

Multifunctional duct sensors and measuring transducers incl. mounting flange, for humidity, temperature, CO₂ content and air quality (VOC), calibratable, with Modbus connection

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

The maintenance-free, microprocessor-controlled **AERASGARD® AFTM - LQ - CO₂ - Modbus** and **KCO₂ / KLQ - CO₂ / KFTM - CO₂ - Modbus** with Modbus connection, with /without optional display, is designed for duct installation and is used to monitor all measurands of relevance to the climate inside a room. These are the measurands air humidity, temperature, CO₂ concentration as well as air quality (VOC). By using a single device to monitor all four measurands, it is possible to effectively monitor and regulate the entire room climate. It measures CO₂ in the range of 0...5000 ppm, VOC at one of three selectable sensitivity levels LOW / MEDIUM / HIGH, temperatures in the range of -35...+80 °C, as well as relative air humidity from 0...100 % r.H.

A digital, long-term stable sensor used as measuring element for relative air humidity and temperature guarantees exact measurement results. The Modbus can be used to retrieve the following parameters: Temperature [°C], relative humidity [% r.H.], air quality (VOC) [%], carbon dioxide (CO₂) [ppm] and atmospheric pressure [hPa].

The CO₂ content of the air is measured using an optical NDIR sensor (non-dispersive infra-red technology). The detection range of the sensors 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 the AERASGARD® CO₂ sensor.

The explanations above demonstrate that there are applications for CO₂ measurements, for VOC measurements, but from our perspective, above all, for a combination of both measurands. The crucial factor in this respect is that both of these measurands are not convertible into each other and derivations to or from one another cannot be made. An NDIR CO₂ measuring instrument measures selectively and cannot detect any VOC; a VOC mixed gas sensor cannot recognize CO₂ molecules.

TECHNICAL DATA

Voltage supply:	24 V AC / DC (± 10 %)
Power consumption:	< 4.8 W / 24 V DC typical; < 6.8 VA / 24 V AC typical; peak current 200 mA
Data points:	Temperature [°C], relative humidity [% r.H.], air quality (VOC) [%], carbon dioxide (CO ₂) [ppm], atmospheric pressure [hPa]

HUMIDITY

Sensors:	digital humidity sensor with integrated temperature sensor , low hysteresis, high long-term stability
Sensor protection:	plastic sinter filter , Ø 16 mm, L = 35 mm, exchangeable (optional metal sinter filter , Ø 16 mm, L = 32 mm)
Measuring range, humidity:	0...100% r. H.
Operating range, humidity:	0...95% r. H. (without dew formation)
Deviation of humidity:	typically ± 2.0% (20...80% r. H.) at +25 °C, otherwise ± 3.0%

TEMPERATURE

Measuring range, temperature:	-35...+80 °C
Operating range, temperature:	-10...+60 °C
Deviation, temperature:	typically ± 0.2K at 25 °C

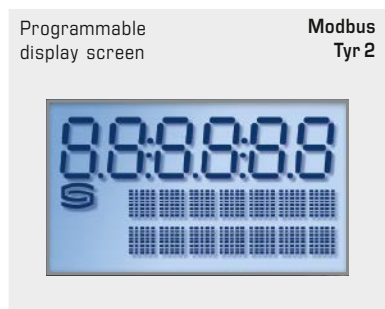
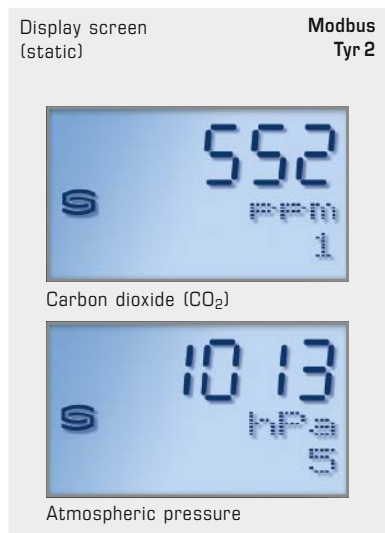
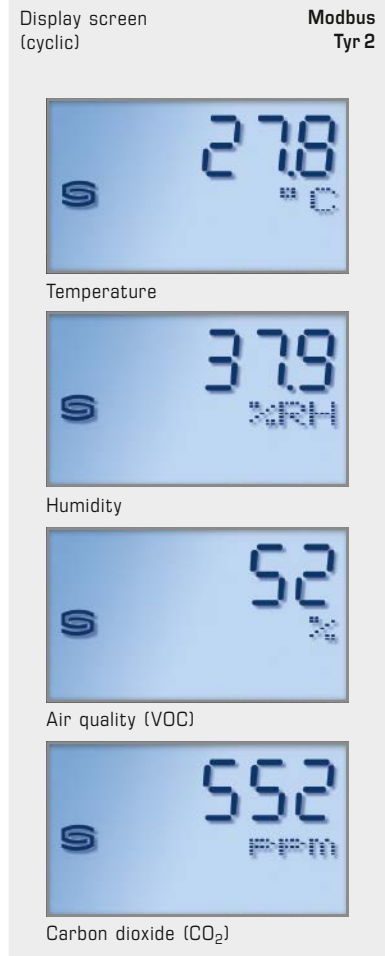
AIR QUALITY (VOC)

