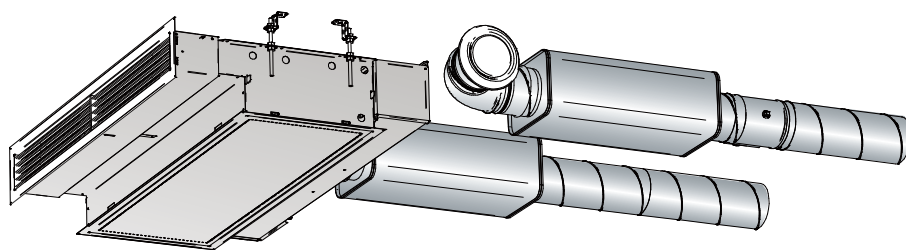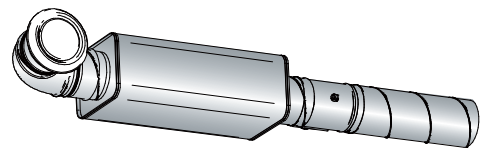
Installation, grille

Click!

Click!

Click!
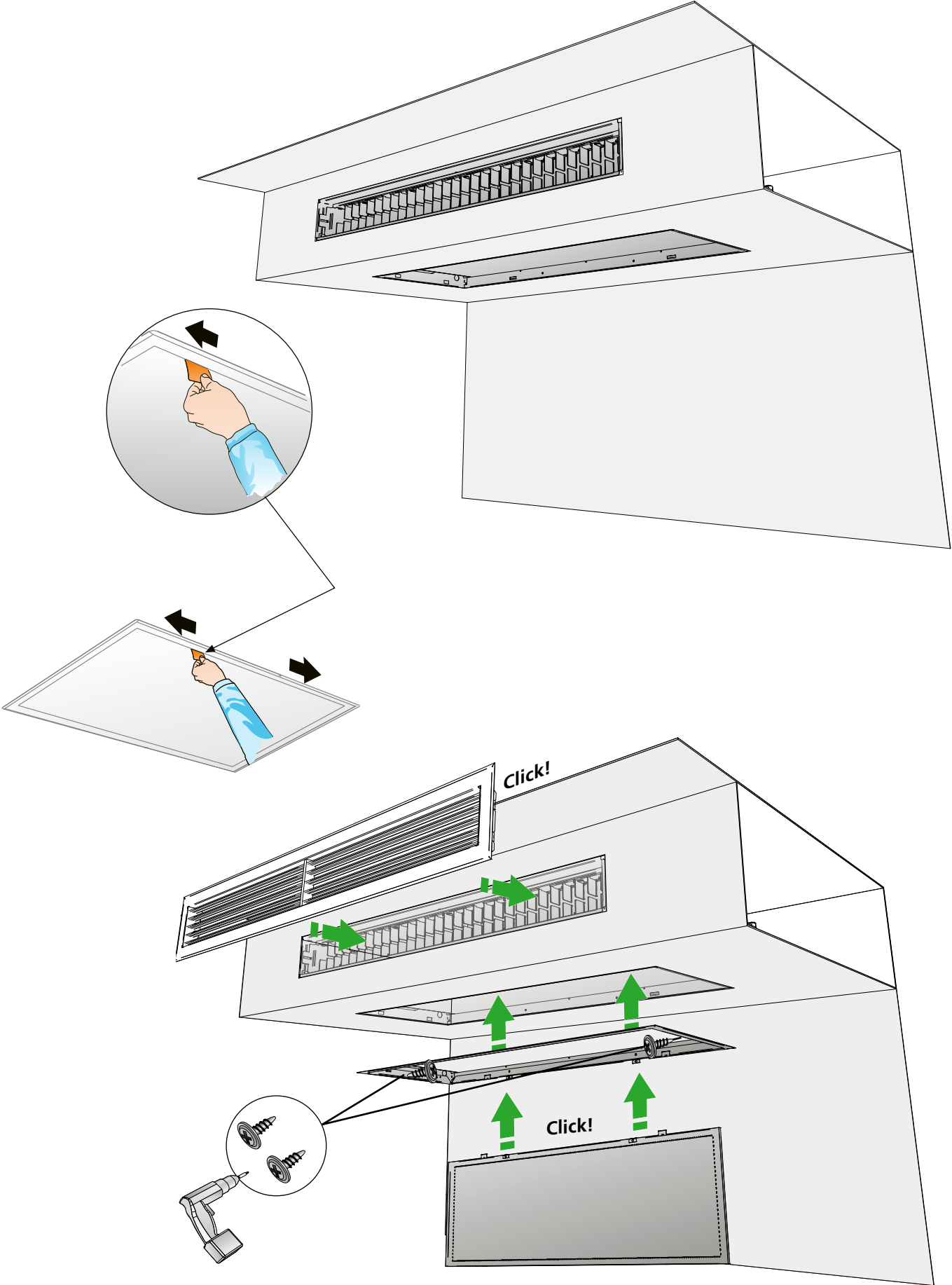
Connections control equipment

Wiring diagram for controller (URC1) with accessories

Key card

Temperature sensor/ Window contact

Valve actuator, cooling

24V
G | G0

white
black
white
brown
black

Condensation sensor

brown
blue
grey
black

CO₂ sensor

brown (US=white)
blue (US=black)
black Y-control signal / styrsignal 0-10V DC
brown (US=white)
blue (US=black)

Valve actuator, heating

y | ⏚ | 24V

1	2	3	4	5	6	7	8	9	10	11	12
22	23	24	25
13	14	15	16	17	18	19	20	21

24 V AC / DC

Cable USB-RJ12

Cable adapter

Pressure sensor (Modbus)

Adapter 3xRJ12

Motor

VOC Sensor

Sensor module

A

Adapter 3xRJ12

B

A. Connection when a VOC sensor is used

B. Connection on slave product

LOCUS Room controller

LOCUS Room controller

Controller outputs

21	- 24 V	Digital 1	Max 48 VA
20	- GND	Analog 1	
19	- AO1		
18	- 24 V	Digital 2	Max 48 VA
17	- GND	Analog 2	
16	- AO2		
15	- 24 V	Digital 3	Max 48 VA
14	- GND	Analog 3	
13	- AO3		

Inputs **Outputs**

ModBus **Motor**

Inputs **Outputs**

ModBus **Motor**

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Zone

RS 485 type Belden 9842

GND
B
A

Super WISE   Next Zone

