

# Swegon CASA<sup>®</sup>

## Regulation for constant duct pressure

Installation, operation and maintenance instructions  
for design engineers, installation engineers and service personnel



### Important information

#### **Only qualified personnel**

Only qualified personnel should carry out installation, configuration and commissioning.

#### **Important details to consider during installation**

The installation point affects the measurement result. The sensor must be installed at a point where the airflow is as even as possible.

#### **Commissioning**

The pressure sensor may not be installed until all work that produces large quantities of sanding dust or other impurities has been completed.

Make sure that the ducts are clean and that there are no loose objects in them before commissioning.

**NOTE! The manual's original language is Finnish.**

#### **Included in the delivery:**

- Pressure sensor
- Measuring tube
- Measurement tapping
- Instructions

# 1. General Description

The constant duct pressure function on the Smart ventilation unit attempts to regulate the fan speeds to maintain the duct pressure at the set value. Individual setting values for the duct pressure should be determined for each operating mode (away, home, boost). The operating mode can be switched as normal when the constant duct pressure function is used.

# 2. Planning

Select the position of the measurement tapping point in the duct with care, so that as far as possible it represents the pressure in the entire duct system. For example, a suitable location is close to the ventilation unit, yet so the airflow is still uniform in the measurement point. The measurement is based on the pressure difference, and therefore the other measurement sensor must be positioned so it represents the air that surrounds the duct, and where the air is stable.

# 3. Installation


## 3.1. Installation of the sensor in the duct system

Install the pressure sensor close to the measurement point. When measuring the (positive) pressure on the supply air duct, connect the measuring tube to the tapping on the pressure sensor (+). When measuring the (negative) pressure on the extract air duct, connect the measuring tube to the tapping on the pressure sensor (-).


## 3.2. Electric and control cables

Connect the 3-wire cable from the pressure sensor to the ventilation unit's I/O connection according to the wiring diagram.

**NOTE! Make sure that the strain relief is arranged for the connections according to the electrical safety directives.**



### Important



**Only a qualified electrician may make the electrical connections.**

# 4. Commissioning

The commissioning of regulation for constant air pressure is performed with a Smart control panel. *Main menu/Settings/(1234)/IO controls*

IO controls	
IO 1	Pa Supply - AI
IO 2	Pa Extract - AI
IO 3 (ext.)	Away - DI
IO 4 (ext.)	Emg.Stop_NO - DI
IO 5 (ext.)	DDC control - AI

Select connections that correspond to the IO-points *Pa Supply - AI* / *Pa Extract - AI*. Example: "Pa Supply - AI" as a function for IO 1 and "Pa Extract - AI" as a function for IO 2.

# 5. Settings

The pressure setting values and airflows must be adjusted for all operating modes (Home, Away, Boost), so that the ventilation unit functions in all conditions.

**NOTE! The constant duct pressure function is not activated until you have set the values for all operating modes.**

The control type for the ventilation unit is selected and the airflow is set from the menu *Main menu/settings/(1234)/Airflow adjustments*.

Airflow adjustments	
Commissioning mode	<input checked="" type="checkbox"/>
Control type	Pa
Home (supply)	48 Pa
Home (exhaust)	50 Pa
Away (supply)	35 Pa
Away (exhaust)	38 Pa
Boost (supply)	90 Pa
Boost (exhaust)	92 Pa
Travelling (supply)	35 Pa
Max Smart boost (supply)	82 Pa

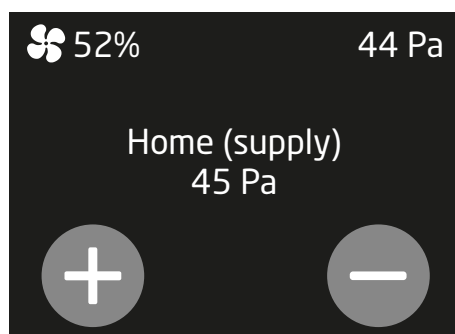
Select "Pa" as the control type of both ducts that are to be regulated for a constant duct pressure. If the control type is set to "Pa Supply" or "Pa Extract", the selected duct is solely regulated for constant duct pressure and

the regulation of the other duct is calculated in relation to the set values.

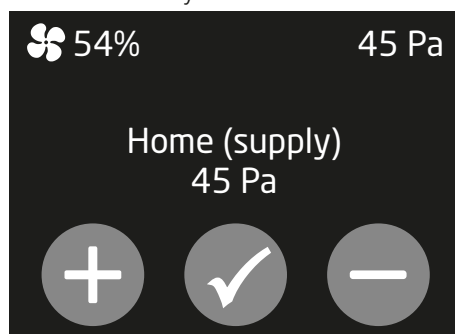
### Select commissioning mode.

The operating mode's pressure setting values are shown on the menu *Airflow adjustments*. Value -1 Pa is shown if the pressure is still not adjusted. The pressures can be adjusted in the desired sequence.

