

**Multifunctional room sensors and measuring transducers,
 for humidity, temperature, air quality (VOC) and CO₂ content,
 calibratable, with active/switching output**

Maintenance-free room sensor **AERASGARD® RTM-CO₂-SD** with active output, automatic calibration, in an elegant plastic housing with snap-on lid, for determining the CO₂ content of the air (0...2000 ppm) and the temperature (0...+50°C). The measuring transducer converts the measured values into a standard signal of 0-10V.

Maintenance-free room sensor **AERASGARD® RFTM-LQ-CO₂-W** with active/switching output, automatic calibration, in an elegant plastic housing with snap-on lid, optionally with/without display, for determining the CO₂ content of the air (0...2000 ppm/0...5000 ppm), the quality in three VOC sensitivity (0...100% VOC), the temperature (0...+50°C) as well as the relative air humidity (0...100% r.H.). The measuring transducer converts the measured values into a standard signal of 0-10V or 4...20 mA (switchable).

The sensor is used in offices, hotels, convention centres, apartments, shops, etc. for the purpose of evaluating the indoor climate. This enables energy-saving room ventilation on an as-needed basis, thereby reducing operating costs and improving well-being. One sensor for every 30 m² of space 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 detection range is calibrated for standard applications such as monitoring residential rooms and conference rooms.

The air quality is detected by a **VOC sensor** (mixed gas sensor for volatile organic substances).

This sensor determines the loading of the room air due to contaminated gases such as cigarette smoke, body perspiration, exhaled breathing air, solvent vapours, emissions, etc. As an alternative, use IAQ categories (from excellent to unhealthy) following the guidelines of the German Federal Environmental Agency to assess the room air.

For more information, see the start of the chapter.

TECHNICAL DATA

Voltage supply:	24 V AC / DC (± 10 %)
Power consumption:	RCO₂-W / RTM-CO₂-SD: < 1.5 W / 24 V DC typical; < 2.9 VA / 24 V AC typical; peak current 200 mA RLQ-CO₂-W / RFTM-LQ-CO₂-W: < 4.4 W / 24 V DC typical; < 6.4 VA / 24 V AC typical; peak current 200 mA
Outputs:	RTM-CO₂-SD 0-10V (fixed) Rxx-CO₂-W 0-10V or 4...20 mA, working resistance < 800 Ω (selectable via DIP switches, selected variant applies for all outputs), with offset potentiometer (± 10 % of the measuring range)
Relay output:	RTM-CO₂-SD without changeover contact Rxx-CO₂-W with potential-free changeover contact (24 V / 1 A) (assignment selectable via DIP switches, switchpoint adjustable)

HUMIDITY

Sensor (RH / °C):	digital humidity sensor with integrated temperature sensor, low hysteresis, high long-term stability
Measuring range (RH):	0...100% r. H.
Output (RH):	0-10 V or 4...20 mA (selectable via DIP switches)
Deviation (RH):	typically ± 2.0 % (20...80% r. H.) bei +25 °C, sonst ± 3.0 %

TEMPERATURE

Measuring range (°C):	0...+ 50 °C
Deviation (°C):	typically ± 0.2 K bei +25 °C
Output (°C):	RTM-CO₂-SD 0-10V (fixed) Rxx-CO₂-W 0-10V or 4...20 mA (selectable via DIP switches)

AIR QUALITY (VOC)

Sensor (VOC):	VOC sensor (metal oxide) (VOC = volatile organic compounds), with manual calibration (via zero button) and automatic calibration (permanently active)
Measuring range (VOC):	0...100% air quality; referred to calibrating gas; multi-range switching (selectable via DIP switches) VOC sensitivities (low/medium/high) or IAQ category (Indoor Air Quality)
Output (VOC):	0-10 V (0V = clean air, 10 V = polluted air) or 4...20 mA (selectable via DIP switches, switchpoint can be adjusted from 0...100% of the output signal)
Measuring accuracy (VOC):	typically ± 20 % of final value (referred to calibrating gas)
Service life (VOC):	> 60 months (under normal load conditions) depending on the type of loading and gas concentration

CARBON DIOXIDE (CO₂)

Sensor (CO ₂):	optical NDIR sensor (non-dispersive infra-red technology), with manual calibration (via zero button), RTM-CO₂-SD with automatic calibration (fixed) Rxx-CO₂-W with automatic calibration (can be deactivated via DIP switches)
Measuring range (CO ₂):	RTM-CO₂-SD 0...2000 ppm (fixed) Rxx-CO₂-W 0...2000 ppm or 0...5000 ppm (selectable via DIP switches)
Output (CO ₂):	RTM-CO₂-SD 0-10V (fixed) Rxx-CO₂-W 0-10V or 4...20 mA (selectable via DIP switches)
Measuring accuracy (CO ₂):	typically ± 30 ppm (± 3% of measured value)
Temperature dependence (CO ₂):	± 5 ppm / °C or ± 0.5% of measured value / °C (whichever is higher)
Pressure dependence (CO ₂):	± 0.13 % / mm Hg
Long-term stability (CO ₂):	< 2 % in 15 years
Gas exchange (CO ₂):	by diffusion

