

Multifunctional room sensor and measuring transducer
for humidity, temperature, air quality (VOC), fine dust (PM) and CO2 content,
calibratable, with Modbus connection

RFTM - CO2 - Modbus - P
 with display and potentiometer

Multifunctional indoor climate sensor **AERASGARD® RFTM - LQ - PS - CO2 - Modbus** (maximum expansion level) with Modbus connection, in an elegant plastic housing with snap-on lid, base with 4-hole attachment, optionally with / without display, type variant **RFTM - CO2 - Modbus** optionally with / without setpoint potentiometer. The room sensor is used for detecting the air humidity (0...100% RH), room temperature (0...+50 °C / +32...+122 °F), air quality (VOC) (0...100%), the fine dust (PM) (0...1000 µg/m³) and CO2 content (0...5000 ppm) as well as a room control unit (% setpoint). International system of units **SI** (default) can be changed to **imperial** (via Modbus). The following parameters can be accessed via the Modbus: Temperature, relative humidity, air quality (VOC), fine dust (PM) and carbon dioxide (CO2). Use just one device to monitor and control the entire indoor climate effectively. This enables energy-saving room ventilation on an as-needed basis, thereby reducing operating costs and improving well-being. It is used in offices, hotels, convention centres, apartments, shops, etc. One sensor for every 30 m² of room area is recommended.

A long-term stable, **digital humidity and temperature sensor** guarantees exact measurement results. The CO2 measurement is performed using an optical **NDIR sensor** (non-dispersive infra-red technology). The air quality is detected by a **VOC sensor** (mixed gas sensor for volatile organic substances). With regard to the expected air contamination, low (SLOW), medium (NORMAL) or high (FAST) VOC sensitivity can be selected. An optical **fine dust sensor** precisely detects **particulate (PM)** of the size category 0.3 to 10 micrometres.

Innovative Modbus sensor with galvanically separated RS485-Modbus-interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, internal LEDs for telegram status display, two separate push-in terminals and two-line display (illuminated; with customised programming in the 7-segment and dot-matrix range). The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.



TECHNICAL DATA

Power supply:	24 V AC / DC (± 10 %)
Power consumption:	typical < 4.4 W / 24 V DC; < 6.4 VA / 24 V AC; peak current 200 mA
Communication:	Modbus (RTU cable)
Bus interface:	RS 485, galvanically isolated
Baud rate:	9600, 19200, 38400 Baud
Bus protocol:	Modbus (RTU mode), address range 0... 247 adjustable
Signal filtering:	4 s / 32 s
System of units:	SI (default) or imperial (can be changed via Modbus)
Data points:	Temperature [°C] [°F], Relative humidity [% RH], Air quality (VOC) [%], Fine dust (PM) [µg/m³], Carbon dioxide (CO2) [ppm], Setpoint potentiometer [%]

HUMIDITY & TEMPERATURE

Sensor:	digital humidity sensor with integrated temperature sensor , low hysteresis, high long-term stability
Measuring range:	0...100% RH (humidity) 0...+50 °C / +32...+122 °F (temperature)
Accuracy, humidity:	typical ± 2.0% (20...80% RH) at +25 °C, otherwise ± 3.0%
Accuracy, temperature:	typical ± 0.2 K at +25 °C

AIR QUALITY (VOC)

Sensor:	VOC sensor (metal oxide) with automatic air quality algorithm (volatile organic compounds)
Measuring range:	0...100% air quality (0% = clean air / 100% = polluted air), referred to calibrating gas, multi-range switching, VOC sensitivity SLOW / NORMAL / FAST (selectable via DIP switches)
Accuracy:	typical ± 20% of final value (referred to calibrating gas)
Service life:	> 60 months (under normal load conditions)

FINE DUST (PM)

Sensor:	optical particulate sensor (PM = particulate matter) , fine-dust sensor with laser- and soiling-resistant technology
Measuring range:	0...1000 µg/m³
Particle size:	PM 2.5 (0.3...2.5 µm); PM 10 (0.3...10 µm)
Accuracy:	typical ± 10 µg/m³ (± 10% of measured value) at PM 2.5 typical ± 25 µg/m³ (± 25% of measured value) at PM 10
Long-term stability:	± 1.25 µg/m³ (± 1.25% of measured value per year)
Service life:	> 10 years

CARBON DIOXIDE (CO2)

Sensor:	optical NDIR sensor (non-dispersive infra-red technology) with manual calibration (via zero button), with automatic calibration (can be deactivated via Modbus)
Measuring range:	0...5000 ppm
Accuracy:	typical ± 30 ppm ± 3% of measured value
Temperature dependence:	± 5 ppm per °C or ± 0.5% of measured value per °C (whichever is higher)
Pressure dependence:	± 0.13% per mm Hg
Long-term stability:	< 2% in 15 years

Continued on next page!

