

**Fine dust sensor / particulate sensor,  
 multifunctional room sensor and measuring transducer  
 for humidity, temperature, fine dust (PM) and CO2 content,  
 calibratable, with active/switching output**

Maintenance-free room sensor **AERASGARD® RPS-SD** with active output, in an elegant plastic housing with snap-on lid, base with 4-hole attachment, for detecting the fine dust content (0...500 µg/m³). The measuring transducer converts the measurand into a standard signal of 0-10V (fixed).

Maintenance-free, multifunctional room sensor **AERASGARD® RFTM-PS-CO2-W** with active/switching output, automatic calibration, in an elegant plastic housing with snap-on lid, base with 4-hole attachment, optionally with/without display, for detection of measurands air humidity (0...100% RH), temperature (0...+50°C), fine dust (PM) (0...50/100/300/500 µg/m³) and CO2 content (0...2000/5000 ppm). The measuring transducer converts the measurand into a standard signal of 0-10V or 4...20 mA (switchable).

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 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 (except for particulate sensor).

### TECHNICAL DATA

Power supply:	24 V AC / DC (± 10 %)	
Power consumption:	<b>RPS-SD</b>	typically < 1.5 W / 24 V DC; < 2.9 VA / 24 V AC
	<b>RFTM-PS-CO2-W</b>	typically < 4.4 W / 24 V DC; < 6.4 VA / 24 V AC; peak current 200 mA
Output:	<b>RPS-SD</b>	0-10 V (fixed)
	<b>RFTM-PS-CO2-W</b>	0-10 V or 4...20 mA, working resistance < 800 Ω (selectable via DIP switches, selected version applies <b>uniformly</b> to all outputs), with offset potentiometer (± 10% of measuring range)
Relay output:	<b>RPS-SD</b>	without changeover contact
	<b>RFTM-PS-CO2-W</b>	with potential-free <b>changeover contact</b> (24 V / 1 A) (assignment selectable via DIP switches, switch point can be set)

### HUMIDITY

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

### TEMPERATURE

Measuring range (°C):	0...+ 50 °C	
Output (°C):	0-10 V or 4...20 mA (selectable via DIP switches)	
Accuracy (°C):	typically ± 0.2 K at +25 °C	

### FINE DUST (PM)

Sensor (PM):	optical <b>particulate sensor (PM = particulate matter)</b> , <b>fine-dust sensor</b> with laser- and soiling-resistant technology	
Measuring range (PM):	multi-range switching (selectable via DIP switches) 0...50, 0...100, 0...300 or 0...500 µg/m³	
Output (PM):	<b>RPS-SD</b>	0-10 V (fixed)
	<b>RFTM-PS-CO2-W</b>	0-10 V or 4...20 mA (selectable via DIP switches)
Particle size (PM):	<b>PM 2.5</b> (0.3...2.5 µm); <b>PM 10</b> (0.3...10 µm)	
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 <b>NDIR sensor</b> (non-dispersive infra-red technology), with manual calibration (via zero button), with automatic calibration (can be deactivated via DIP switches)	
Measuring range (CO2):	0...2000 ppm or 0...5000 ppm (selectable via DIP switches)	
Output (CO2):	0-10 V or 4...20 mA (selectable via DIP switches)	
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	

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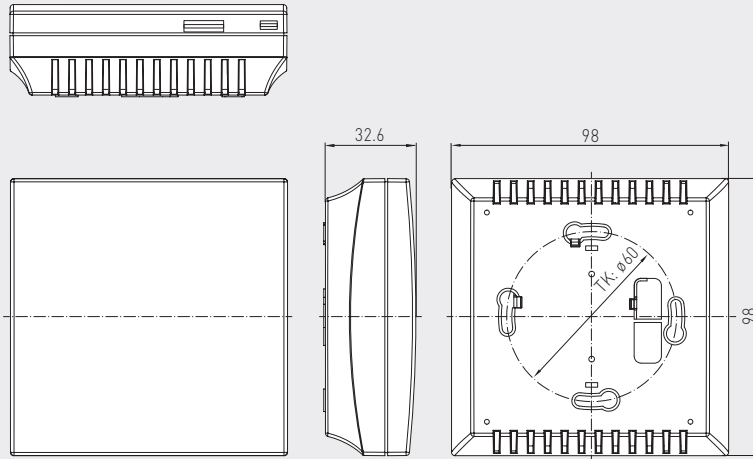
# AERASGARD® RPS - SD AERASGARD® RFTM - PS - CO2 - W

Fine dust sensor/particulate sensor, multifunctional room sensor and measuring transducer for humidity, temperature, fine dust (PM) and CO2 content, calibratable, with active/switching output



