

# RSMFX-2R

## Multifunctional room transmitter

The RSMFX-2R series are multifunctional room transmitters which measure temperature, relative humidity, CO<sub>2</sub> concentration level and ambient light. They feature 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
- Ambient light sensor with adjustable 'active' and 'standby' level
- Replaceable CO<sub>2</sub> sensor element
- Modbus RTU (RS485)
- 3 LEDs with adjustable light intensity for status indication
- Long-term stability and accuracy

### Technical specifications

3 analogue / modulating outputs	0–10 VDC mode: min. load 50 kΩ (R <sub>L</sub> ≥ 50 kΩ)	
	0–20 mA mode: max. load 500 Ω (R <sub>L</sub> ≤ 500 Ω)	
	PWM (open-collector type) mode: 1 kHz, min. load 50 kΩ (R <sub>L</sub> ≥ 50 kΩ), PWM voltage level: 3,3 VDC or 12 VDC	
Selectable temperature range	0–50 °C via Modbus RTU	
Selectable relative humidity range	0–100 % rH via Modbus RTU	
Selectable CO <sub>2</sub> range	0–2.000 ppm via Modbus RTU	
Accuracy	30 ppm CO <sub>2</sub> ±3 % (0–2.000 ppm CO <sub>2</sub> )	±3 % rH (0–100 % rH)
	±0,4 °C (0–50 °C)	
Protection standard	IP30 (according to EN 60529)	
Ambient conditions	Temperature	0–50 °C
	Rel. humidity	0–100 % rH (non-condensing)



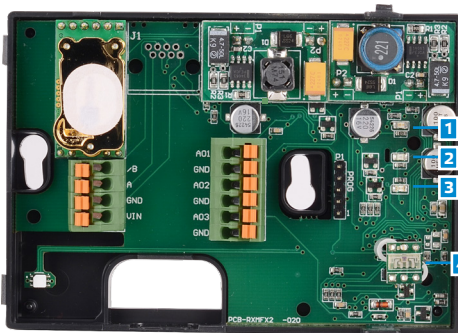
### Area of use


- Monitoring indoor temperature, relative humidity and CO<sub>2</sub> level in HVAC applications
- Suitable for residential and commercial buildings
- For indoor use only

### Article codes

Article code	Supply	Maximum power consumption	Nominal power consumption	I <sub>max</sub>
RSMFG-2R	18–34 VDC	2,4 W	2 W	100 mA
	15–24 VAC ±10%	2,64 W	2,2 W	105 mA
RSMFF-2R	18–34 VDC	2,4 W	2 W	100 mA

### Indications



1 - Red LED	Continuous	Measured temperature, relative humidity or CO <sub>2</sub> are out of range
	Blinking	
2 - Yellow LED	On	Measured temperature, relative humidity or CO <sub>2</sub> are in the alert range
3 - Green LED	On	Measured temperature, relative humidity or CO <sub>2</sub> are within range
4 - Ambient light sensor		Low light intensity / Active / Standby

### Wiring and connections

Article type	RSMFF-2R		RSMFG-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>			

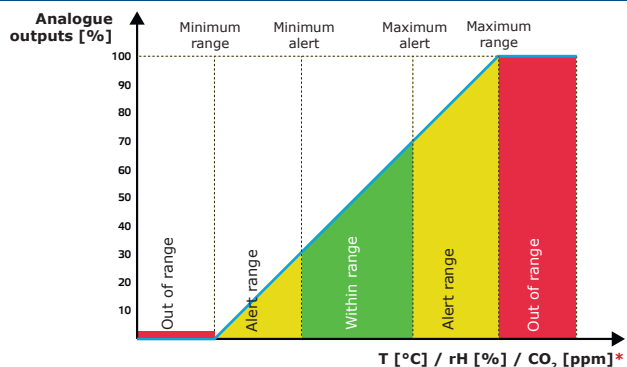
**\*Caution:** Never connect the common ground of G type articles to other devices powered by a DC voltage. If an AC power supply is used with a unit on a Modbus network, the GND terminal should NOT BE CONNECTED to other units on the network or via the CNVT-USB-RS485 converter. This may cause permanent damage to the communication semiconductors and / or the computer!

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## Operational diagram(s)



\* LED indication - T (default), rH or CO<sub>2</sub>

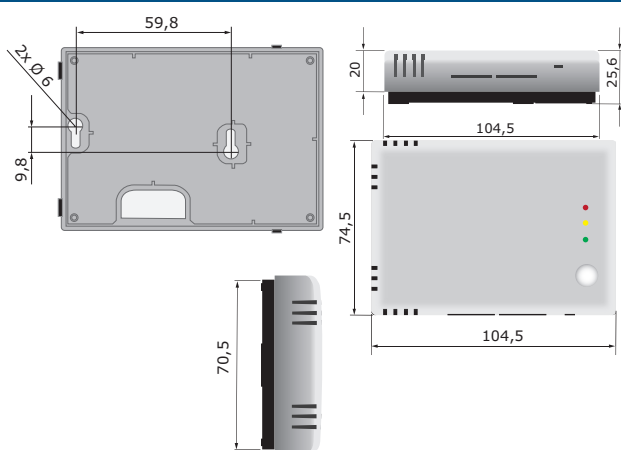
## Standards

- 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

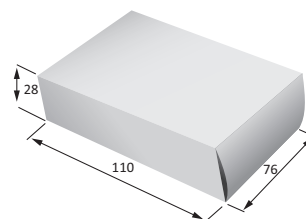
• WEEE 2012/19/EC

• RoHS Directive 2011/65/EC

## Fixing and dimensions



## Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
RSMFX-2R	Unit (1 pc.)	110	76	28	0,089 kg	0,111 kg
	Carton (24 pcs.)	492	182	84	2,14 kg	2,804 kg
	Box (144 pcs.)	510	410	270	12,81 kg	18,066 kg

## Modbus registers



The Sensstant 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.