

DCVCM-R

Intelligent TVOC sensor for ducts, PoM



The DCVCM-R are intelligent duct sensors featuring adjustable temperature, relative humidity and TVOC ranges. The used algorithm generates an output value based on the measured temperature, relative humidity and TVOC levels, which can be used to directly control an EC fan, an AC fan speed controller or an actuator powered damper. They are Power over Modbus supplied and all parameters are accessible via Modbus RTU.

Key features

- 24 VDC power supply via RJ45 (PoM)
- Selectable temperature, relative humidity and TVOC ranges
- Fan speed control based on T, rH and TVOC
- Silicon based sensor elements for TVOC measurements
- Bootloader for updating the firmware via Modbus RTU communication
- Modbus RTU communication
- Long-term stability and accuracy
- Replaceable TVOC sensor module

Area of use

- Demand controlled ventilation based on temperature, relative humidity and TVOC
- Suitable for mounting in air ducts

Article codes

| Article code | Supply | I _{max} | Connection |
|--------------|-------------|------------------|------------|
| DCVCM-R | 24 VDC, PoM | 25 mA | RJ45 |

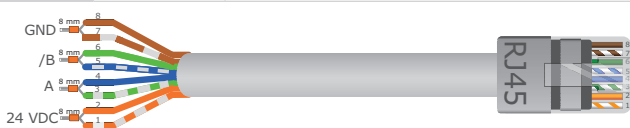
Technical specifications

| | | | |
|-----------------------|------------------------------|--------------|--|
| Supply voltage | 24 VDC, Power over Modbus | | |
| Warm-up time | 15 minutes | | |
| Typical range of use | Temperature range | -30–70 °C | |
| | Relative humidity range | 0–100 % rH | |
| | TVOC range | 0–60.000 ppb | |
| Accuracy | ±0,4 °C (-30–70 °C) | | |
| | ±3 % rH (0–100 % rH) | | |
| | ±15% TVOC (0–60.000 ppb) | | |
| Protection standard | Enclosure: IP54; probe: IP20 | | |
| Min. airflow velocity | 1 m/s | | |

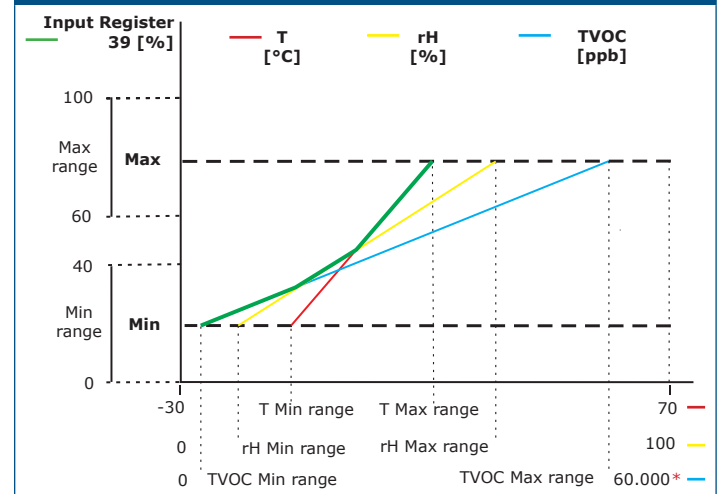
Wiring and connections

RJ45 socket (Power over Modbus)

| | | |
|-------|--------|-------------------------------------|
| Pin 1 | 24 VDC | Supply voltage |
| Pin 2 | | |
| Pin 3 | A | Modbus RTU communication, signal A |
| Pin 4 | | |
| Pin 5 | /B | Modbus RTU communication, signal /B |
| Pin 6 | | |
| Pin 7 | GND | Ground, supply voltage |
| Pin 8 | | |



Operational diagram



*TVOC measurements will return 0 ppb during warm-up time.

Note: The output changes automatically depending on the highest of the T, rH and TVOC values, i.e. the highest of the three output values controls the output. See the green line in the operational diagram above. One or multiple sensors can be deactivated. E.g. it is also possible to control the output based on the measured TVOC values only.

Modbus registers



The Sensistant Modbus configurator allows you to easily monitor and/or configure Modbus parameters.