Dimensional drawing

RPS - SD  
RFTM - PS - CO2 - W



RPS - SD  
RFTM - PS - CO2 - W  
without display



RFTM - PS - CO2 - W  
with display



## TECHNICAL DATA

(continued)

Ambient temperature:	0...+50 °C
Permitted humidity:	0...95% RH (non-precipitating air)
Warm up time:	approx. 1 hour
Response time:	< 2 minutes
Electrical connection:	0.14 - 1.5 mm <sup>2</sup> , via screw terminals
Housing:	plastic, flame retardant (UL 94 V-0), PC/ABS material, colour white (similar to RAL 9016)
Dimensions:	98 x 98 x 33 mm (BalduR2)
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 60730)
IP rating:	IP 30 (according to EN 60529)
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU, Low Voltage Directive 2014 / 35 / EU
Optional:	<b>display with illumination</b> , 2-line, cutout approx. 36 x 15 mm (W x H), to display the actual humidity, actual temperature, of the fine-dust and CO2 content as well as for switch point display

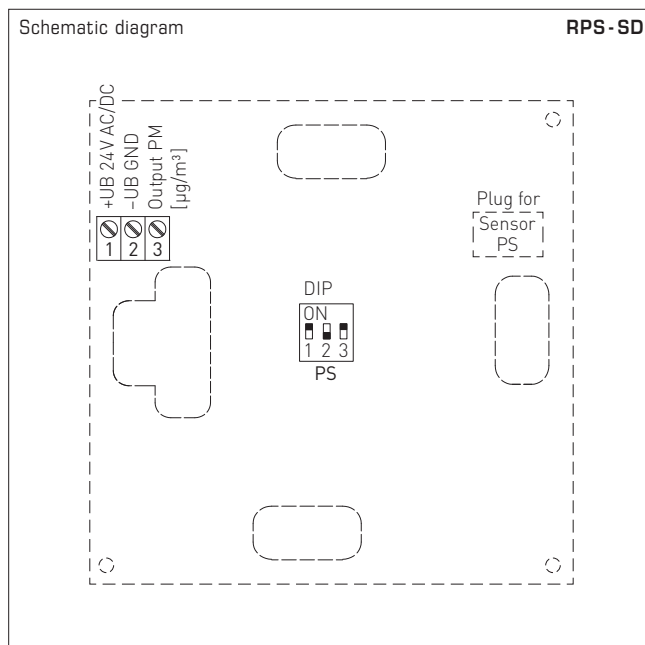
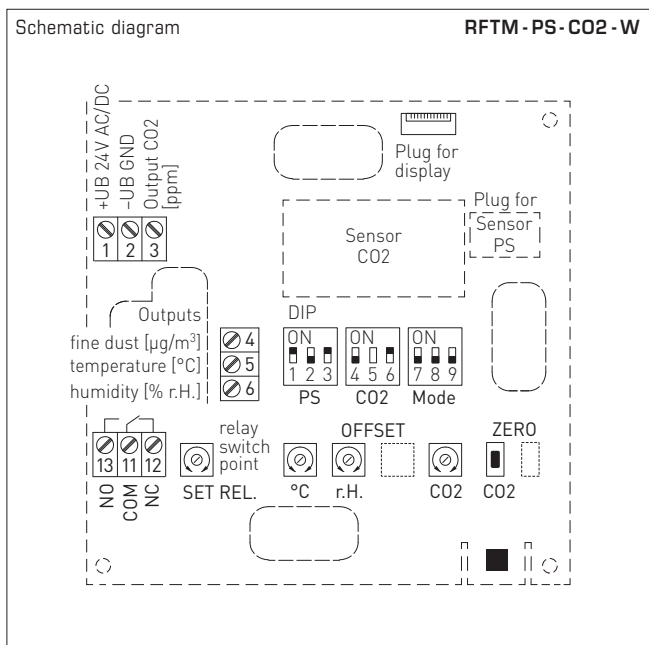


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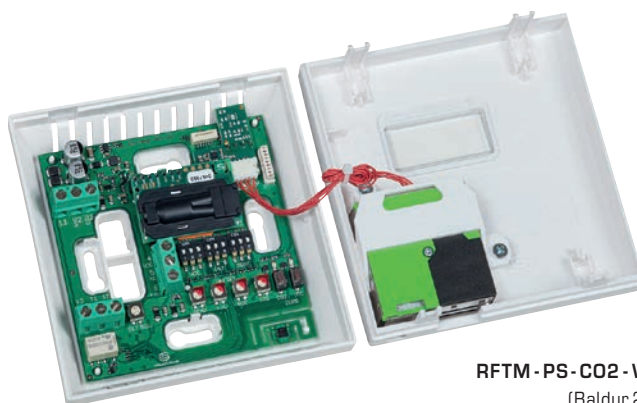


