



DCMFX-2R

Intelligent CO₂ duct sensor

The DCMFX-2R series are intelligent multifunctional duct sensors featuring adjustable temperature, relative humidity and CO₂ ranges. The used algorithm controls a single analogue / modulating output based on the measured T, rH and CO₂ values, which can be used to directly control an EC fan, an AC fan speed controller or an actuator powered damper. All parameters are accessible via Modbus RTU.

Key features

- Spring contact terminal blocks
- Selectable temperature, relative humidity and CO₂ ranges
- Fan speed control based on T, rH and CO₂
- Bootloader for updating the firmware via Modbus RTU communication
- Modbus RTU communication
- Replaceable CO₂ sensor element
- Long-term stability and accuracy

Technical specifications

Analogue / modulating output	0–10 VDC mode: R _L ≥ 50 kΩ	
	0–20 mA mode: R _L ≤ 500 Ω	
	PWM mode: 1 kHz, R _L ≥ 50 kΩ, PWM voltage level: 3,3 or 12 VDC	
Typical range of use	Temperature range	-30–70 °C
	Relative humidity range	0–100 % rH (non-condensing)
	CO ₂ range	400–2.000 ppm
Accuracy	± 0,4 °C (range -30–70 °C)	
	± 3% rH (range 0–100 %)	
	± 30 ppm (range 400–2.000 ppm)	
Min. airflow velocity	1 m / s	
Protection standard	Enclosure: IP54, probe: IP20	



Article codes

Article code	Supply	I _{max}
DCMFF-2R	18–34 VDC	110 mA
DCMFG-2R	18–34 VDC /	110 mA
	15–24 VAC ±10 %	120 mA

Area of use

- Demand controlled ventilation based on temperature, relative humidity and CO₂
- Suitable for mounting in air ducts

Wiring and connections

Article type	DCMFF-2R	DCMFG-2R	
VIN	18–34 VDC	18–34 VDC	15–24 VAC ± 10%
GND	Ground	Common ground	AC ~
A	Modbus RTU (RS485), signal A		
/B	Modbus RTU (RS485), signal /B		
AO1	Analogue / modulating output (0–10 VDC / 0–20 mA / PWM)		
GND	Ground AO	Common ground	
Connections	Spring contact terminal blocks, cable cross section: 1,5 mm ²		

Attention! The -F version of the product is not suited for 3-wire connection. It has separate grounds for power supply and analogue output. Connecting both grounds together might result in incorrect measurements. Minimum 4 wires are required to connect -F type sensors.

The -G version is intended for 3-wire connection and features a 'common ground'. This means that the ground of the analogue output is internally connected with the ground of the power supply. For this reason, -G and -F types cannot be used together on the same network. Never connect the common ground of -G type articles to other devices powered by a DC voltage. Doing so might cause permanent damage to the connected devices.

Modbus registers



The Sensistart 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.

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/EU:
 - 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 2012/19/EC
- RoHS Directive 2011/65/EC

