

# DSMFX-2R

## Multifunctional duct transmitter

The DSMFX-2R series are multifunctional duct transmitters which measure temperature, relative humidity and CO<sub>2</sub> concentration level. Based on the temperature and relative humidity measurements, the dew-point temperature is calculated. The series features a wide range of low voltage power supply and three analogue / modulating outputs. All parameters are accessible via Modbus RTU.

### Key features

- Selectable temperature, relative humidity and CO<sub>2</sub> ranges
- 3 selectable analogue / modulating outputs
- Bootloader for updating the firmware via Modbus RTU communication
- Modbus RTU (RS485)
- Innovative self-calibrating algorithm
- Replaceable CO<sub>2</sub> sensor element
- Long-term stability and accuracy

### Technical specifications

3 analogue / modulating outputs	0—10 VDC mode: min. load 50 kΩ ( $R_L \geq 50 \text{ k}\Omega$ )	
	0—20 mA mode: max. load 500 Ω ( $R_L \leq 500 \Omega$ )	
	PWM (open-collector type) mode: 1 kHz, min. load 50 kΩ ( $R_L \geq 50 \text{ k}\Omega$ ), PWM voltage level: 3,3 VDC or 12 VDC	
Typical field of use	Temperature range	-30—70 °C
	Relative humidity range	0—100 % rH (non-condensing)
	CO <sub>2</sub> 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	

### 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.

### Standards

- EMC Directive 2014/30/EC:
  - 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



### Article codes

Article code	Supply	Maximum power consumption	Nominal power consumption	I <sub>max</sub>
<b>DSMFF-2R</b>	18—34 VDC	2,6 W	1,3 W	145 mA
<b>DSMFG-2R</b>	18—34 VDC / 15—24 VAC ±10 %	2,1 W (VAC) / 2,6 W (VDC)	1,3 W (VAC) / 1,48 W (VDC)	155 mA (VAC) / 145 mA (VDC)

### Area of use

Monitoring duct temperature, relative humidity and CO<sub>2</sub> level in HVAC applications

### Wiring and connections

Article type	DSMFF-2R		DSMFG-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 1 for temperature measurement (0—10 VDC / 0—20 mA / PWM)			
GND	Ground AO1	Common ground*		
AO2	Analogue / modulating output 2 for relative humidity measurement (0—10 VDC / 0—20 mA / PWM)			
GND	Ground AO2	Common ground*		
AO3	Analogue / modulating output 3 for CO <sub>2</sub> measurement (0—10 VDC / 0—20 mA / PWM)			
GND	Ground AO3	Common ground*		
Connections	Spring contact terminal blocks, cable cross section: 1,5 mm <sup>2</sup>			

**\*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.

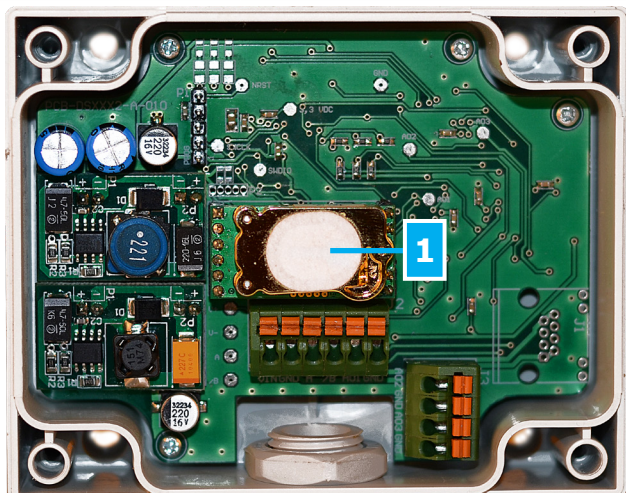
The -G version is intended for 3-wire connection and features a 'common ground'. This means that the ground of the analogue output is internally connected with the ground of the power supply. For this reason, -G and -F types cannot be used together on the same network. Never connect the common ground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

