

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	Imax	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 (non-condensing)	
	TVOC range	0—60.000 ppb	
Accuracy	±0,4 °C (-30—70 °C)		
	±3 % rH (0—100 % rH)		
Protection standard	±15% TVOC (0—60.000 ppb)		
Protection standard	Enclosure: IP54; probe: IP20		
Min. airflow velocity	1 m/s		

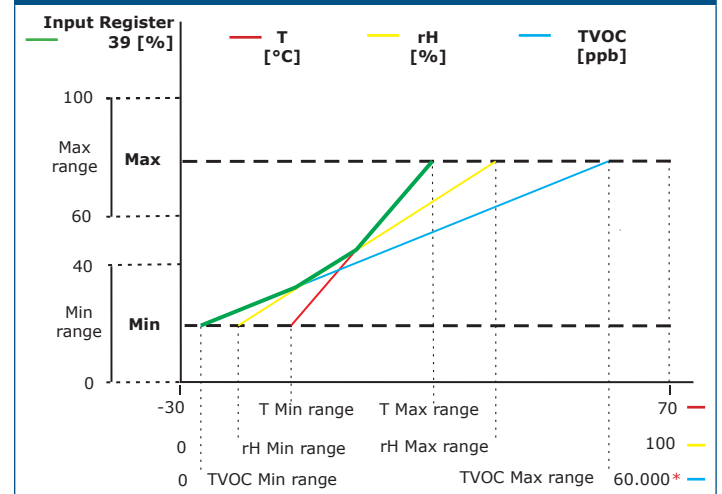
Wiring and connections

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>



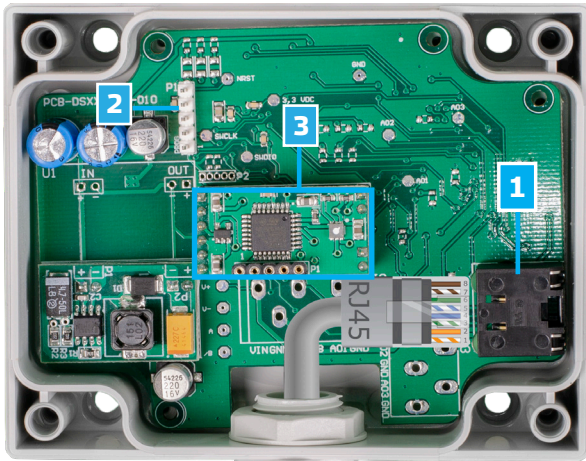
For more information about the Modbus registers, please refer to the product Modbus Register Map.




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Settings



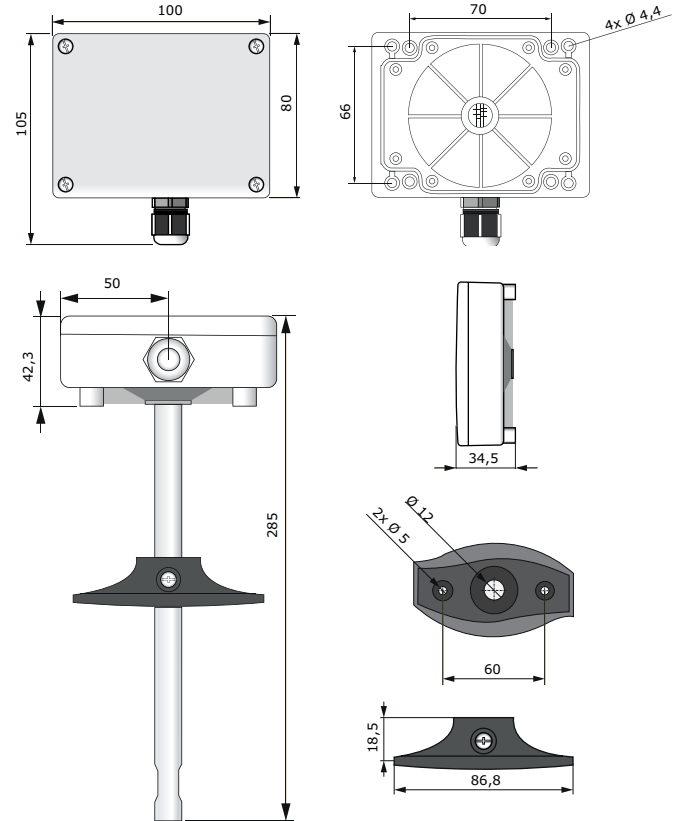
1 - RJ45 Socket		Plug the communication and power cable into the socket
2 - PROG header, P1		Put a jumper onto pins 1 and 2 and wait for at least 5 seconds to reset the Modbus communication parameters
		Put a jumper onto pins 3 and 4 and restart the supply to enter bootloader mode
3 - TVOC sensor element		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
- WEEE Directive 2012/19/EC
- RoHs Directive 2011/65/EC

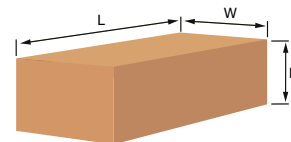
Fixing and dimensions



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