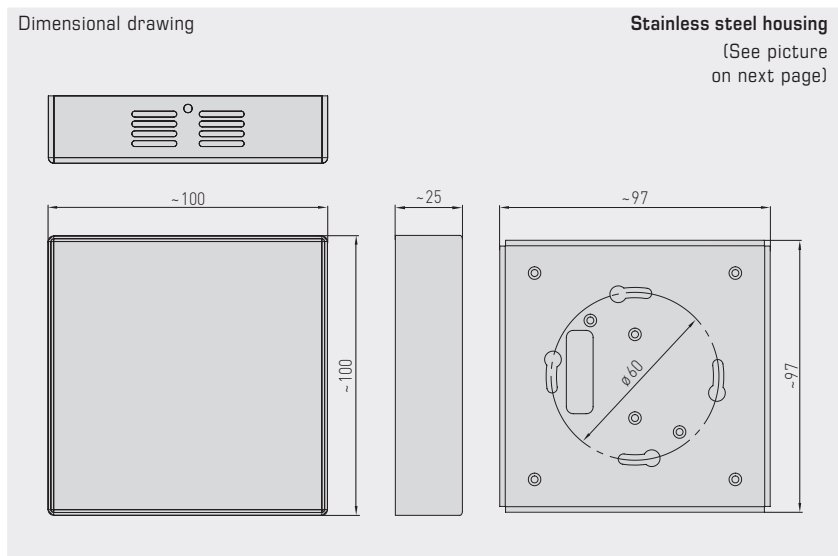
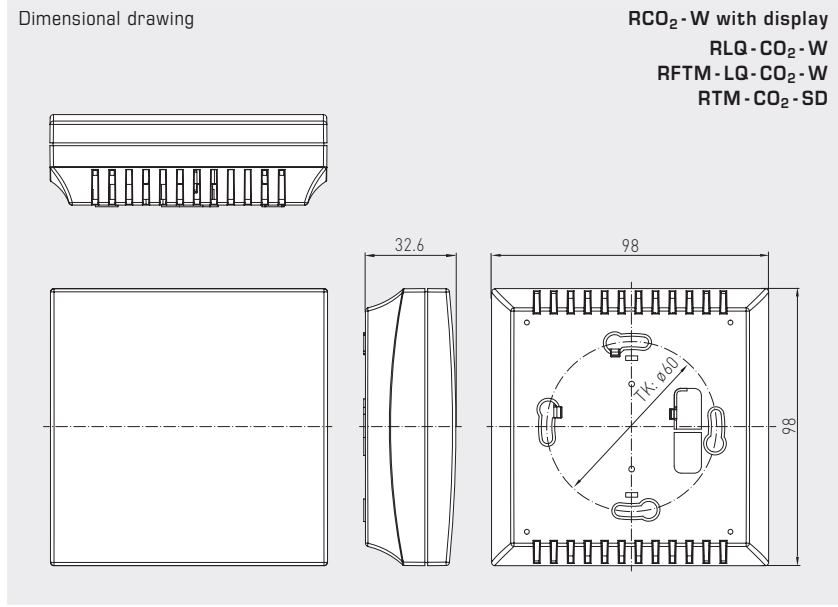
continued on next page!



S+S REGELTECHNIK

AERASGARD® RCO₂-W / RLQ-CO₂-W AERASGARD® RFTM-(LQ)-CO₂-W / RTM-CO₂-SD

Multifunctional room sensors and measuring transducers,
for humidity, temperature, air quality (VOC) and CO₂ content,
calibratable, with active/switching output