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DIP switch	RFTM-PS-xx	
<b>Fine dust (PM) Measuring range</b>	<b>DIP 1</b>	<b>DIP 2</b>
0...50 µg/m³	OFF	OFF
0...100 µg/m³ (default)	ON	OFF
0...300 µg/m³	OFF	ON
0...500 µg/m³	ON	ON
<b>Fine dust (PM) Particle size</b>	<b>DIP 3</b>	
PM 2.5 (default)	ON	
PM 10	OFF	
<b>CO2 content</b>	<b>DIP 4</b>	
0...2000 ppm (default)	OFF	
0...5000 ppm	ON	
<b>CO2 automatic zero point</b>	<b>DIP 6</b>	
deactivated	OFF	
activated (default)	ON	
<b>Relay assignment</b>	<b>DIP 7</b>	<b>DIP 8</b>
CO2 (default) 600...1900 ppm / 900...4700 ppm	OFF	OFF
Fine dust 10%...95% of measuring range	ON	OFF
Temperature +5...+48 °C	OFF	ON
Humidity 10...95% RH	ON	ON
<b>Output</b>	<b>DIP 9</b>	
Voltage 0-10 V (default)	OFF	
Current 4...20 mA	ON	
Note: <b>DIP 5</b> is not assigned !		

DIP switch	RPS-SD	
<b>Fine dust (PM) Measuring range</b>	<b>DIP 1</b>	<b>DIP 2</b>
0...50 µg/m³	OFF	OFF
0...100 µg/m³ (default)	ON	OFF
0...300 µg/m³	OFF	ON
0...500 µg/m³	ON	ON
<b>Fine dust (PM) Particle size</b>	<b>DIP 3</b>	
PM 2.5 (default)	ON	
PM 10	OFF	



**RFTM-PS-CO2-W**  
(Baldur 2)



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**AERASGARD® RPS - SD**  
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Fine dust sensor/particulate sensor, multifunctional room sensor and measuring transducer for humidity, temperature, fine dust (PM) and CO2 content, calibratable, with active/switching output



**Humidity table**

MR: 0...100% RH

% RH	U <sub>A</sub> [V]	I <sub>A</sub> [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 ...		

% RH	U <sub>A</sub> [V]	I <sub>A</sub> [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 <sub>A</sub> [V]	I <sub>A</sub> [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

Type/ WG02	Measuring Range				Equipment	Item No.	Price
	Humidity	Temperature	PM	CO2	Display		
<b>RPS - SD</b>			(switchable)				
RPS-SD	-	-	0... 50 µg/m <sup>3</sup> 0...100 µg/m <sup>3</sup> 0...300 µg/m <sup>3</sup> 0...500 µg/m <sup>3</sup>	-		1501-2110-1001-000	<b>338,82 €</b>
<b>RFTM - PS - W</b>			(switchable)	(switchable)			
RFTM-PS-W	0...100% RH	0...+50 °C	0... 50 µg/m <sup>3</sup> 0...100 µg/m <sup>3</sup> 0...300 µg/m <sup>3</sup> 0...500 µg/m <sup>3</sup>	-	W	1501-2116-7301-000	<b>441,98 €</b>
RFTM-PS-W LCD	0...100% RH	0...+50 °C	(4x as above)	-	W ■	1501-2116-7321-000	<b>536,98 €</b>
<b>RFTM - PS - CO2 - W</b>							
RFTM-PS-CO2-W	0...100% RH	0...+50 °C	0... 50 µg/m <sup>3</sup> 0...100 µg/m <sup>3</sup> 0...300 µg/m <sup>3</sup> 0...500 µg/m <sup>3</sup>	0...2000 ppm / 0...5000 ppm	W	1501-2113-7301-000	<b>514,56 €</b>
RFTM-PS-CO2-W LCD	0...100% RH	0...+50 °C	(4x as above)	0...2000 ppm / 0...5000 ppm	W ■	1501-2113-7321-000	<b>569,56 €</b>
Outputs:	<b>0-10V or 4...20mA</b> (selectable via DIP switches, selected variant applies for all outputs) – <i>Standard</i> room sensor <b>RPS - SD</b> with fixed output 0-10V!						
Equipment:	<b>W = changeover contact</b> – <i>Standard</i> room sensor <b>RPS - SD</b> without changeover contact!						
Note:	These units must <b>not</b> be used as safety-relevant devices!						