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

CARBON DIOXIDE (CO₂)

Sensor, CO ₂ :	optical NDIR sensor (non-dispersive infra-red technology) including atmospheric pressure compensation (up to 1100 mbar) with automatic and manual calibration
Measuring range, CO ₂ :	0...5000 ppm
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:	± 0.13% / mm Hg
Long-term stability:	< 2% in 15 years
Gas exchange:	by diffusion

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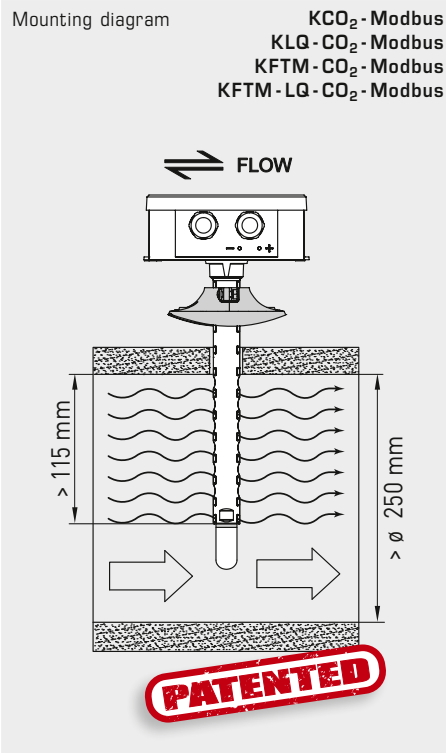




S+S REGELTECHNIK

AERASGARD® **KCO₂ / KLQ - CO₂ - Modbus**
 AERASGARD® **KFTM - (LQ) - CO₂ - Modbus**

Multifunctional duct sensors and measuring transducers incl. mounting flange, for humidity, temperature, CO₂ content and air quality (VOC), calibratable, with Modbus connection



MFT-20-K
 Mounting flange, plastic



KFTM - CO₂ - Modbus
KFTM - LQ - CO₂ - Modbus
 with plastic sinter filter (standard)



KFTM - CO₂ - Modbus
KFTM - LQ - CO₂ - Modbus
 with display and plastic sinter filter (standard)



SF-K
 Plastic sinter filter (standard)



SF-M
 Metal sinter filter (optional)

TECHNICAL DATA (continued)

Bus protocol:	Modbus (RTU mode), address range 0... 247 selectable
Signal filtering:	4 s / 32 s
Ambient temperature:	-10...+60 °C
Response time:	< 2 minutes, minimal flow velocity 0.3 m/s (air)
Electrical connection:	0.2 - 1.5 mm ² , ia push-in terminal
Enclosure:	plastic, UV-stabilised, material polyamide, 30% glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), enclosure cover for display is transparent!
Enclosure dimensions:	126 x 90 x 50 mm (Tyr 2)
Cable gland:	2x M 16 x 1.5; including strain relief, exchangeable
Protective tube:	PLEUROFORM™ , material polyamide (PA6), with torsion protection, Ø 20 mm, v _{max} = 30 m/s (air) without filter: NL = 202.5 mm / with plastic filter: NL = 235 mm (optional with metal filter: NL = 227 mm)
Process connection:	via mounting flange made of plastic (included in scope of delivery)
Protection class:	III (according to EN 60 730)
Protection type:	IP65 (according to EN 60 529) enclosure only! (PLEUROFORM IP30)
Standards:	CE conformity, electromagnetic compatibility according to EN 61 326, EMC Directive 2014 / 30 / EU
Optional:	Display with illumination , three-line, cutout approx. 70 x 40 mm (W x H), for displaying actual humidity, actual temperature, air quality and the actual CO ₂ content (cyclic) or a selectable parameter (static) or an individually programmable display value (The Modbus interface allows the display to be individually configured in the 7-segment area and in the dot-matrix area.)