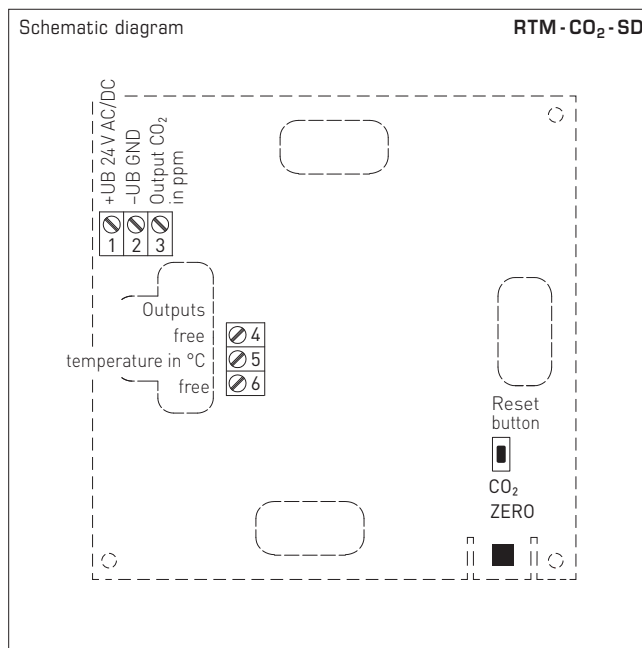
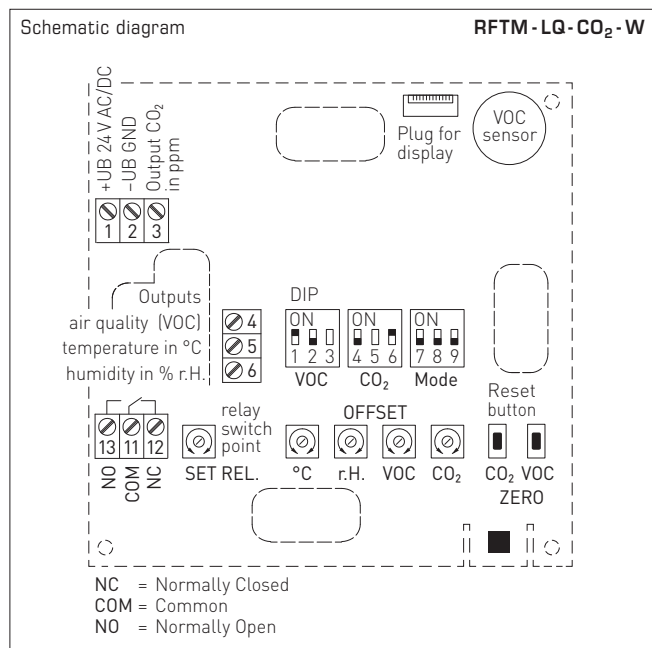
TECHNICAL DATA		[continued]
Ambient temperature:	0...+50 °C	
Permitted humidity:	0...95% r. H. (non-precipitating air)	
Warm up time:	approx. 1 hour	
Response time:	< 2 minutes	
Electrical connection:	0.14 - 1.5 mm ² , via screw terminals	
Housing:	plastic, material ABS, colour pure white (similar to RAL 9010), stainless steel V2A (1.4301) housing optional	
Dimensions:	98 x 98 x 33 mm (Baldur 2)	
Installation:	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 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, electromagnetic compatibility according to EN 61 326, 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), for displaying actual humidity, actual temperature, air quality and the actual CO ₂ content	

AERASGARD® RCO₂-W / RLQ-CO₂-W AERASGARD® RFTM-(LQ)-CO₂-W / RTM-CO₂-SD



S+S REGELTECHNIK

Multifunctional room sensors and measuring transducers,
for humidity, temperature, air quality (VOC) and CO₂ content,
calibratable, with active/switching output



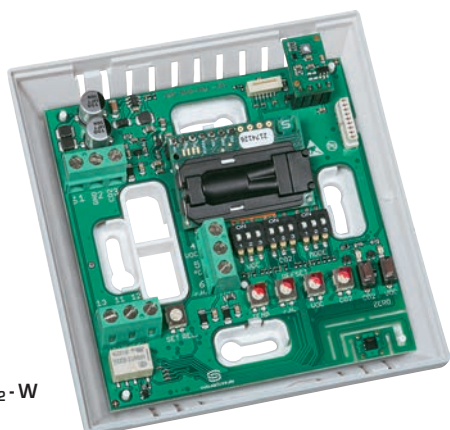
DIP switches (Baldur 2)		RFTM-LQ-CO ₂ -W	
VOC sensitivity		DIP 1	DIP 2
LOW		OFF	OFF
MEDIUM (default)		ON	OFF
HIGH		OFF	ON
IAQ (Indoor Air Quality)		ON	ON
CO₂ content			DIP 4
0...2000 ppm (default)			OFF
0...5000 ppm			ON
CO₂ automatic zero point			DIP 6
deactivated			OFF
activated (default)			ON
Relay assignment		DIP 7	DIP 8
CO ₂ (default): 600...1900 ppm / 900...4700 ppm		OFF	OFF
VOC: 10...95 %		ON	OFF
Temperature: +5...+48 °C		OFF	ON
Humidity: 10...95% r.H.		ON	ON
Output			DIP 9
Voltage 0-10V (default)			OFF
Current 4...20mA			ON

Note: DIP 3 and DIP 5 are not assigned!