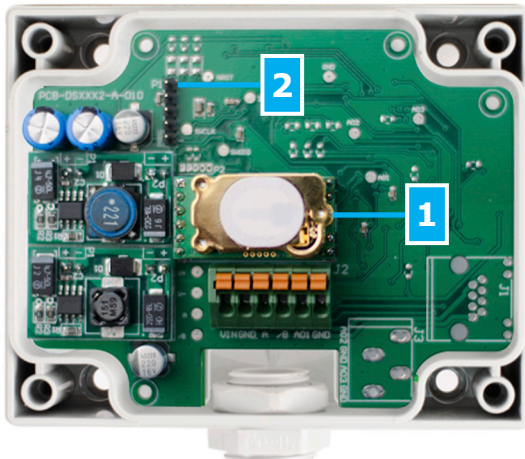




DCMFX-2R

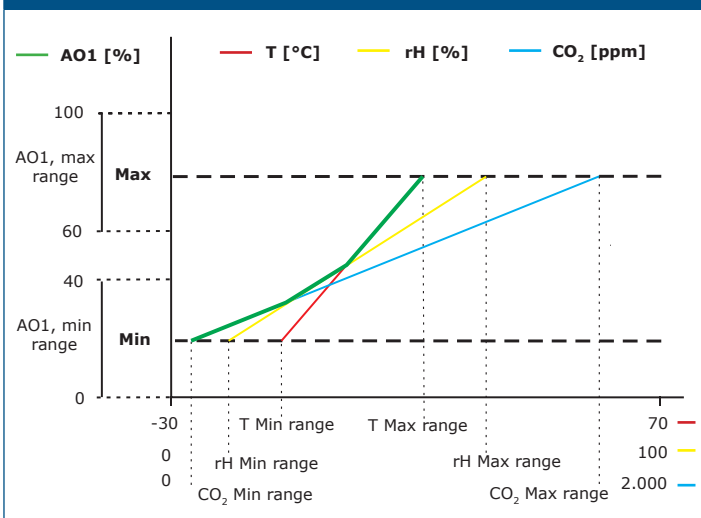
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Settings



1 - CO ₂ sensor element		Replaceable in case of faulty operation
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

Operational diagram(s)

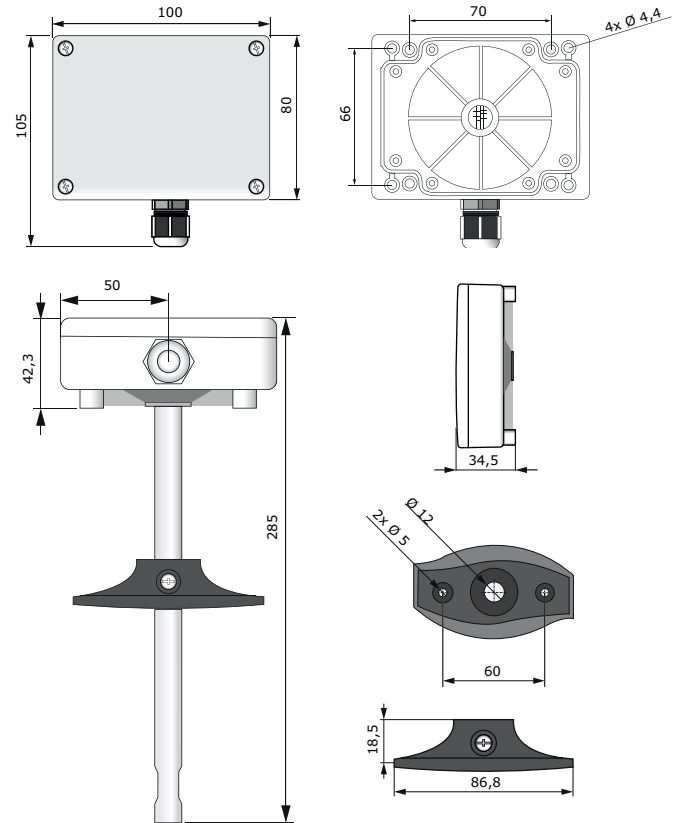


Note: The output changes automatically depending on the highest of the T, rH or CO₂ values, i.e. the highest of the three output values controls the output. See the green line in the operational diagram above. One or multiple sensors can be deactivated. E.g. it is also possible to control the output based on the measured CO₂ values only.

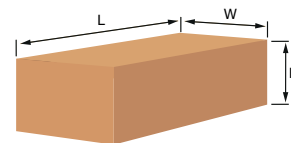
Global trade item numbers (GTIN)

Packaging	DCMFF-2R	DCMFG-2R
Unit	05401003000670	05401003000687
Box	05401003500187	05401003500194
Pallet	05401003700006	05401003700013

Fixing and dimensions



Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
DCMFF-2R DCMFG-2R	Unit (1 pc.)	312	108	112	0,15 kg	0,26 kg
	Box (20 pcs.)	590	380	505	3,04 kg	6,32 kg
	Pallet (320 pcs.)	1,200	800	2,016	48,6 kg	117,5 kg