

DSMFT-4

Duct CO₂ sensor



Description

DSMFT-4 is a duct sensor that measures carbon dioxide (CO₂), temperature (T), relative humidity (rH) and barometric pressure (BP). NDIR or Non-dispersive Infrared technology is used to measure the CO₂ level. This technology has a low life-cycle cost and long-term precision and stability. This sensor also has a barometric air pressure measurement to increase the accuracy of the CO₂ measurement and to compensate for height differences.

The ABC self-calibrating algorithm compensates the gradual drifting of the NDIR CO₂ sensor. This algorithm is designed to be used in applications where CO₂ concentrations drop to outside ambient conditions (±400 ppm) at least once in a 7-day period (for 15 minutes or longer), 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:

- Long-term stability and accuracy - DSMFT-4 provides precise measurements of temperature, relative humidity, CO₂ and barometric pressure.
- Access to real-time data: Connect the device to the SenteraWeb cloud platform by using a [Sentera internet gateway](#) to receive real-time data about the settings and measurements of the sensor.
- 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.

The sensor is specifically designed for installation in air duct systems, making it ideal for monitoring of CO₂, temperature, relative humidity and barometric pressure in HVAC systems in commercial, industrial and residential buildings. This 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 CO₂ sensing element ensuring accurate CO₂ measurements
- Reliable temperature, relative humidity and barometric pressure measurements as sensing elements require no calibration

Technical Specifications

Imax	40 mA
Minimum recommended air flow velocity	1 m/s
Accuracy of measurements:	
Temperature	± 0,4 °C
Relative humidity	± 2,5 % rH
CO ₂ level	± 30 ppm
Barometric pressure	± 0,5 hPa
Barometric pressure range	300 – 1.250 hPa
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



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:

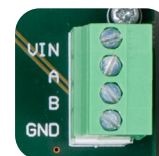
- Easily change the parameter settings of the connected devices remotely.
- Define users and give them access to monitor the installation via a standard web browser.
- Log data - create diagrams and export logged data.
- Receive alerts or warnings when measured values exceed alert ranges or when errors 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 CO₂ concentration, temperature and relative humidity
- Air quality monitoring in air ducts

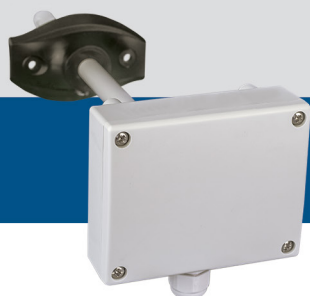
Wiring and Connections



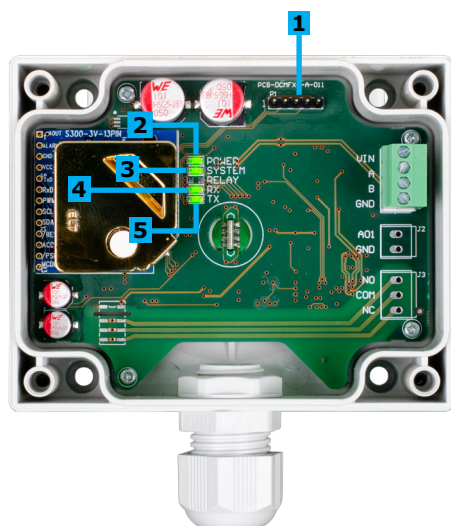
VIN	24 VDC / 24 VAC ± 10%
A	Modbus RTU (RS485), signal A
/B	Modbus RTU (RS485), signal /B
GND	Common ground
Connector type	Pluggable screw terminal block
Cable characteristics	Cat5 or EIB cable

DSMFT-4

Duct CO₂ sensor



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 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

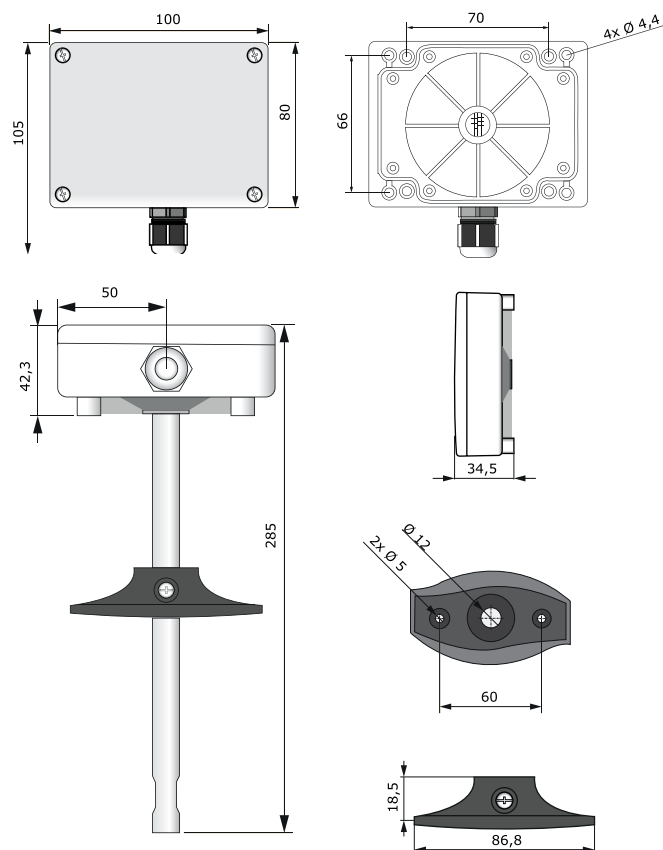
- Electromagnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- WEEE 2012/19/EU
- Commission Delegated Directive (EU) 2015/863 (RoHS 3) of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted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



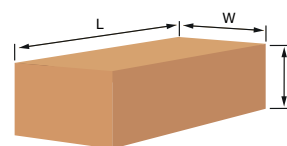
Global Trade Item Numbers 14 (GTIN 14)

Packaging	DSMFT-4
Unit	5401003018972
Box	5401003504444
Palette	5401003701461

Fixing and Dimensions



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