Level	IAQ (Indoor Air Quality)	VOC
1	excellent no action required	0...19 %
2	good prompt airing recommended	20...39 %
3	moderate airing recommended	40...59 %
4	poor increased airing required	60...79 %
5	unhealthy intense airing necessary	80...100 %

Table according to TVOC guidelines of the German Federal Environmental Agency to assess indoor air contamination
(Bundesgesundheitsbl - Gesundheitsforsch - Gesundheitsschutz 2007, 50: 990-1005)

RFTM-LQ-CO₂-W
(Baldur 2)



Stainless steel housing
(optionally available upon request)

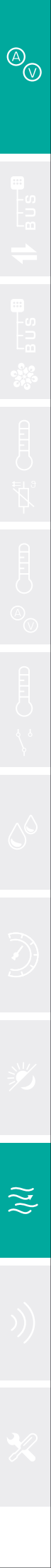




S+S REGELTECHNIK

AERASGARD® RCO₂-W / RLQ-CO₂-W
 AERASGARD® RFTM-(LQ)-CO₂-W / RTM-CO₂-SD

Multifunctional room sensors and measuring transducers,
 for humidity, temperature, air quality (VOC) and CO₂ content,
 calibratable, with active/switching output



Humidity table

MR: 0...100% r.H.

% r.H.	U _A in V	I _A in mA
0	0	4.0
5	0.5	4.8
10	1.0	5.6
15	1.5	6.4
20	2.0	7.2
25	2.5	8.0
30	3.0	8.8
35	3.5	9.6
40	4.0	10.4
45	4.5	11.2
Continued at the right ...		

% r.H.	U _A in V	I _A in mA
50	5.0	12.0
55	5.5	12.8
60	6.0	13.6
65	6.5	14.4
70	7.0	15.2
75	7.5	16.0
80	8.0	16.8
85	8.5	17.6
90	9.0	18.4
95	9.5	19.2
100	10.0	20.0

Temperature table

MR: 0...+50 °C

°C	U _A in V	I _A in mA
0	0	4.0
5	1.0	5.6
10	2.0	7.2
15	3.0	8.8
20	4.0	10.4
25	5.0	12.0
30	6.0	13.6
35	7.0	15.2
40	8.0	16.8
45	9.0	18.4
50	10.0	20.0

AERASGARD® RTM-CO ₂ -SD	Room temperature and CO ₂ sensor, <i>Standard</i>
AERASGARD® RCO ₂ -W	Room CO ₂ sensor, <i>Premium</i>
AERASGARD® RLQ-CO ₂ -W	Room air quality (VOC) and CO ₂ sensor, <i>Premium</i>
AERASGARD® RFTM-CO ₂ -W	Multifunctional room sensor for humidity, temperature and CO ₂ content, <i>Deluxe</i>
AERASGARD® RFTM-LQ-CO ₂ -W	Multifunctional room sensor for humidity, temperature, CO ₂ content and air quality (VOC), <i>Deluxe</i>

Type / WG02	Measuring Range				Equipment	Item No.	Price
	Humidity	Temperature	CO ₂	VOC	Display	(BalduR2)	
RTM-CO₂-SD			(fixed)				
RTM-CO2-SD-U	-	0...+50 °C	0...2000 ppm	-	-	1501-61B2-1001-200	202,47 €
RCO₂-W			(switchable)				
RCO2-W (without display)	-	-	0...2000 / 5000 ppm	-	W	see RCO ₂ -W / RCO ₂ -SD	
RCO2-W LCD	-	-	0...2000 / 5000 ppm	-	W ■	1501-61B0-7321-200	263,02 €
RLQ-CO₂-W			(switchable)				
RLQ-CO2-W	-	-	0...2000 / 5000 ppm	0...100%	W	1501-61B1-7301-500	331,05 €
RLQ-CO2-W LCD	-	-	0...2000 / 5000 ppm	0...100%	W ■	1501-61B1-7321-500	374,99 €
RFTM-CO₂-W			(switchable)				
RFTM-CO2-W	0...100% r.H.	0...+50 °C	0...2000 / 5000 ppm	-	W	1501-61B6-7301-200	309,26 €
RFTM-CO2-W LCD	0...100% r.H.	0...+50 °C	0...2000 / 5000 ppm	-	W ■	1501-61B6-7321-200	343,01 €
RFTM-LQ-CO₂-W			(switchable)				
RFTM-LQ-CO2-W	0...100% r.H.	0...+50 °C	0...2000 / 5000 ppm	0...100%	W	1501-61B8-7301-500	363,05 €
RFTM-LQ-CO2-W LCD	0...100% r.H.	0...+50 °C	0...2000 / 5000 ppm	0...100%	W ■	1501-61B8-7321-500	406,98 €
Outputs:	0-10V or 4...20 mA (selectable via DIP switches, selected variant applies for all outputs) – Standard room sensor RTM-CO₂-SD with fixed output 0-10V!						
Equipment:	W = changeover contact – Standard room sensor RTM-CO₂-SD without changeover contact!						
Note:	This unit must not be used as safety-relevant device!						