Once commissioning mode is selected you make the pressure adjustments from the setting screen that opens when you select the row for the desired operating mode.



Select the pressure setting using the +/- buttons. Wait until the required pressure is reached and the screen shows the ✓-symbol.



**NOTE!** The fan's regulated output and the measured pressure are shown on the top row of the setting screen. If the selected value is too large in relation to the duct system, the set point for the fan increases to one hundred per cent and the increased pressure is not reached. You should then reduce the setting value or change the duct system's pressure loss.

**NOTE!** Home mode's pressure cannot be set lower than Away mode's pressure setting, and not higher than Boost mode's pressure setting.

## 6. Use and function

When the constant duct pressure function has been set for all operating modes, the ventilation unit can be controlled as usual according to the instructions for use and all functions are available. Regulation of the constant duct pressure maintains the duct's pressure at the setting value, and for example, a dirty filter does not effect the air volumes.

The constant duct pressure function can be studied from the diagnostics menu *Main menu/Settings/(1234)/Diagnostics/Fan speeds*. The fan's set point values are shown in the menu and the measured speed as well as the duct pressure's setting value and measurement values.

### Pressure adjustment alarm

If the pressure regulation system malfunctions and the duct pressure can no longer be maintained at the setting value, the situation is indicated as a fan fault for the current regulation. The ventilation unit switches to the normal regulation mode in the event of a fault.

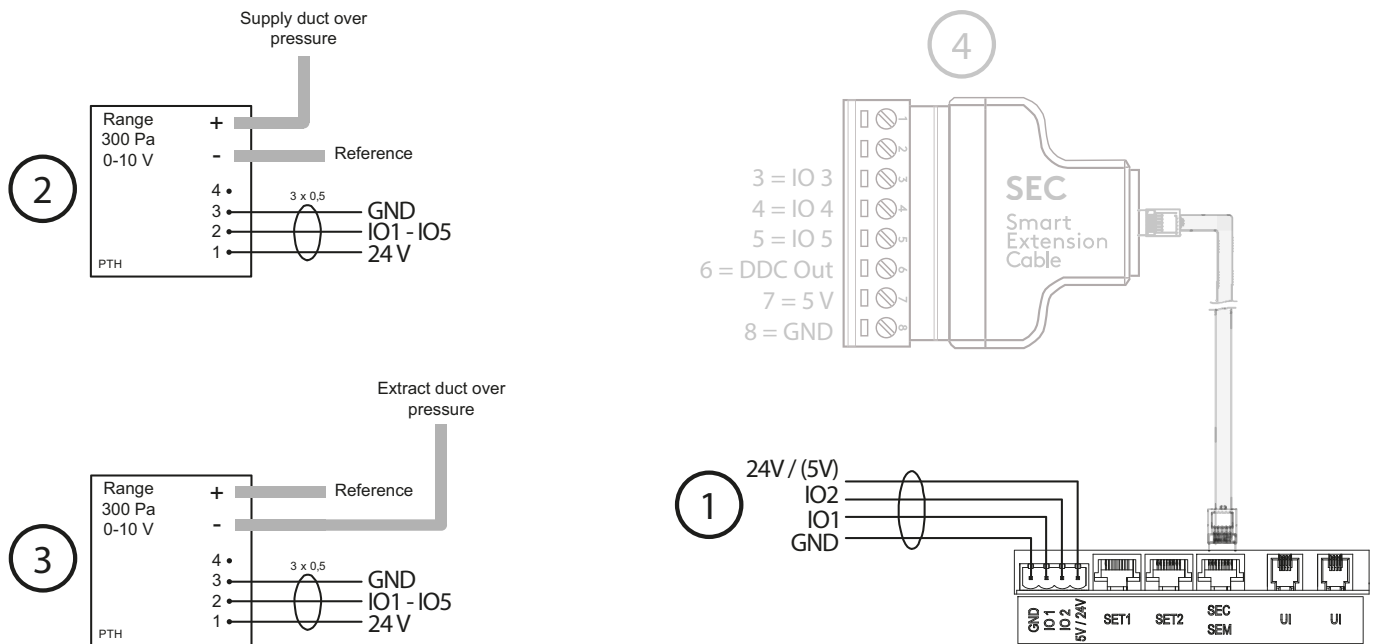
Rectify the fault by resetting the ventilation unit or e.g. by repairing the faulty sensor. Restart the unit so you can acknowledge the fault.

## 7. Service

Disconnect the voltage supply to the ventilation unit before starting any service measures.

Check the pressure measuring tube and tapping in conjunction with servicing the ventilation unit. Clean as needed.

## 8. Connections



1: CASA Smart air handling unit\* | 2: PTH pressure sensor to measure the pressure in the supply air duct | 3: PTH pressure sensor to measure the pressure in the extract air duct | 4: SEC Smart Extension Cable, connection cable\*

\*) Not included in the delivery.

**NOTE! One pressure sensor with accessories is included in the delivery. If you would like to regulate both ducts for constant duct pressure, you need to acquire two sensors.**