ACCESSORIES see table

AERASGARD® KCO₂ / KLQ-CO₂-Modbus
AERASGARD® KFTM-(LQ)-CO₂-Modbus



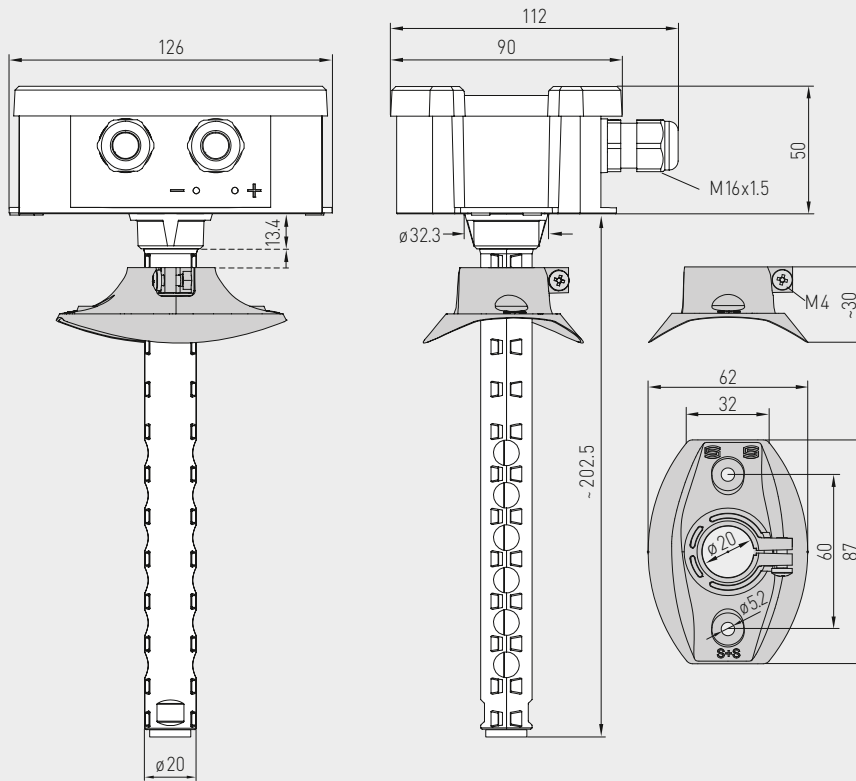
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S+S REGELTECHNIK

Dimensional drawing

KCO₂-Modbus
KLQ-CO₂-Modbus

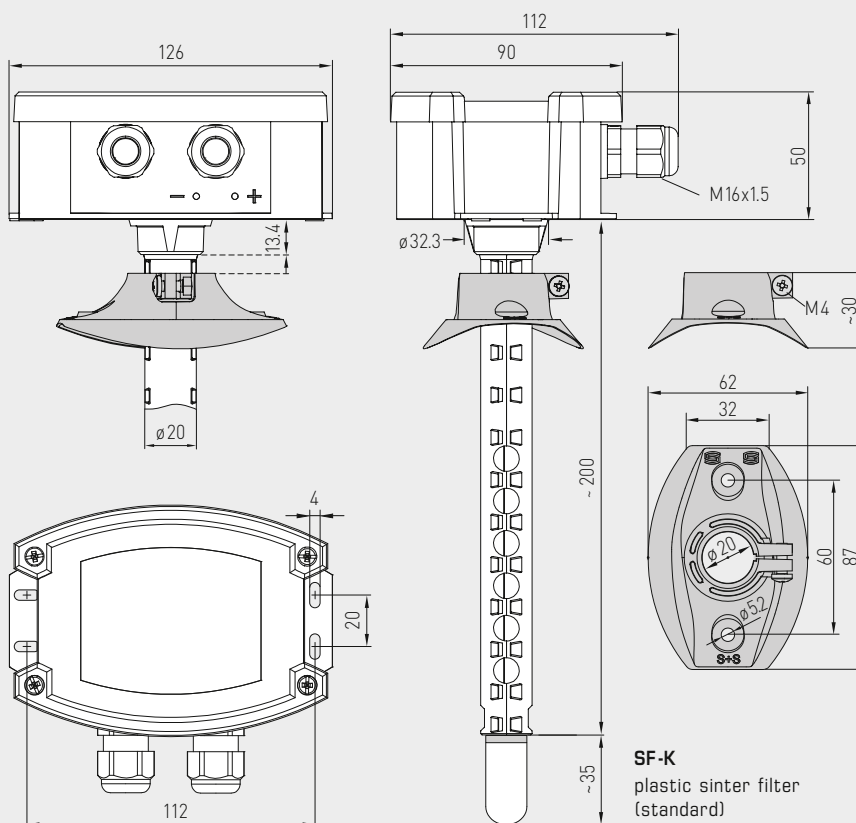
KCO₂-Modbus
KLQ-CO₂-Modbus



Dimensional drawing

KFTM-CO₂-Modbus
KFTM-LQ-CO₂-Modbus

KFTM-CO₂-Modbus
KFTM-LQ-CO₂-Modbus



SF-M
 metal sinter filter
 (optional)



