



RSMFX-3

Multifunctional CO₂ room transmitter

The RSMFX-3 series are multifunctional room transmitters which measure CO₂ concentration levels, temperature, relative humidity and ambient light. They have three analogue / modulating outputs for temperature, relative humidity and CO₂ and a wide range of low voltage power supply. Through Modbus RTU, all parameters are accessible.

Key features

- Selectable CO₂, temperature and relative humidity ranges
- 3 selectable analogue / modulating outputs
- A bootloader for firmware updates using Modbus RTU communication
- Ambient light sensor with adjustable 'active' and 'standby' level
- Modbus RTU communication
- 3 LEDs with adjustable light intensity for status indication
- Long-term stability and accuracy

Area of use

- Monitoring indoor temperature, relative humidity and CO₂ levels in HVAC applications
- Suitable for residential and commercial buildings
- For indoor use only

Article codes

Article code	Supply voltage	I _{max}	Connection type
RSMFF-3	24 VDC	80 mA	Terminal block
RSMFG-3	24 VDC / 24 VAC ±10%	80 mA 120 mA	

Technical specifications

3 analogue / modulating outputs	0—10 VDC mode: min. load 50 kΩ (R _L ≥ 50 kΩ)	
	0—20 mA mode: max. load 500 Ω (R _L ≤ 500 Ω)	
	PWM (open-collector type) mode: 1 kHz, min. load 50 kΩ (R _L ≥ 50 kΩ), PWM voltage level: 3,3 VDC or 12 VDC	
Typical range of use	Temperature	0—50 °C
	Relative humidity	0—95 % rH (non-condensing)
	CO ₂ range	400—2.000 ppm ±0,4 °C (5—50 °C) ±3 % rH (20—80 % rH)
Accuracy	400—1.000 ppm ±50 ppm +2,5% of reading	
	1.001—2.000 ppm ±50 ppm +3% of reading	
Protection standard	2.001—5.000 ppm ±40 ppm +5% of reading	
	IP30 (according to EN 60529)	

How to configure



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

The 3SModbus software platform allows for monitoring and configuring the unit's parameters.

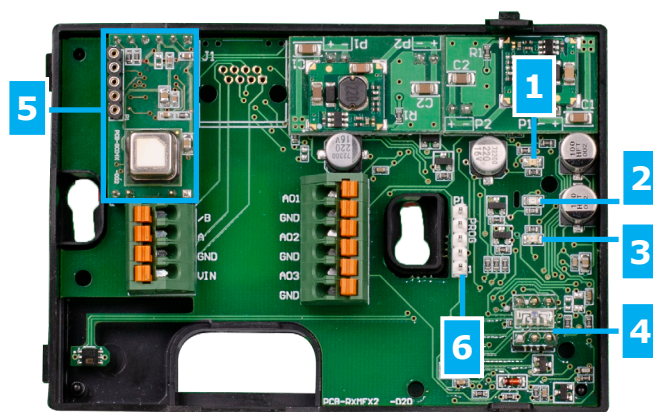
You can download it from the following link:

<https://www.sentera.eu/en/3SMCenter>

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



Settings and indications



1 - Red LED	On	Measured temperature or relative humidity values are out of range or CO ₂ is higher than or equal to Alert 2 level
	Blinking	Communication with one of the sensors fails
2 - Yellow LED	On	Measured temperature or relative humidity values are in the alert range or CO ₂ is higher than or equal to Alert 1 level
	Blinking	Modbus communication has stopped and Holding register 8 is activated (Modbus timeout > 0 seconds)
3 - Green LED	On	Measured temperature or humidity levels are within range or CO ₂ level is lower than Alert 1 level
4 - Ambient light sensor		Low light intensity / Active / Standby
5 - CO ₂ sensor element		To measure CO ₂ concentration, self-calibrating
6 - 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

Note: By default, the LED indicators visualise the measured CO₂ level. When the sensor is in bootloader mode, the green and yellow LEDs flash alternately. During the firmware download, the red LED is flashing additionally.



