

Duct CO<sub>2</sub> sensors and measuring transducers,  
incl. mounting flange, self-calibrating, with multi-range switching  
and active / switching output

**Patented quality product (patent no. DE 10 2014 010 719.1)**

The maintenance-free, microprocessor-controlled AERASGARD® KCO<sub>2</sub>-TYR1 is designed for duct installation and is used to detect the CO<sub>2</sub> content of the air. The measurement signals are converted to standard signals of 0-10V or 4...20mA. It is available with / without an optional display.

The CO<sub>2</sub> content of the air is measured using an optical NDIR sensor (non-dispersive infra-red technology). The detection range of the CO<sub>2</sub> sensor is calibrated for standard applications such as monitoring residential rooms and conference rooms. Room ventilation on an as-needed basis, improved well-being and customer benefit, increased comfort as well as reduced operating costs through energy conservation are just some of the benefits of employing AERASGARD® CO<sub>2</sub> sensors.

A measuring system based on NDIR (non-dispersive infra-red technology) for CO<sub>2</sub> measurement consists of a light source and a receptor. A certain range of wavelengths of light radiated by the source is damped and absorbed by CO<sub>2</sub> molecules in the measured section. This damping is detected by the receptor. For more information, see the start of the chapter.



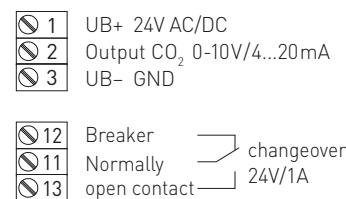
**TECHNICAL DATA**

Power supply:	24V AC / DC (± 10%)
Power consumption:	< 1.5W / 24V DC typical; < 2.9VA / 24V AC typical; Peak current 200 mA
Sensor, CO <sub>2</sub> :	optical NDIR sensor (non-dispersive infra-red technology) <b>with automatic and manual calibration</b>
Measuring range, CO <sub>2</sub> :	<b>Multi-range switching</b> (selectable via DIP switches) 0...2000 ppm; 0...5000 ppm
Output, CO <sub>2</sub> :	<b>0-10V and 4...20mA</b> (selectable via DIP switches) 1 changeover contact (24V / 1A) switchpoint adjustable
Measuring accuracy, CO <sub>2</sub> :	±30 ppm ±3% of measured value
Temperature dependence, CO <sub>2</sub> :	±5 ppm / °C or ±0.5% of measured value / °C (whichever is higher)
Pressure dependence:	±0.13% / mm Hg
Long-term stability:	<2% in 15 years
Gas exchange:	by diffusion
Warm up time:	approx. 1 hour
Ambient temperature:	-10...+60 °C
Response time:	approx. 1 minute
Electrical connection:	0.14 - 1.5 mm <sup>2</sup> , via screw terminals
Enclosure:	plastic, polyamide, 30% glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016)
Enclosure dimensions:	72 x 64 x 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
Cable gland:	M 16 x 1.5; including strain relief, exchangeable, max. inner diameter 10.4 mm
Protective tube:	<b>PLEUROFORM™</b> , material polyamide (PA6), with torsion protection, Ø 20 mm, NL = 202.5 mm, v <sub>max</sub> = 30 m/s (air)
Process connection:	via flange made of plastic (included in scope of delivery)
Protection class:	III (according to EN 60 730)
Protection type:	IP 65 (according to EN 60 529) enclosure only!
Standards:	CE conformity, electromagnetic compatibility according to EN 61 326, EMC Directive 2014 / 30 / EU
Optional:	<b>Display with illumination</b> , two line, cutout approx. 36 x 15 mm (W x H), for displaying the <b>Actual CO<sub>2</sub> content</b> and for setting the <b>switchpoint</b>
ACCESSORIES:	See last chapter

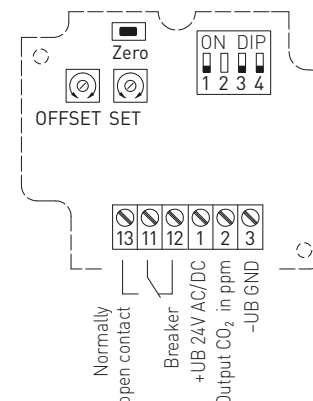
DIP switch	KCO <sub>2</sub> -TYR1
<b>CO<sub>2</sub> content</b>	<b>DIP 1</b>
0...2000 ppm (default)	OFF
0...5000 ppm	ON
<b>CO<sub>2</sub> -automatic zero point</b>	<b>DIP 3</b>
deactivated	OFF
activated (default)	ON
<b>Output</b>	<b>DIP 4</b>
Voltage 0-10V (default)	OFF
Current 4...20mA	ON

Note: **DIP 2** is not assigned!