Display screen standard	Modbus (Baldur)
	Carbon dioxide (CO2) (ppm)
	Air quality (VOC) [%]
	Temperature [°C] [°F]
	Humidity [% RH]
	Fine dust (PM) [µg/m³]

Display screen programmable	Modbus (Baldur)
	Symbols



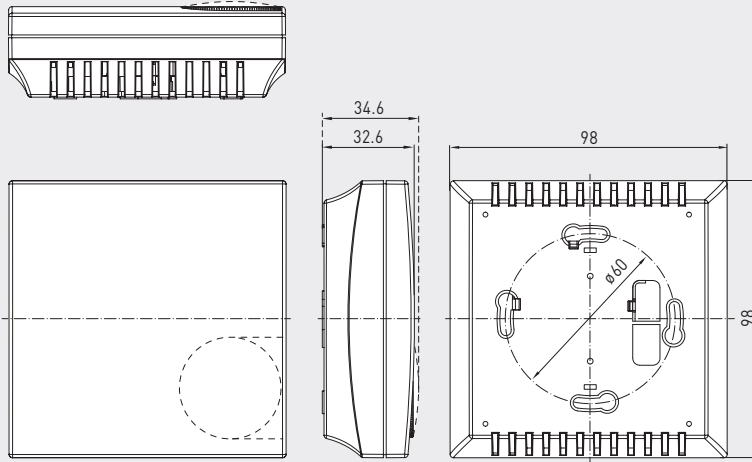
S+S REGELTECHNIK

AERASGARD® RC02 / RLQ-CO2 - Modbus AERASGARD® RFTM-LQ-PS-CO2 - Modbus

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Dimensional drawing
(mm)