MB2   1 2 3 4
MB1   5 6 7 8

1 2 3   1 2 3

CONTROL Zone

MB id 1

Room

RK 0,75

9
10

20
19

Modular
6/6 RJ12

RK 0,75

22 23 24 25

MB id 4
Master

Modular
6/6 RJ12

GND B A

Room

Modular
6/6 RJ12

Modular 6/6 RJ12

Modular 6/6 RJ12

22 23 24 25

MB id 4
Master

22 23 24 25

MB id 8
Master

GND B A

Room

Modular
6/6 RJ12

Modular 6/6 RJ12

Modular 6/6 RJ12

22 23 24 25

MB id 4
Master

22 23 24 25

MB id 1
Slave id 1

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Room controller, LOCUS

Main menu and explanation of symbols
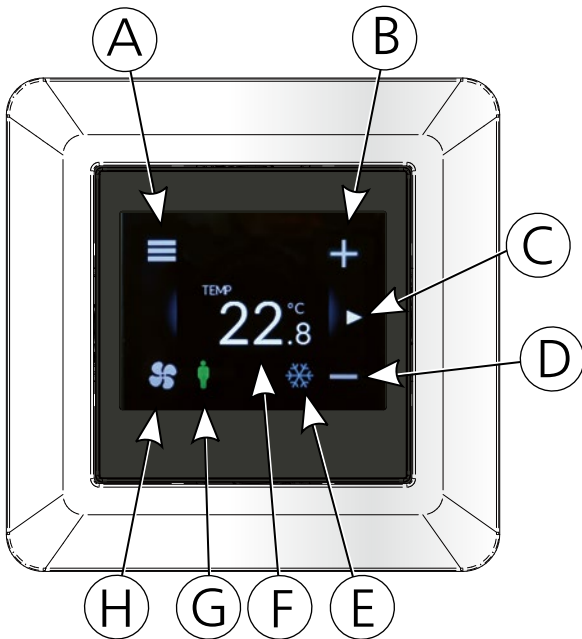
A. menu

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)

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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

Presence sensor

LEDs for temperature, adjustment or alarm indication

Function keys

LED indicating function
- Green = OK
- Flashing Green = condensation alarm
- Yellow = Alarm
- Green/Yellow = Comfort alarm (not acute)

Temperature sensor

Function keys

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.

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.

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Maintenance

Click!

Click!

Click!

17/01/2023

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