**Connecting diagram KCO<sub>2</sub>-TYR1**



**Schematic diagram KCO<sub>2</sub>-TYR1**





**NEW**

S+S REGELTECHNIK

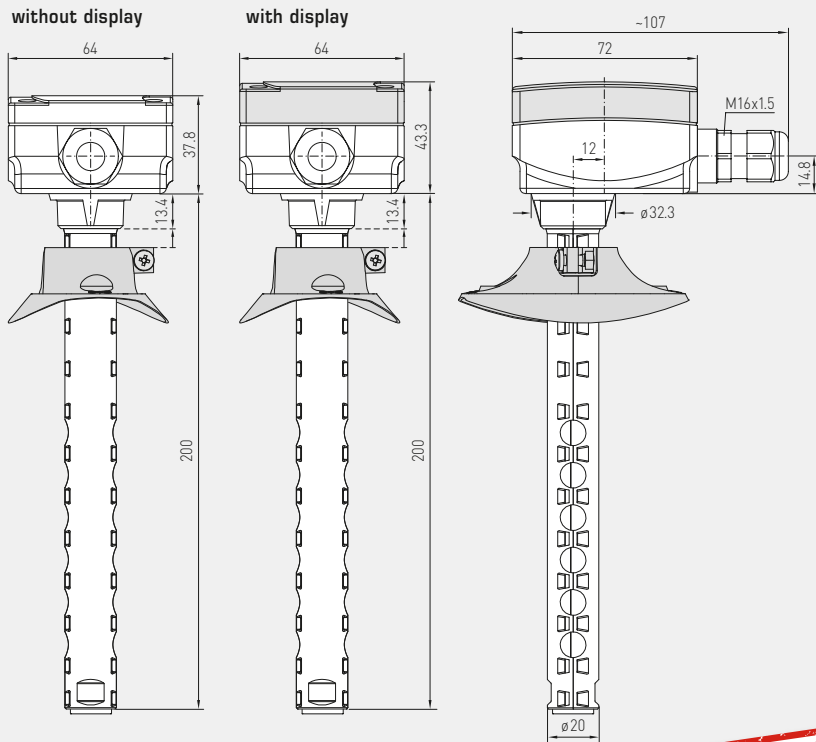
AERASGARD® KCO<sub>2</sub>-TYR1

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Dimensional drawing

KCO<sub>2</sub>-TYR1

KCO<sub>2</sub>-TYR1

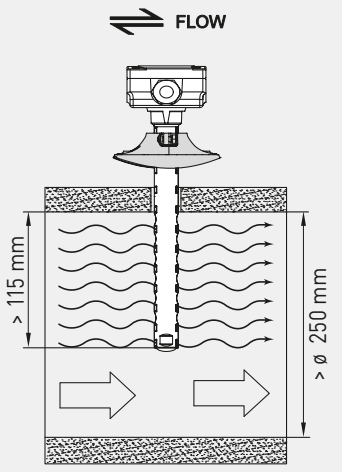


**PATENTED**

Mounting diagram

KCO<sub>2</sub>-TYR1

MFT-20-K  
Mounting flange, plastic



AERASGARD® KCO<sub>2</sub>-TYR1 – Duct CO<sub>2</sub> sensor and measuring transducer, Premium

Type / WG02	Measuring Range CO <sub>2</sub>	Output CO <sub>2</sub>	Equipment	Display	Item No.	Price
<b>KCO<sub>2</sub>-TYR1</b>	(switchable)	(switchable)				
KCO2-W TYR1	0...2000 ppm / 0...5000 ppm	0-10 V / 4...20 mA	1x changeover contact		1501-3140-7301-200	<b>255,00 €</b>
KCO2-W TYR1 DISPLAY	0...2000 ppm / 0...5000 ppm	0-10 V / 4...20 mA	1x changeover contact	■	1501-3140-7321-200	<b>297,33 €</b>

Note: This unit **must not** be used as safety-relevant device!