

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

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

NEW



S+S REGELTECHNIK

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 to detect the measurands air humidity (0...100 % r.H.), temperature (0...+50°C), air quality (0...100% VOC), fine dust (PM) (0...1000 µg/m) and CO2 content (0...5000 ppm) as well as a room control unit (% setpoint).

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.

A long-term stable, **digital humidity and temperature sensor** guarantees exact measurement results. The air quality is determined based on a (VOC) **mixed gas sensor**. The CO2 content of the air is measured using an optical **NDIR sensor** (non-dispersive infra-red technology). An optical **fine dust sensor** precisely detects **particulate (PM)** of the size category 0.3 to 10 micrometres. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible. One sensor for every 30 m² of room area is recommended.

Modbus sensor with galvanically separated RS485 Modbus interface, selectable bus termination resistance, DIP switches for setting the bus parameters and bus address in the currentless state, LEDs for telegram status display and two-line display (illuminated; with customised programming in the 7-segment and dot-matrix range).

RFTM - CO2 - Modbus - P
with display and potentiometer



TECHNICAL DATA

Power supply:	24 V AC / DC (± 10 %)
Power consumption:	typically < 4.4 W / 24 V DC; < 6.4 VA / 24 V AC; peak current 200 mA
Data points:	temperature [°C], relative humidity [% r.H.], air quality (VOC) [%ppb], fine dust (PM) [µg/m³], carbon dioxide (CO2) [ppm], setpoint potentiometer [%]

HUMIDITY & TEMPERATURE

Sensor (RH / °C):	digital humidity sensor with integrated temperature sensor , low hysteresis, high long-term stability
Deviation (RH):	typically ± 2.0 % (20...80 % r.H.) at +25 °C, otherwise ± 3.0 %
Deviation (°C):	typically ± 0.2 K at +25 °C

AIR QUALITY (VOC)

Sensor (VOC):	VOC sensor (metal oxide) with automatic calibration (VOC = volatile organic compounds)
Measuring range (VOC):	0...100 % air quality; with reference to calibration gas; multi-range switching VOC sensitivity low, medium, high
Measuring accuracy (VOC):	typically ± 20 % final value (with reference to the calibration gas)
Service life (VOC):	> 60 months (under normal load conditions)

FINE DUST (PM)

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

CARBON DIOXIDE (CO2)

Sensor (CO2):	optical NDIR sensor (non-dispersive infra-red technology) with automatic and manual calibration
Measuring range (CO2):	0...5000 ppm
Measuring accuracy (CO2):	typically ± 30 ppm (± 3 % of measured value)
Temperature dependence (CO2):	± 5 ppm / °C or ± 0.5 % of measured value / °C (whichever is greater)
Pressure dependence (CO2):	± 0.13 % / mm Hg
Long-term stability (CO2):	< 2 % in 15 years
Gas exchange (CO2):	Diffusion

Continued on next page!

Display screen
standard

Modbus
(Baldu)



Carbon dioxide (CO2)



Air quality (VOC)



Temperature



Humidity



Fine dust (PM)

Display screen
programmable

Modbus
(Baldu)



