BELIMO

Technical data sheet 22RTM-19-1

Room Sensor CO_2 / Humidity / Temperature

For measuring the temperature, humidity and CO2 in the room. The room units can be seamlessly connected to existing third-party controllers. With MP-Bus communication and integrated 0...10V output. Output signal is selectable via NFC.

5 YEAR WARRANTY

MP-BUS

NFC

Type Overview

Type	Communication	Output signal active CO_2	Output signal active humidity	Output signal active temperature
22RTM-19-1	MP-Bus	0...5 V, 0...10 V, 2...10 V	0...5 V, 0...10 V, 2...10 V	0...5 V, 0...10 V, 2...10 V

Technical Data

Electrical data	Power supply DC	24 V, ±20%, 0.5 W
	Power supply AC	24 V, ±20%, 1 VA
	Electrical connection	Spring loaded terminal block 0.25...1.5 mm²
	Cable entry	Wire openings at the backside (for In-wall wiring) and top-/bottom side (for On-wall wiring)
Functional data	Sensor Technology	CO_2: NDIR (non dispersive infrared) dual channel
	Application	Air
Measuring data	Measuring values	Temperature Relative humidity Dew point CO_2
	Measuring range CO_2	0...2000 ppm
	Measuring range humidity	0...100% r.H.
	Measuring range temperature	0...50°C [30...120°F]
	Accuracy CO_2	±(50 ppm + 2% of measuring value)
	Accuracy humidity	±3% between 20...80% r.H. @ 25°C
	Accuracy temperature active	±0.5°C @ 25°C [±0.9°F @ 77°F]
	Time constant t (63%) in the room	typical 960 s
	Wall coupling factor	52 %
Materials	Housing	white, RAL 9003

Safety data

Ambient humidity	Max. 95% r.H., non-condensing
Ambient temperature	0...50°C [30...120°F]
Fluid temperature	0...50°C [30...120°F]
Storage temperature	-20...60°C [-5...140°F]
Protection class IEC/EN	III Protective extra-low voltage (PELV)
EU Conformity	CE Marking
Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-9
Degree of protection IEC/EN	IP30
Quality Standard	ISO 9001

Safety notes

This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application. Unauthorised modifications are prohibited. The product must not be used in relation with any equipment that in case of a failure may threaten humans, animals or assets.
Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.

The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Remarks

General remarks concerning sensors

The measuring result is influenced by the thermal characteristics of the wall. A solid concrete wall responds to thermal fluctuations within a room slower than a light-weight structure wall. Room temperature sensors installed in flush-mounted boxes have a longer response time to thermal variations. For example, in extreme cases they will detect the radiant heat of the wall even if the air temperature in the room is lower. The quicker the dynamics of the wall (temperature acceptance of the wall) or the longer the selected inquiry interval of the temperature sensor is, the smaller the deviations are.

Build-up of Self-Heating by Electrical Dissipative Power

Temperature sensors with electronic components always have a dissipative power which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. The dissipative power should be taken into account when measuring temperature. In case of a fixed operating voltage (±0.2 V) this is normally done by adding or reducing a constant offset value. As Belimo transducers work with a variable operating voltage, only one operating voltage can be taken into consideration, for reasons of production engineering. Transducers 0.5...10 V / 4...20 mA have a standard setting at an operating voltage of DC 24 V. That means, that at this voltage, the expected measuring error of the output signal will be the least. For other operating voltages, the offset error will be increased by a changing power loss of the sensor electronics. If a re-calibration should become necessary later directly on the sensor, this can be done by means of a trimming potentiometer on the sensor board.

Application Notice for Humidity Sensors

Refrain from touching the sensitive humidity sensor/element. Touching the sensitive surface will void warranty.

For standard environmental conditions the manufacturing accuracy specified in the datasheet will be covered by the calibration warranty for two years. When exposed to harsh environmental conditions such as high ambient temperature and/or high levels of humidity, or presence of aggressive gases (i.e. chlorine, ozone, ammonia) the sensor element may be affected and readings may be outside specified accuracy. Replacement of deteriorated humidity sensors due to harsh environmental conditions are not subject of the general warranty.

Information Self-Calibration Feature CO_2

All CO_2 sensors are subject to drift caused by the aging process of the components, resulting in regular re-calibration or replacement of units. However, the dual channel technology integrates automatic self-calibration technology vs. common used ABC-Logic sensors. Dual channel self-calibration technology is ideally suited for applications operating 24/7 hours such as those in hosiptals or other commerical applications. Manual calibration is not required.