The parameters of the unit can be monitored / configured through the 3SModbus software platform. You can download it from the following link:

<https://www.sentera.eu/en/3SMCenter>



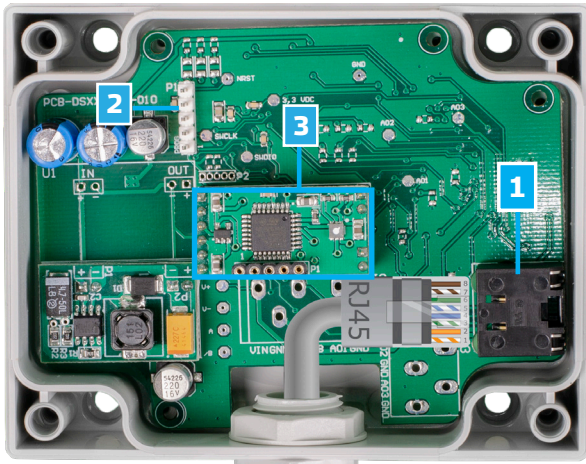
For more information about the Modbus registers, please refer to the product Modbus Register Map.




DCVCM-R

Intelligent TVOC sensor for ducts, PoM



Settings



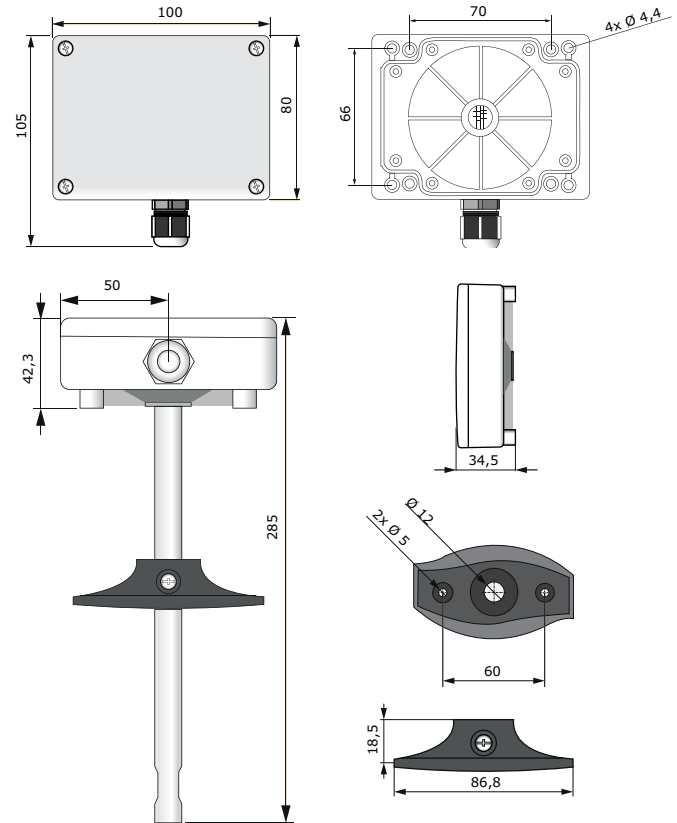
| | | |
|-------------------------|---|---|
| 1 - RJ45 Socket |  | Plug the communication and power cable into the socket |
| 2 - PROG header, P1 |  | Put a jumper onto pins 1 and 2 and wait for at least 5 seconds to reset the Modbus communication parameters |
| |  | Put a jumper onto pins 3 and 4 and restart the supply to enter bootloader mode |
| 3 - TVOC sensor element | | Replaceable in case of faulty operation |

Standards



- Low Voltage Directive 2014/35/EC
 - EN 60529:1991 Degrees of protection provided by enclosures (IP Code) Amendment AC:1993 to EN 60529
 - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
- EMC Directive 2014/30/EC:
 - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
 - EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
 - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3
 - EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
 - EN 61326-2-3:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning
- RoHS Directive 2011/65/EC

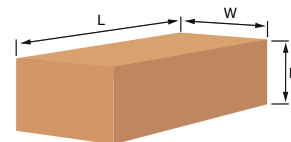
Fixing and dimensions



Global trade item numbers (GTIN)

| Packaging | DCVCM-R |
|---------------|----------------|
| Unit | 05401003018125 |
| Box | 05401003503843 |
| Pallet | 05401003700945 |

Packaging



| Article | Packaging | Length [mm] | Width [mm] | Height [mm] | Net weight | Gross weight |
|---------|-------------------|-------------|------------|-------------|------------|--------------|
| DCVCM-R | Unit (1 pc.) | 310 | 115 | 115 | 0,16 kg | 0,26 kg |
| | Box (20 pcs.) | 590 | 380 | 505 | 3,20 kg | 5,16 kg |
| | Pallet (320 pcs.) | 1,200 | 800 | 2,160 | 51,2 kg | 82,56 kg |