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Wiring and connections

Article type	RSMFF-3		RSMFG-3	
VIN	24 VDC		24 VDC	24 VAC ±10%
GND	Ground		Common ground	AC ~
A	Modbus RTU (RS485) communication, signal A			
/B	Modbus RTU (RS485) communication, 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 ₂ measurement (0—10 VDC / 0—20 mA / PWM)			
GND	Ground AO3		Common ground	
Connections	Spring contact terminal blocks, cable cross section: 1,5 mm ²			

Attention! The -F version of this product is not appropriate for 3-wire connections. Power supply and analog output have separate grounds. Making the connection between the two grounds could lead to inaccurate measurements. Connecting -F type sensors requires a minimum of 4 wires.

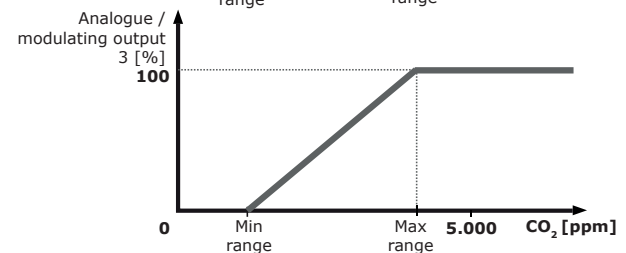
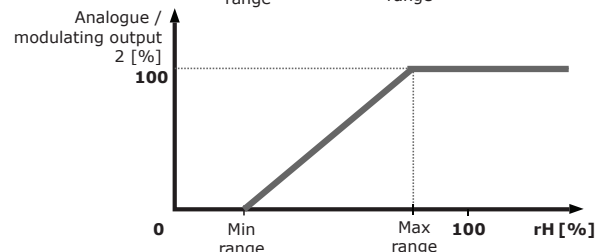
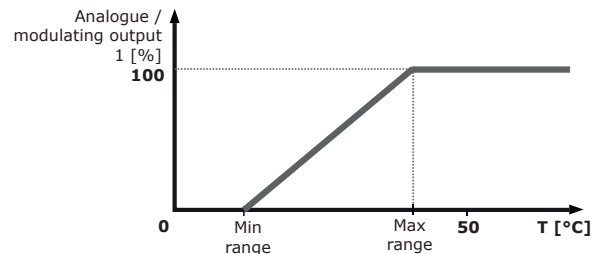
The -G version has a "common ground" and is designed for 3-wire connections. This indicates that the grounds of the power supply and the analogue output are internally connected. This makes it impossible to use the -G and -F types simultaneously on the same network. Never connect a device powered by a DC voltage to the common ground of a product of the -G type. This could harm the connected devices permanently.

Standards

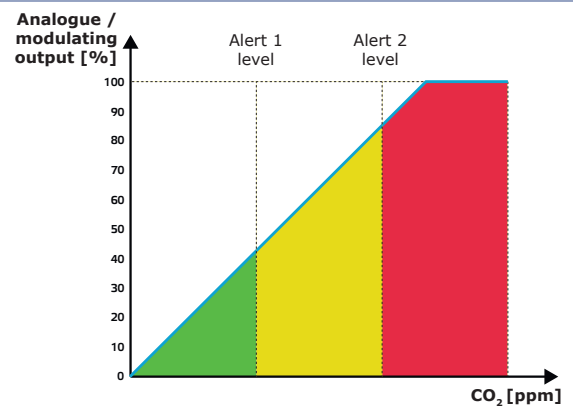
- Low Voltage Directive 2014/35/EU:
 - EN 60529:1991 Degrees of protection provided by enclosures (IP Code) Amendment AC:1993 to EN 60529
 - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
- EMC Directive 2014/30/EU:
 - EN 60730-1:2011 Automatic 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
- WEEE 2012/19/EU
- RoHS Directive 2011/65/EU
 - EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances



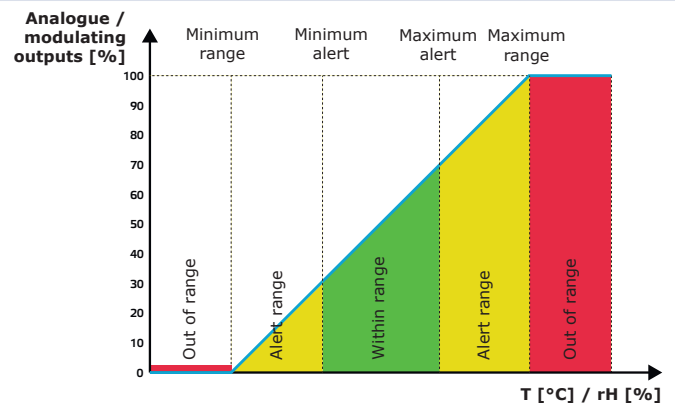
Operational diagrams

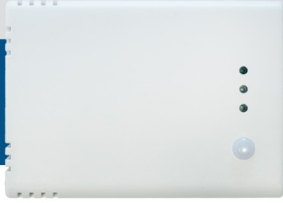


LED indication of CO₂ sensor (default setting)



LED indication of temperature and humidity sensor





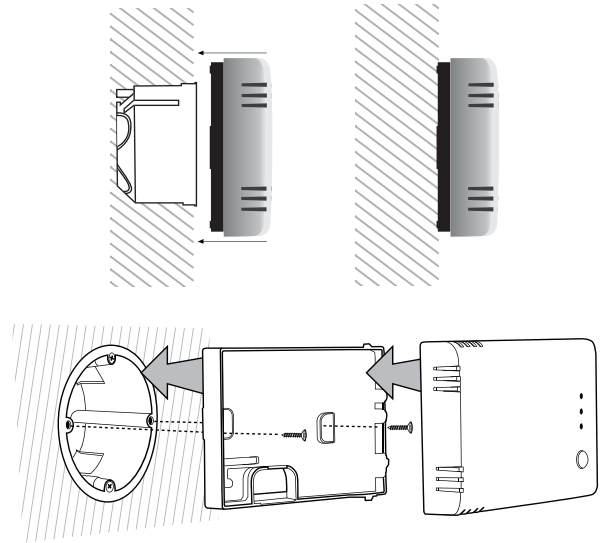
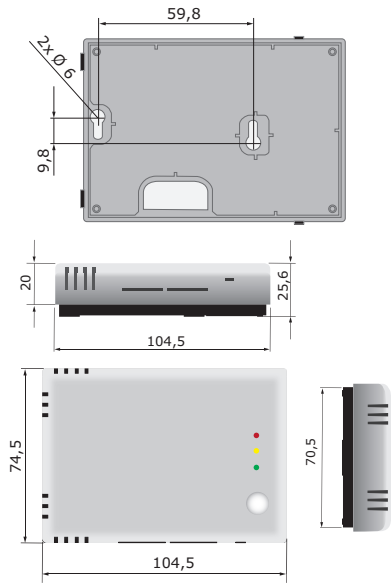
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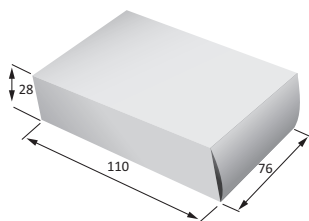
Global trade item numbers (GTIN)

Packaging	RSMFF-3	RSMFG-3
Unit	05401003018842	05401003018859
Carton	05401003302934	05401003302941
Box	05401003504369	05401003504376

Fixing and dimensions



Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
RSMFF-3 RSMFG-3	Unit (1 pc.)	110	76	28	0,095 kg	0,108 kg
	Carton (24 pcs.)	492	177	85	2,28 kg	2,742 kg
	Box (144 pcs.)	590	380	505	13,68 kg	17,442 kg