DSMFT-4

Duct CO_2 sensor

Description

DSMFT-4 is a duct sensor that measures carbon dioxide (CO_2), temperature (T) and relative humidity (rH). NDIR (non-dispersive infrared) technology is used to measure the CO_2 level. This technology has a low life-cycle cost and long-term precision and stability.

The ABC self-calibrating algorithm compensates for the gradual drifting of the NDIR CO_2 sensor. This algorithm is designed for applications where CO_2 concentrations drop to outside ambient conditions (±400 ppm) for at least 15 minutes once every 7-day period, which is typically seen during unoccupied periods. The lowest reading during a 7-day period is considered fresh outside air (i.e. the baseline).

Some of the main benefits of DSMFT-4 are:

- Modbus RTU communication: The sensor has no analogue outputs — all measured values are transmitted via Modbus RTU.
- Access to real-time data: Connect the device to the SenteraWeb cloud platform using a Sentera internet gateway to receive real-time data about the sensor settings and measurements.
- Easy to install: The built-in pluggable terminal block ensures easy and secure installation.
- Firmware updates: The firmware of the device can be updated effortlessly via the SenteraWeb cloud platform.
- Smooth integration with building management systems (BMS): The sensor can be easily connected to a building management system via Modbus RTU communication.

DSMFT-4 is specifically designed for installation in air duct systems, making it ideal for applications in commercial, industrial and residential buildings. The sensor provides real-time, reliable data that enables building management systems (BMS) to take actions regarding ventilation control, air quality management and energy consumption optimisation.

Key Features

- Remote access to device data through Modbus RTU communication
- Over-voltage protection of the power supply
- Easy firmware updates via Modbus RTU communication
- Robust enclosure made of Acrylonitrile Butadiene Styrene (ABS) plastic
- Self-calibrating CO_2 sensing element ensuring accurate CO_2 measurements
- Reliable temperature and relative humidity measurements as sensing elements require no calibration

Technical Specifications

Imax	40 mA
Minimum recommended air flow velocity	1 m/s
Output type	No analogue outputs Measurements transmitted via Modbus RTU
Accuracy of measurements:	
Temperature	± 0,4 °C
Relative humidity	± 2,5 % rH
CO_2 level	± 30 ppm
Measurement ranges:	
Temperature	-30—70 °C
Relative humidity	0—100 % rH
CO_2 level	0—2.000 ppm
Operating conditions:	
Temperature	-10—50°C
Relative humidity	10—90 % (non-condensing)
Protection standard:	
Enclosure	IP54
Probe	IP20
Enclosure type:	
Material	Acrylonitrile Butadiene Styrene (ABS) plastic
Colour	Grey (RAL 7035)

Article code

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

Connect Devices to SenteraWeb

Via a Sentera Internet Gateway you can connect your installation to the SenteraWeb HVAC cloud and:

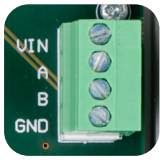
- Easily change the parameter settings of the connected devices remotely.
- Define users and give them access to monitor the installation via a standard web browser.
- Log data - create diagrams and export logged data.
- Receive alerts or warnings when measured values exceed alert ranges or when errors occur.
- Create different regimes for your ventilation system - e.g. day-night regime.

Please refer to the Modbus Register Map of the product for more details regarding the Modbus registers.

Area of Use

- Demand controlled ventilation based on CO_2 concentration, temperature and relative humidity
- Air quality monitoring in air ducts

Wiring and Connections



VIN	24 VDC / 24 VAC ± 10%
A	Modbus RTU (RS485), signal A
B	Modbus RTU (RS485), signal /B
GND	Common ground
Connector type	Pluggable screw terminal block
Cable characteristics	Cat5 or EIB cable

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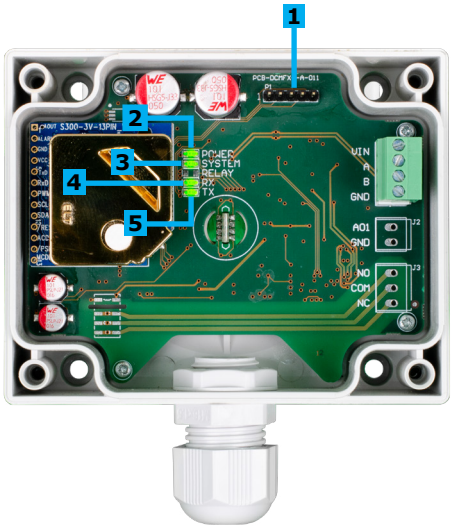
Settings and Indications



1 - PROG header, P1	1 2 3 4 5	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 ON indication	On	Internal power supply (3,3 VDC) of the device is OK
3 - System indications	On	Device is powered System is OK
	Slow blinking	Device is powered; System error Blinking frequency: 1 time per second / 1 Hz
	Fast blinking	Device is powered; Bootloader mode Blinking frequency: 2 times per second / 2 Hz
4 - RX indication	Blink	Modbus request from master (client) is received
5 - TX indication	Blink	Modbus response from the device is transmitted

Standards

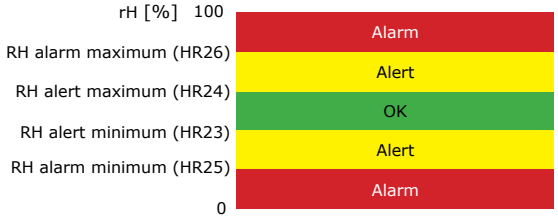
- Electromagnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- WEEE 2012/19/EU
- Commission Delegated Directive (EU) 2015/863 (RoHs 3) of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted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

Global Trade Item Numbers 14 (GTIN 14)

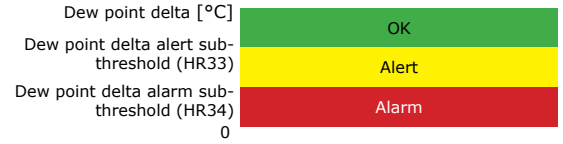
Packaging	DSMFT-4
Unit (1 pc.)	5401003018972
Box (20 pcs.)	5401003504444
Palette (320 pcs.)	5401003701461

Temperature Diagram

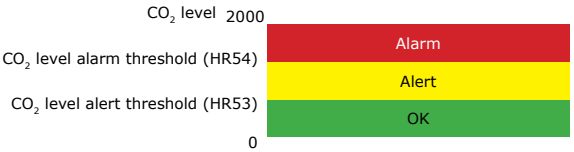
Relative Humidity Diagram



Dew Point Diagram

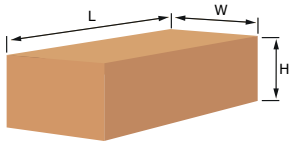


CO_2 Level Diagram



Note: *HR — Holding register*
All above-mentioned parameters are holding registers and can be accessed through Modbus RTU communication via SenteraWeb.

Packaging



Article	Packaging	Length	Width	Height	Net	Gross
DSMFT-4	Unit (1 pc.)	310 mm	110 mm	110 mm	0,15 kg	0,28 kg
	Box (20 pcs.)	590 mm	380 mm	505 mm	3,02 kg	6,68 kg
	Palette (320 pcs.)	1200 mm	800 mm	2170 mm	48,32 kg	126,32 kg

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Fixing and Dimensions