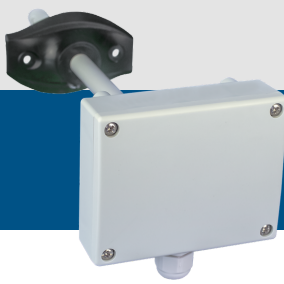


DSVCG2-4

Duct Sensor for VOC, T and rH



Description

DSVCG2-4 is a duct sensor that measures air quality (VOC index), temperature (T) and relative humidity (rH) levels. The device also calculates dew point. The sensor has one analogue output and one relay output. Both the analogue and the relay outputs operate according to the selected output source — override, temperature, relative humidity, dew point or VOC index. If 'override' is selected, the output values for the analogue and relay outputs are set manually via Holding Registers 162 and 191, respectively.

- Analogue output: In VOC mode, the minimum and maximum ranges of the VOC index are configurable via Modbus communication. The minimum range defines the VOC level at which the analogue output is 0 %, while the maximum range defines the VOC level at which the analogue output is 100 %.
- Relay output: In VOC mode, the relay switches on when the measured VOC index exceeds the activation threshold, which can be selected via Holding Register 69.

The relative humidity sensing element is protected from condensation by an internal heater. When the measured relative humidity exceeds 90 %, the internal heater is activated at full power for 1 second. The heater is then deactivated for the next 59 seconds, limiting heater usage to 10 % per duty cycle. The heating cycle aims to evaporate potential water droplets on the sensor surface to prevent inaccurate sensor measurements.

All device measurements and settings can be accessed and configured via Modbus communication.

Key Features

- Measurement alert and alarm levels selectable via Modbus communication
- No calibration required for the temperature and humidity sensing elements of the device
- Remote access to device data through Modbus RTU communication
- Overvoltage protection of the power supply up to 65 VDC
- Pluggable screw terminal block for easy device connection
- Robust enclosure made of Acrylonitrile Butadiene Styrene (ABS) plastic

Article Code

Article code	Supply voltage
DSVCG2-4	24 VDC / 24 VAC ± 10 %

Area of Use

- Demand-controlled ventilation based on temperature, relative humidity and air quality.
- Air quality monitoring in air ducts.

Standards

- Low Voltage Directive 2014/35/EU
- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- WEEE Directive 2012/19/EU
- Commission Delegated Directive (EU) 2015/863 (RoHS 3) of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances



Global Trade Item Numbers 14 (GTIN 14)

Article code	Unit	Box	Pallet
DSVCG2-4	–	–	–

Technical Specifications

Maximum current consumption	40 mA
Minimum recommended airflow velocity	1 m/s
Accuracy of measurements	
Temperature	± 0,2 °C
Relative humidity	± 2,5 % rH
VOC index preheating time	5 minutes
Selectable alert/alarm levels	
Temperature	-30—70 °C
Relative humidity	0—100 % rH
Selectable VOC index alert/alarm thresholds	1—500
Analogue output	
0—10 VDC	(load resistance ≥ 1 kΩ)
2—10 VDC	(load resistance ≥ 1 kΩ)
0—5 VDC	(load resistance ≥ 1 kΩ)
0—20 mA	(load resistance ≤ 500 Ω)
4—20 mA	(load resistance ≤ 500 Ω)
PWM Push-Pull	(frequency = 1kHz, load resistance ≥ 1 kΩ, output voltage level = 12 VDC)
PWM Open Collector	(frequency = 1kHz, pull-up resistance ≥ 1 kΩ, pull-up voltage level ≤ 12 VDC)
Operating conditions	
Temperature	-10—50 °C
Relative humidity	0–90 % (non-condensing)
Storage conditions	
Temperature	-10—60°C
Relative humidity	5—80 % rH
Protection standard	
Enclosure	IP54
Probe	IP20
Enclosure type	
Material	Acrylonitrile Butadiene Styrene (ABS) plastic
Colour	Grey (RAL 7035)

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Wiring and Connections



Supply voltage and Modbus communication

VIN	Supply voltage 24 VDC / VAC
A	Modbus RTU (RS485), signal A
B	Modbus RTU (RS485), signal /B
GND	Protective earth

Analogue output

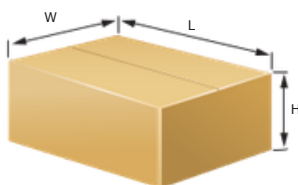
AO1	Analogue output
GND	Analogue output, common ground

Relay output

NC	Normally closed contact
COM	Common contact
NO	Normally open contact

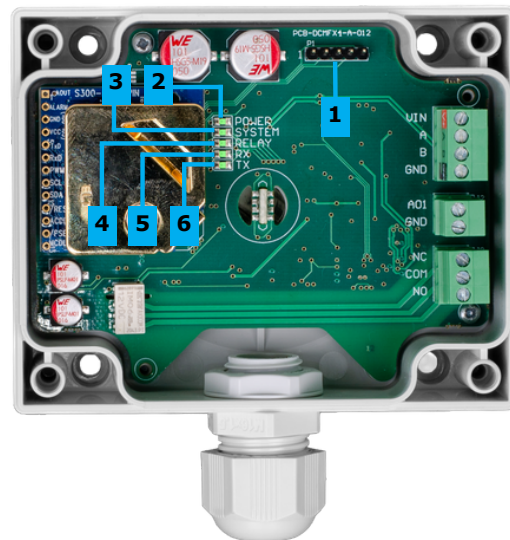
Cable characteristics	Cat5 / EIB cable, cross section $\geq 0.5 \text{ mm}^2$ max. wire strip length: 7 mm
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Packaging