Symbols

**NEW**

S+S REGELTECHNIK

AERASGARD® RC02 / RLQ-CO2 - Modbus

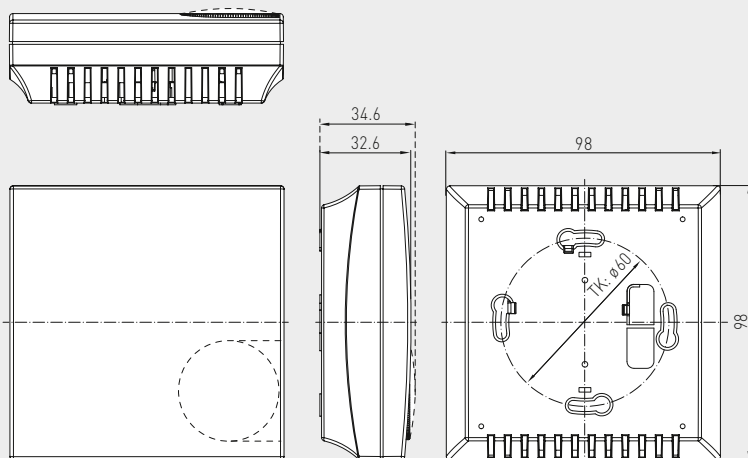
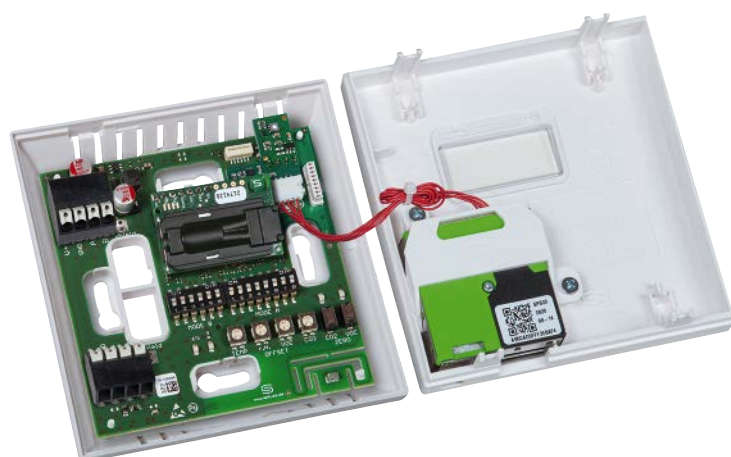
AERASGARD® RFTM-LQ-PS-CO2 - Modbus

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



Dimensional drawing

Housing Baldur 2

R xx CO₂ - Modbus
without displayRFTM-LQ-PS-CO₂ - Modbus
with display**TECHNICAL DATA**

(continued)

Ambient temperature:	0...+50 °C
Permitted humidity:	0...95% r. H. (non-precipitating air)
Warm up time:	approx. 1 hour
Response time:	< 2 minutes
Electrical connection:	0.2 - 1.5 mm ² , via push-in terminal
Housing:	plastic, material ABS, colour pure white (similar to RAL 9010)
Dimensions:	98 x 98 x 33 mm (Baldur 2)
Mounting:	wall mounting or on in-wall flush box, Ø55 mm, base with 4 holes, for attachment to vertically or horizontally installed in-wall flush boxes for rear cable entry, with predetermined breaking point for top/bottom cable entry for surface-mounted installation
Protection class:	III (according to EN 60 730)
Protection type:	IP 30 (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61 326, EMC Directive 2014/30/EU, Low Voltage Directive 2014/35/EU
Optional:	Display with illumination , 2-line, cutout approx. 36 x 15 mm (W x H), to display actual humidity, actual temperature, air quality, of the fine-dust and CO ₂ content (cyclic) or a selectable parameter (static) or an individually programmable display value

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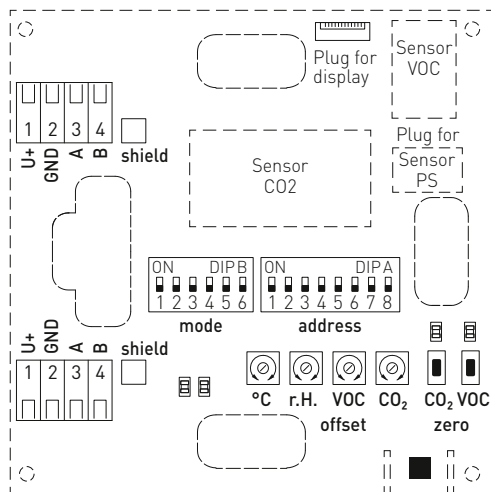
NEW



