SENTERA CONTROLS

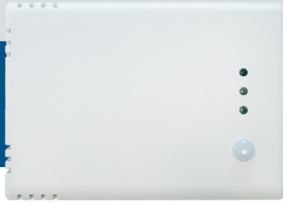# RSMFM-2R
Multifunctional CO_2 room transmitter

The RSMFM-2R are multifunctional room transmitters which measure temperature, relative humidity, CO_2 concentration level and ambient light. They are Power over Modbus supplied and all parameters are accessible via Modbus RTU.

Key features

- Selectable temperature, relative humidity and CO_2 ranges
- Bootloader for updating the firmware via 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
- Replaceable CO_2 sensor element

Technical specifications

Supply voltage		24 VDC, Power over Modbus
Typical range of use	Temperature	-0—50 °C
	Relative humidity	0—95 % rH (non-condensing)
	CO_2	400—2.000 ppm
Accuracy		±0,4 ºC (0—50 ºC)
		±3% rH (0—100 % rH)
		± 30 ppm CO_2 (400—2.000 ppm)
CO_2 sensor stabilising time		35 seconds
Protection standard		IP30 (according to EN 60529)

Article codes

Article code	Supply	Connection	Imax
RSMFM-2R	24 VDC, PoM	RJ45	50 mA

Area of use

- Monitoring indoor temperature, relative humidity and CO_2 level in HVAC applications
- Suitable for residential and commercial buildings
- For indoor use only

Standards

CE

- 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/EC:
  - 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
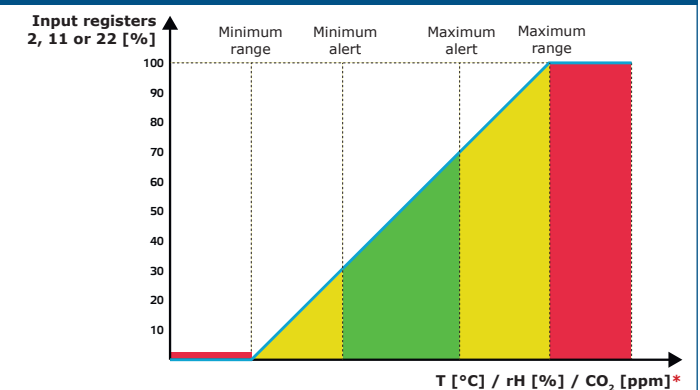
- RoHs Directive 2011/65/EC

Wiring and connections

RJ45 socket (Power over Modbus)

Pin 1	24 VDC	Supply voltage
Pin 2		
Pin 3	A	Modbus RTU communication, signal A
Pin 4		
Pin 5	/B	Modbus RTU communication, signal /B
Pin 6		
Pin 7	GND	Ground, supply voltage
Pin 8		

GND — 8 mm
/B — 8 mm
A — 8 mm
24 VDC — 8 mm

RJ45

Operational diagram(s)

Input registers 2, 11 or 22 [%]

Minimum range | Minimum alert | Maximum alert | Maximum range

100, 90, 80, 70, 60, 50, 40, 30, 20, 10

T [°C] / rH [%] / CO_2 [ppm]*

*LED indications - CO_2 (default), T or rH
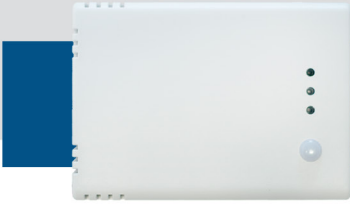
Settings and indications
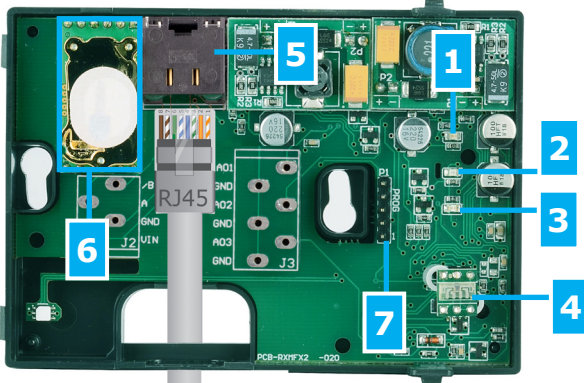
1 - Red LED	On	Measured temperature, relative humidity or CO$_2$ values are out of range
	Blinking	Communication with one of the sensors fails
2 - Yellow LED	On	Measured temperature, relative humidity or CO$_2$ values are in the alert range
3 - Green LED	On	Measured temperature, relative humidity or CO$_2$ are within range
4 - Ambient light sensor		Low light intensity / Active / Standby
5 - RJ45 socket		Modbus communication with connected Master devices and PoM-voltage supply (24 VDC)
		Blinking LEDs indicate that packages are transmitted via Modbus RTU communication
6 - CO$_2$ sensor element		Replaceable in case of faulty operation
7 - 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
	1 2 3 4 5	Put a jumper onto pins 3 and 4 and restart the power supply to enter bootloader mode

Note: By default, the LED indicators visualise the measured CO$_2$ 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.

Fixing and dimensions
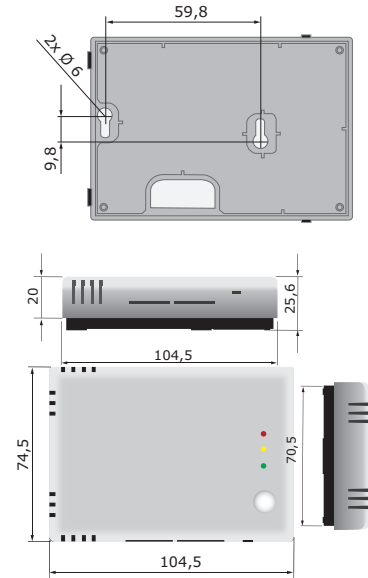
Packaging
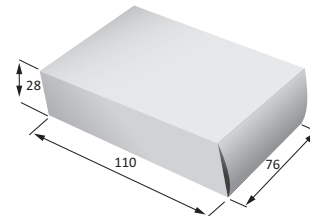
Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
RSMFM-2R	Unit (1 pc.)	105	75	28	0,080 kg	0,102 kg
	Carton (24 pcs.)	485	177	85	1,92 kg	2,588 kg
	Box (144 pcs.)	510	410	280	11,52 kg	16,76 kg

Global trade item numbers (GTIN)

Packaging	RSMFM-2R
Unit	05401003011393
Carton	05401003301838
Box	05401003502655

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.