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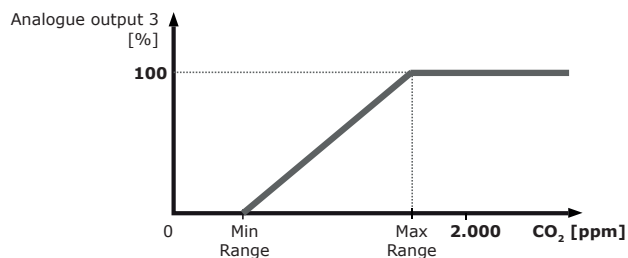
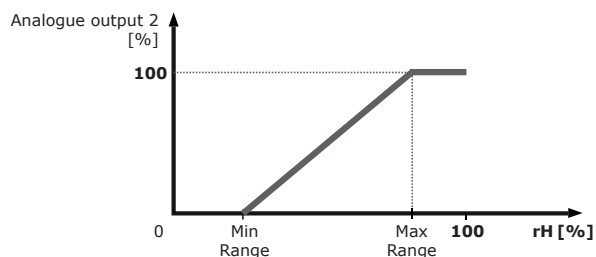
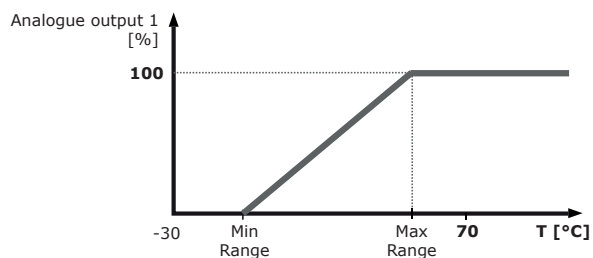
## Settings



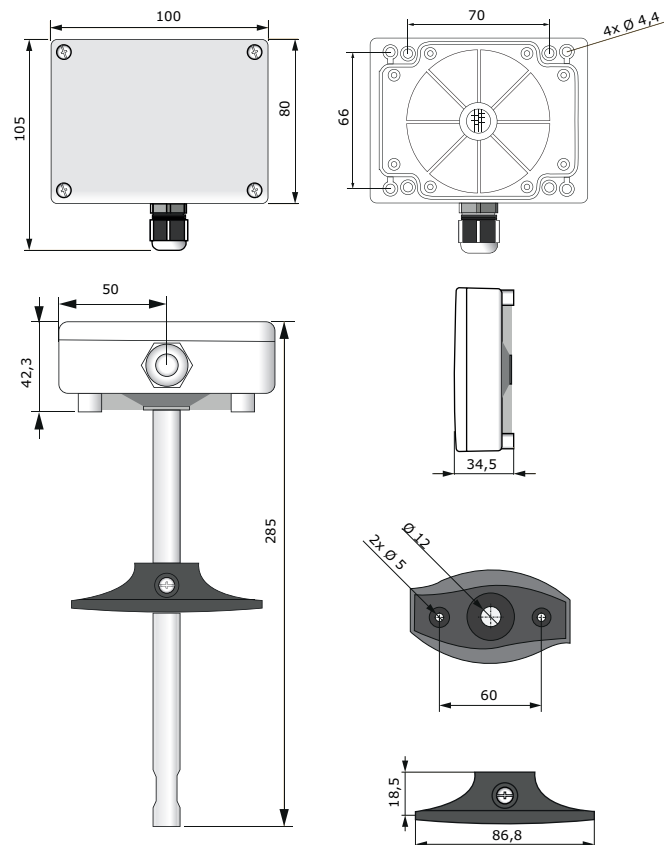
1 - CO<sub>2</sub> sensor element

Replaceable in case of faulty operation

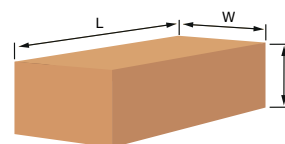
## Operational diagram(s)



## Fixing and dimensions



## Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
DSMFX-2R	Unit (1 pc.)	310	115	115	0,16 kg	0,24 kg
	Box (20 pcs.)	590	380	505	3,20 kg	6,03 kg

## Global trade item numbers (GTIN)

Packaging	DSMFF-2R	DSMFG-2R
Unit	05401003001912	05401003001929
Box	05401003500699	05401003500705