S+S REGELTECHNIK

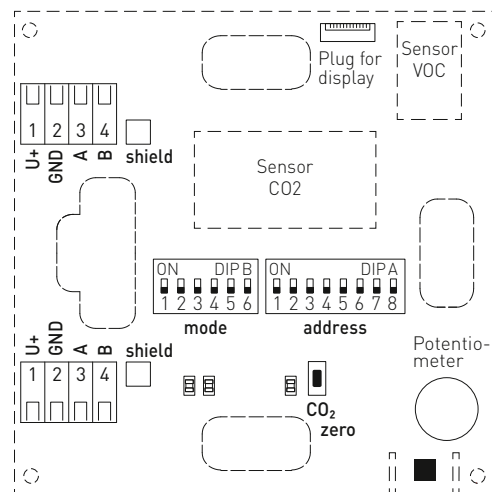
Schematic diagram

Rxx - Modbus



Schematic diagram
with potentiometer

RFTM - CO2 - Modbus - P



Display screen
standard (cyclic)



Carbon dioxide (CO2)



Air quality (VOC)



Temperature



Humidity



Fine dust (PM)

Display screen
alternative (static)



Carbon dioxide (CO2)



Air quality (VOC)



Temperature



Humidity



Fine dust (PM)

Display screen
programmable

Modbus
(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 in ppm, **air quality (VOC)** in %, **temperature** in °C, **relative humidity** in % r.H., **fine dust (PM)** in µg/m³.

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]
- Index 4** = relative humidity [% r.H.]
- Index 6** = fine dust (PM) [µg/m³]



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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>				
Type / WG02	Measuring Range		PM	CO2	VOC	Item No.
	Humidity	Temperature				
RC02 - Modbus						
RC02-Modbus	–	–	–	5000 ppm	–	1501-61B0-6001-200
RC02-Modbus LCD	–	–	–	5000 ppm	–	■ 1501-61B0-6021-200
RLQ - CO2 - Modbus						
RLQ-CO2-Modbus	–	–	–	5000 ppm	0...100%	1501-61B1-6001-500
RLQ-CO2-Modbus LCD	–	–	–	5000 ppm	0...100%	■ 1501-61B1-6021-500
RFTM - PS - Modbus						
RFTM-PS-Modbus	0...100% r.H.	0...+50 °C	0...1000 µg/m³	–	–	1501-2116-6001-200
RFTM-PS-Modbus LCD	0...100% r.H.	0...+50 °C	0...1000 µg/m³	–	–	■ 1501-2116-6021-200
RFTM - CO2 - Modbus						
RFTM-CO2-Modbus	0...100% r.H.	0...+50 °C	–	5000 ppm	–	1501-61B6-6001-200
RFTM-CO2-Modbus LCD	0...100% r.H.	0...+50 °C	–	5000 ppm	–	■ 1501-61B6-6021-200
RFTM - CO2 - Modbus - P						
RFTM-CO2-Modbus- P	0...100% r.H.	0...+50 °C	–	5000 ppm	–	⚙ 1501-61B6-6501-271
RFTM-CO2-Modbus- P LCD	0...100% r.H.	0...+50 °C	–	5000 ppm	–	⚙ ■ 1501-61B6-6521-271
RFTM - LQ - CO2 - Modbus						
RFTM-LQ-CO2-Modbus	0...100% r.H.	0...+50 °C	–	5000 ppm	0...100%	1501-61B8-6001-500
RFTM-LQ-CO2-Modbus LCD	0...100% r.H.	0...+50 °C	–	5000 ppm	0...100%	■ 1501-61B8-6021-500
RFTM - LQ - PS - CO2 - Modbus						
RFTM-LQ-PS-CO2-Modbus	0...100% r.H.	0...+50 °C	0...1000 µg/m³	5000 ppm	0...100%	1501-2119-6001-500
RFTM-LQ-PS-CO2-Modbus LCD	0...100% r.H.	0...+50 °C	0...1000 µg/m³	5000 ppm	0...100%	■ 1501-2119-6021-500
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!				

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