Scope of delivery

Screws

Accessories

Service tools accessories

Description	Type
Belimo Assistant App, Smartphone app for easy commissioning, parameterising and maintenance	Belimo Assistant App
Converter Bluetooth / NFC	ZIP-BT-NFC

Service

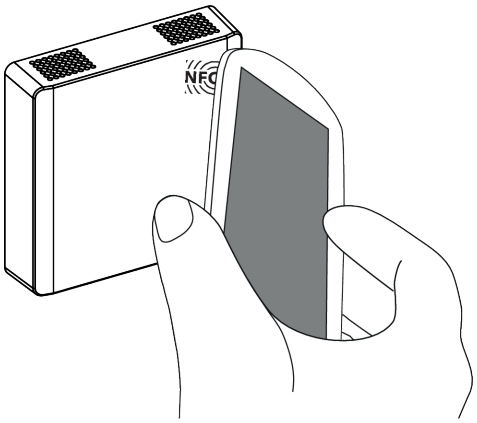
Operating controls and indicators

Belimo equipment marked with the NFC logo can be operated and parameterized with the Belimo Assistant App.

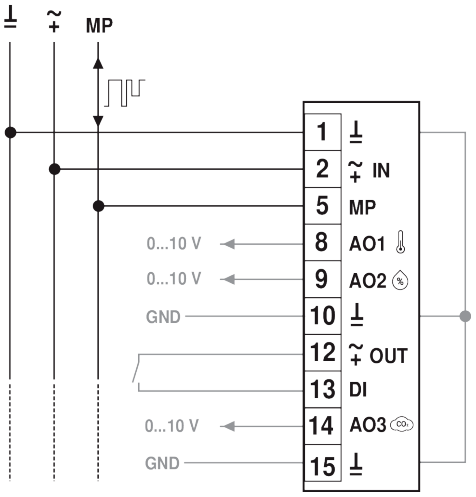
Requirement:
- NFC- or Bluetooth-capable smartphone
- Belimo Assistant App (Google Play & Apple AppStore)

Align NFC-capable smartphone on the sensor so that both NFC antennas are superposed.

Connect Bluetooth-enabled smartphone via the Bluetooth-to-NFC Converter ZIP-BT-NFC to the sensor. Technical data and operation instructions are shown in the ZIP-BT-NFC data sheet.

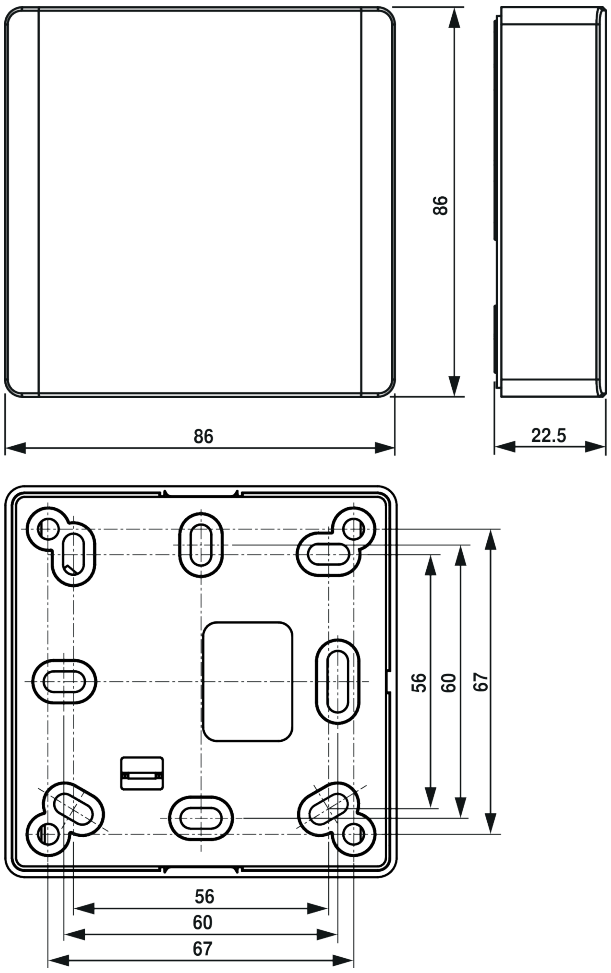


Wiring diagram



Dimensions

Dimensions



Type	Weight
22RTM-19-1	0.124 kg