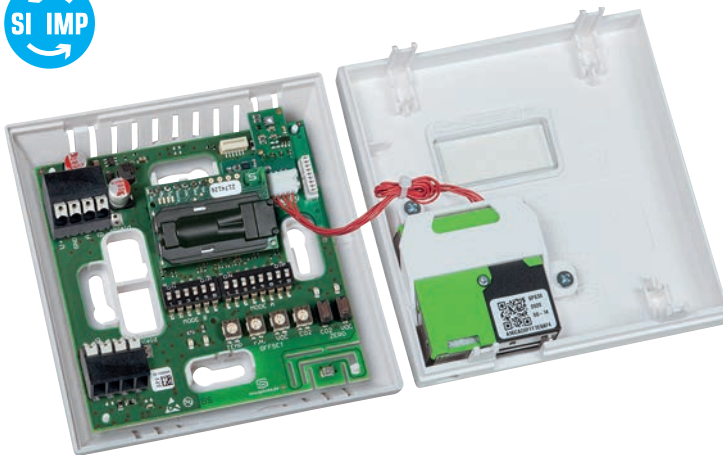
Housing Baldur 2



R xx CO2 - Modbus
without display



RFTM-LQ-PS-CO2 - Modbus
with display

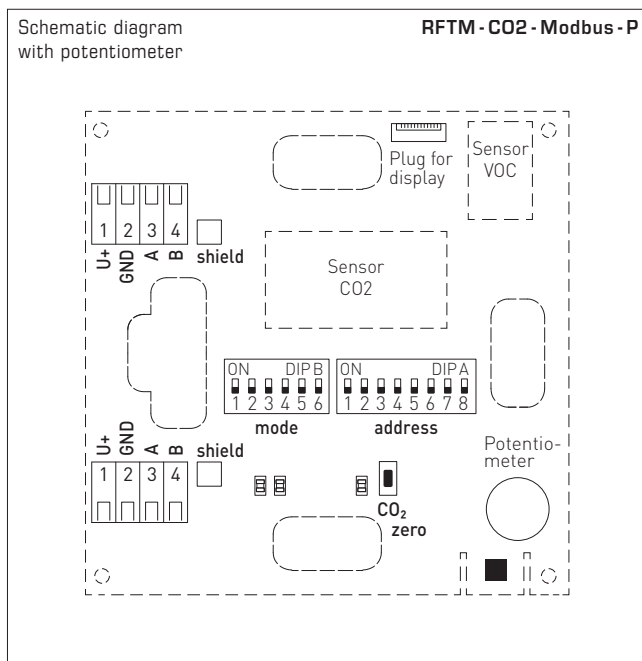
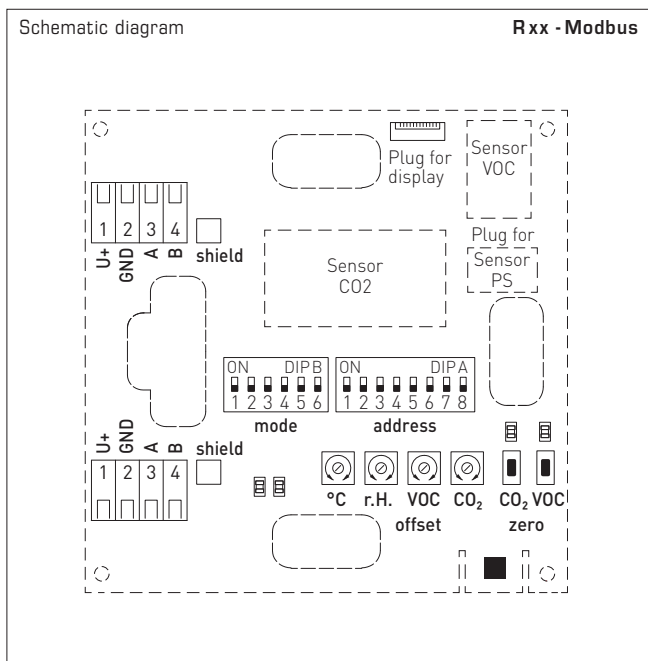


TECHNICAL DATA

(continued)

Warm up time:	approx. 1 hour
Response time:	< 2 minutes
Gas exchange:	by diffusion
Ambient temperature:	0...+50 °C
Permitted humidity:	0...95% RH (non-precipitating air)
Electrical connection:	0.2 - 1.5 mm ² , via push-in terminal
Housing:	Plastic, flame retardant (UL 94 V-0), PC/ABS material, colour white (similar to RAL 9016)
Housing dimensions:	98 x 98 x 33 mm (Baldur 2)
Installation:	Wall mounting or on in-wall flush box, Ø55 mm, base with 4-hole for mounting on vertically or horizontally installed in-wall flush boxes for cable entry from the back, with predetermined breaking point for on-wall cable entry from top/bottom in case of plain on-wall installation
Protection class:	III (according to EN 60 730)
Protection type:	IP 30 (according to EN 60 529)
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU, Low Voltage Directive 2014 / 35 / EU
Optional:	Display with illumination , two line, cutout approx. 36 x 15 mm (W x H), to display actual humidity, actual temperature, air quality, of the fine-dust and CO2 content (cyclic) or a selectable parameter (static) or an individually programmable display value

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Display screen **standard (cyclic)**

Carbon dioxide (CO2)
 Air quality (VOC)
 Temperature [°C]
 Temperature [°F]
 Humidity
 Fine dust (PM)

Display screen **alternative (static)**

Carbon dioxide (CO2)
 Air quality (VOC)
 Temperature [°C]
 Temperature [°F]
 Humidity
 Fine dust (PM)

Display screen **Modbus programmable** (Baldur)

Symbols

The Modbus interface allows the display to be **individually** configured both in the 7-segment range and in the dot-matrix range. For improved legibility, backlighting is provided.



By default, the display indicates the measurements with the corresponding units **cyclically** and consecutively:

- CO2** content, **air quality** (VOC), **temperature**, **relative humidity**, **fine dust** (PM).