Article code	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight [kg]	Gross weight [kg]
DSVCG2-4	Unit	-	-	-	-	-
	Carton	-	-	-	-	-
	Box	-	-	-	-	-
	Half Pallet	-	-	-	-	-
	Pallet	-	-	-	-	-

Settings and Indications



1 – PROG header, P1		Put a jumper onto pins 1 and 2 and wait for at least 5 seconds to reset the Modbus communication parameters
On-board LED indication		
2 – Power indication	ON	The internal power supply (3,3 VDC) of the device is ok.
3 – System indication	ON	The device is powered and the system is ok.
	Slow blinking	The device is powered. There is a system error. Blinking frequency: 1 Hz
4 – Relay indication	Fast blinking	The device is powered, bootloader mode. Blinking frequency: 2 Hz
	ON	The relay is turned on.
5 – RX indication	Blinking	A Modbus request from a master (client) is received.
6 – TX indication	Blinking	A Modbus response from the device is transmitted.

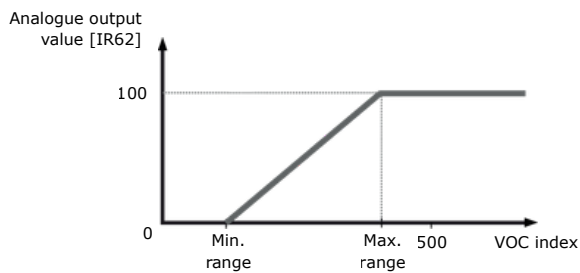
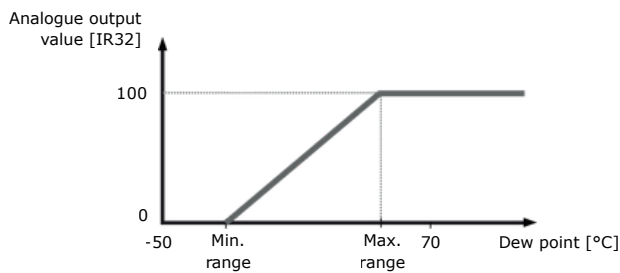
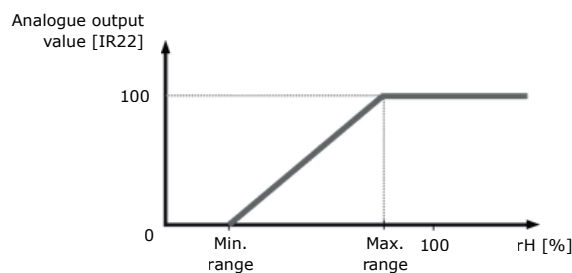
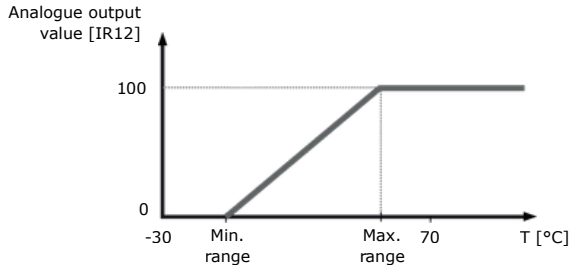
Warnings and Attention Points

- This product is intended for indoor use only.
- Avoid mounting the device in locations affected by direct sunlight.
- Turn off the power supply before all servicing and maintenance.
- Applying overvoltage to any of the intelligent sensor parts will cause improper operation or failure to the internal circuit.
- Do not short-circuit the terminals or the input and output wiring.
- During operation, the unit must be closed.
- If the unit does not work according to the instructions, the wiring connections, supply voltage and settings need to be checked.
- Do not use this product as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.
- This product is not suitable for environments with continuously elevated levels of volatile organic compounds (VOCs), such as areas with persistent exposure to paint fumes, solvents, or industrial emissions.
- After long exposure to high VOCs, the sensor's baseline shifts upward. When clean air returns, the VOC index decreases slowly, as the algorithm interprets it as an improvement from a higher baseline, not an immediate return to normal.

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Operational Diagrams



Temperature Diagram

Temperature [°C]	70	Temperature alert / alarm
T alarm maximum (HR16)		Alarm
T alert maximum (HR14)		Alert
T alert minimum (HR13)		OK
T alarm minimum (HR15)		Alert
	-30	Alarm

Relative Humidity Diagram

rH [%]	100	Relative humidity alert / alarm
rH alarm maximum (HR26)		Alarm
rH alert maximum (HR24)		Alert
rH alert minimum (HR23)		OK
rH alarm minimum (HR25)		Alert
	0	Alarm

Dew Point Diagram

Dew point delta [°C]	10	Dew point alert / alarm
Dew point delta alert subthreshold (HR33)		OK
Dew point delta alarm subthreshold (HR34)		Alert
	0	Alarm

VOC Level Diagram

VOC index	500	VOC index alert / alarm
VOC index alarm threshold (HR64)		Alarm
VOC index alert threshold (HR63)		Alert
	1	OK

Relay Output Diagram

	Relay output state
Activation threshold (HR193)	Energised
Hysteresis (HR194)	Hold previous state
	De-energised

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Fixing and Dimensions