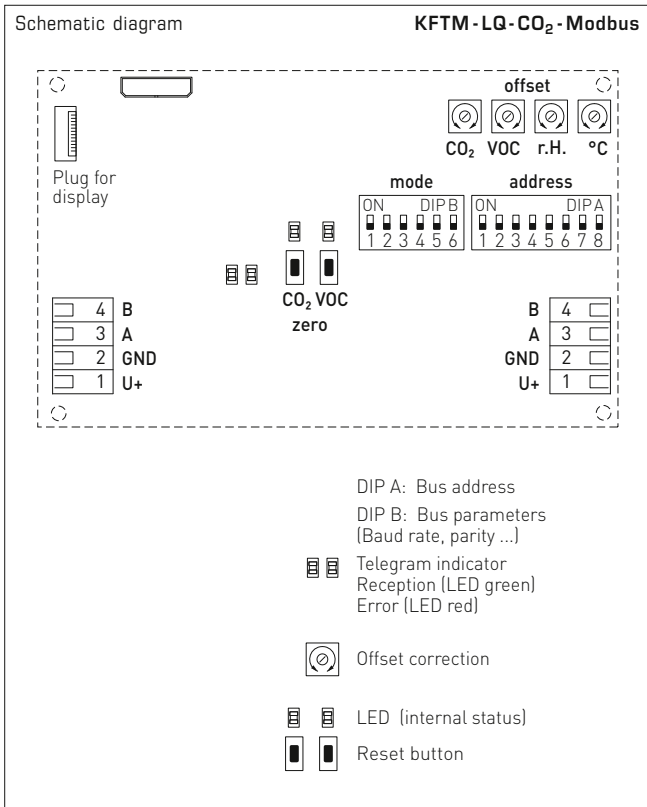
SF-K
 plastic sinter filter
 (standard)



S+S REGELTECHNIK

AERASGARD® KCO₂ / KLQ - CO₂ - Modbus AERASGARD® KFTM - (LQ) - CO₂ - Modbus

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KFTM-LQ-CO₂-Modbus with display



AERASGARD® KCO ₂ - Modbus	Duct sensor for CO ₂ content, <i>Deluxe</i>
AERASGARD® KLQ - CO ₂ - Modbus	Duct sensor for air quality (VOC) and CO ₂ content, <i>Deluxe</i>
AERASGARD® KFTM - CO ₂ - Modbus	Multifunctional duct sensor for humidity, temperature and CO ₂ content, <i>Deluxe</i>
AERASGARD® KFTM - LQ - CO ₂ - Modbus	Multifunctional duct sensor for humidity, temperature, air quality (VOC) and CO ₂ content, <i>Deluxe</i>

Type / WG02	Measuring Range	Humidity	Temperature	CO ₂	VOC	Display	Item No.	Price	
KCO₂-Modbus									
KCO2 MODBUS	-	-	-	5000 ppm	-		1501-8110-6001-200	326,40 €	
KCO2 MODBUS LCD	-	-	-	5000 ppm	-	■	1501-8110-6071-200	377,20 €	
KLQ - CO₂-Modbus									
KLQ-CO2 MODBUS	-	-	-	5000 ppm	0..100%		1501-8111-6001-200	367,20 €	
KLQ-CO2 MODBUS LCD	-	-	-	5000 ppm	0..100%	■	1501-8111-6071-200	427,38 €	
KFTM - CO₂-Modbus									
KFTM-CO2 MODBUS	0..100% r.H.	-35...+80 °C	-	5000 ppm	-		1501-8116-6001-200	334,56 €	
KFTM-CO2 MODBUS LCD	0..100% r.H.	-35...+80 °C	-	5000 ppm	-	■	1501-8116-6071-200	405,96 €	
KFTM - LQ - CO₂-Modbus									
KFTM-LQ-CO2 MODBUS	0..100% r.H.	-35...+80 °C	-	5000 ppm	0..100%		1501-8118-6001-200	434,52 €	
KFTM-LQ-CO2 MODBUS LCD	0..100% r.H.	-35...+80 °C	-	5000 ppm	0..100%	■	1501-8118-6071-200	508,98 €	
Note:	This unit must not be used as safety-relevant device!								
ACCESSORIES									
KA-2	Modbus communication adapter with USB/RS485 interface for system connection or/and as an active bus termination resistance							on request	
SF-M	Metal sinter filter, Ø 16 mm, L = 32 mm, exchangeable, stainless steel V4A (1.4404)							7000-0050-2200-100	35,70 €
MFT-20-K	Mounting flange, plastic (included in the scope of delivery)							7000-0031-0000-000	8,06 €
For further information, see last chapter Accessories!									