The **Modbus** configuration can be used to program an **alternative output variable** instead of the standard display. In this case, the first line indicates the value and index while the second line indicates the corresponding unit **statically**. The index identifies the display type:

- Index 1** = carbon dioxide (CO2) [ppm]
- Index 2** = air quality (VOC) [%]
- Index 3** = temperature [°C] [°F]
- Index 4** = relative humidity [%RH]
- Index 6** = fine dust (PM) [µg/m³]



S+S REGELTECHNIK

AERASGARD® RCO2 / RLQ-CO2 - Modbus AERASGARD® RFTM-LQ-PS-CO2 - Modbus

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RFTM-CO2-Modbus-P
with setpoint potentiometer
(room control unit)



RFTM-LQ-PS-CO2-Modbus
with display



Rxx-CO2-Modbus
without display



AERASGARD® Rxx-Modbus		Room sensor and measuring transducer for humidity, temperature, air quality (VOC), fine dust (PM) and CO2 content, <i>Deluxe</i>						Price	
Type / WG02	Measuring ranges	Humidity	Temperature*	PM	CO2	VOC	Display ☼=P	Item No.	Price
RCO2-Modbus									
RCO2-Modbus	–	–	–	–	5000 ppm	–	–	1501-61B0-6001-200	300,78 €
RCO2-Modbus LCD	–	–	–	–	5000 ppm	–	■	1501-61B0-6021-200	355,78 €
RLQ-CO2-Modbus									
RLQ-CO2-Modbus	–	–	–	–	5000 ppm	0...100%	–	1501-61B1-6001-600	440,89 €
RLQ-CO2-Modbus LCD	–	–	–	–	5000 ppm	0...100%	■	1501-61B1-6021-600	495,87 €
RFTM-PS-Modbus									
RFTM-PS-Modbus	0...100% RH	0...+50 °C	0...1000 µg/m³	–	–	–	–	1501-2116-6001-200	409,94 €
RFTM-PS-Modbus LCD	0...100% RH	0...+50 °C	0...1000 µg/m³	–	–	–	■	1501-2116-6021-200	471,04 €
RFTM-CO2-Modbus									
RFTM-CO2-Modbus	0...100% RH	0...+50 °C	–	–	5000 ppm	–	–	1501-61B6-6001-200	354,91 €
RFTM-CO2-Modbus LCD	0...100% RH	0...+50 °C	–	–	5000 ppm	–	■	1501-61B6-6021-200	409,63 €
RFTM-CO2-Modbus-P with potentiometer									
RFTM-CO2-Modbus- P	0...100% RH	0...+50 °C	–	–	5000 ppm	–	☼	1501-61B6-6501-271	392,76 €
RFTM-CO2-Modbus- P LCD	0...100% RH	0...+50 °C	–	–	5000 ppm	–	☼ ■	1501-61B6-6521-271	447,73 €
RFTM-LQ-CO2-Modbus									
RFTM-LQ-CO2-Modbus	0...100% RH	0...+50 °C	–	–	5000 ppm	0...100%	–	1501-61B8-6001-600	480,94 €
RFTM-LQ-CO2-Modbus LCD	0...100% RH	0...+50 °C	–	–	5000 ppm	0...100%	■	1501-61B8-6021-600	535,91 €
RFTM-LQ-PS-CO2-Modbus									
RFTM-LQ-PS-CO2-Modbus	0...100% RH	0...+50 °C	0...1000 µg/m³	–	5000 ppm	0...100%	–	1501-2119-6001-600	621,32 €
RFTM-LQ-PS-CO2-Modbus LCD	0...100% RH	0...+50 °C	0...1000 µg/m³	–	5000 ppm	0...100%	■	1501-2119-6021-600	676,29 €
Housing variant "P":		Room control unit with potentiometer (standard printing is a widening arrow with central position unfilled)							
Note:		These units must not be used as safety-relevant devices!							
		* Temperatur: 0...+50 °C / +32...+122 °F International system of units SI (default) can be changed to imperial (via Modbus).							

ACCESSORIES			
KA2-Modbus	Communication adapter (USB/RS485) for system connection	1906-1200-0000-100	236,11 €
LA-Modbus	Line termination device (with terminating resistor) as an active bus termination	1906-1300-0000-100	88,05 €