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

S+S REGELTECHNIK

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

The maintenance-free duct sensor **AER**ASGARD® **KFTM-LQ-CO2-Modbus** (max. expansion level) and **KCO2 / KLQ-CO2 / KFTM-CO2-Modbus** with Modbus connection, automatic calibration, in an impact-resistant plastic housing with quick-locking screws, plastic sinter filter (replaceable), incl. mounting flange, optionally with/without display, for determining the CO2-content of the air (0...5000 ppm), of the air quality (0...100 % VOC), the temperature (–35...+80 °C) and the relative air humidity (0...100 % RH). International system of units **SI** (default) can be changed to **imperial** (via Modbus). The following parameters can be accessed via the Modbus: Temperature, relative humidity, air quality (VOC), carbon dioxide (CO2) and atmospheric pressure. 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. With regard to the expected air contamination, low, medium or high VOC sensitivity can be selected.

Innovative Modbus sensor with galvanically separated RS485-Modbus-interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, internal LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated; with customised programming in the 7-segment and dot-matrix range). The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

TECHNICAL DATA

Voltage supply:	24 V AC / DC (± 10 %)
Power consumption:	< 4.8 W / 24 V DC typically; < 6.8 VA / 24 V AC typically; peak current 200 mA
System of units:	**SI** (default) or **Imperial** (switchable via Modbus)
Data points:	temperature [°C] [°F], relative humidity [% RH], atmospheric pressure [hPa], air quality (VOC) [%], carbon dioxide (CO2) [ppm]
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 % RH
Operating range, humidity:	0...95 % RH (without dew formation)
Accuracy humidity:	typically **± 2.0** % (20...80 % RH) at +25 °C, otherwise ± 3.0 %
TEMPERATURE	
Measuring range, temperature:	–35...+80 °C
Operating range, temperature:	–10...+60 °C
Accuracy temperature:	typically ± 0.2 K at +25 °C
AIR QUALITY (VOC)	
Sensor:	VOC sensor (metal oxide) **with automatic calibration** (VOC = volatile organic compounds)
Measuring range:	0...100 % air quality; referred to calibrating gas; **multi-range switching** VOC sensitivities (low/medium/high)
Measuring accuracy:	typically ± 20 % of final value (referred to calibrating gas)
Service life	> 60 months (under normal load conditions)
CARBON DIOXIDE (CO2)	
Sensor:	optical NDIR sensor (non-dispersive infra-red technology) including atmospheric pressure compensation (up to 1100 mbar) **with manual calibration** (via zero button), **with automatic calibration** (can be deactivated via Modbus)
Measuring range:	0...5000 ppm
Measuring accuracy:	typically ± 30 ppm (± 3 % of measured value)
Temperature dependence:	± 5 ppm per °C or ± 0,5 % of measured value per °C (whichever is higher)
Pressure dependence:	± 0.13 % per mm Hg
Long-term stability:	< 2 % in 15 years
Gas exchange:	by diffusion

Continued on next page!

Display screen (cyclic) **Modbus Tyr 2**

Temperature [°C]

Temperature [°F]

Humidity

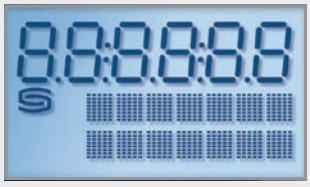
Air quality (VOC)

Carbon dioxide (CO2)

Display screen (static)

Atmospheric pressure (Example Index 5)

Programmable display screen



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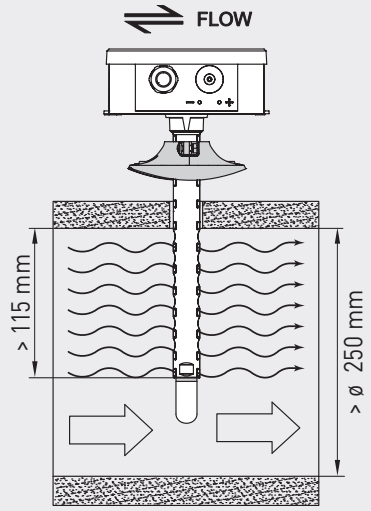
AERASGARD® KCO2 / KLQ - CO2 - Modbus
AERASGARD® KFTM - (LQ) - CO2 - Modbus

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

Mounting diagram [mm]

KCO2 - Modbus
KLQ - CO2 - Modbus
KFTM - CO2 - Modbus
KFTM - LQ - CO2 - Modbus



PATENTED

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

MFT-20-K
Mounting flange, plastic

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

SI IMP

SF-K
Plastic sinter filter (standard)

SF-M
Metal sinter filter (optional)

TECHNICAL DATA (continued)

Communication:	**Modbus** (RTU cable)
Bus interface:	RS 485, **galvanically isolated**
Baud rate:	9600, 19200, 38400 Baud
Bus protocol:	Modbus (RTU mode), address range 0...**247** adjustable
Signal filtering:	4 s / 32 s
Response time:	< 2 minutes, minimal flow velocity 0.3 m/s (air)
Ambient temperature:	–10...+60 °C
Electrical connection:	0.2 - 1.5 mm², via push-in terminal
Cable connection:	**cable gland**, plastic (M 16 x 1.5; with strain relief, exchangeable, inner diameter 10.4 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016),housing cover for display is transparent!
Housing dimensions:	126 x 90 x 50 mm (Tyr 2)
Protective tube:	**PLEUROFORM**™, material polyamide (PA6), with torsion protection, v_{max} = 30 m/s (air) Ø 20 mm, NL = 202.5 mm without filter, NL = 235 mm with plastic filter (optional 100 mm)
Process connection:	via mounting 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) housing in the built-in state (permeable PLEUROFORM: IP 30)
Standards:	CE conformity according to 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 CO2 content (cyclic) or a selectable parameter (static) or an individually programmable display value
ACCESSORIES	see table

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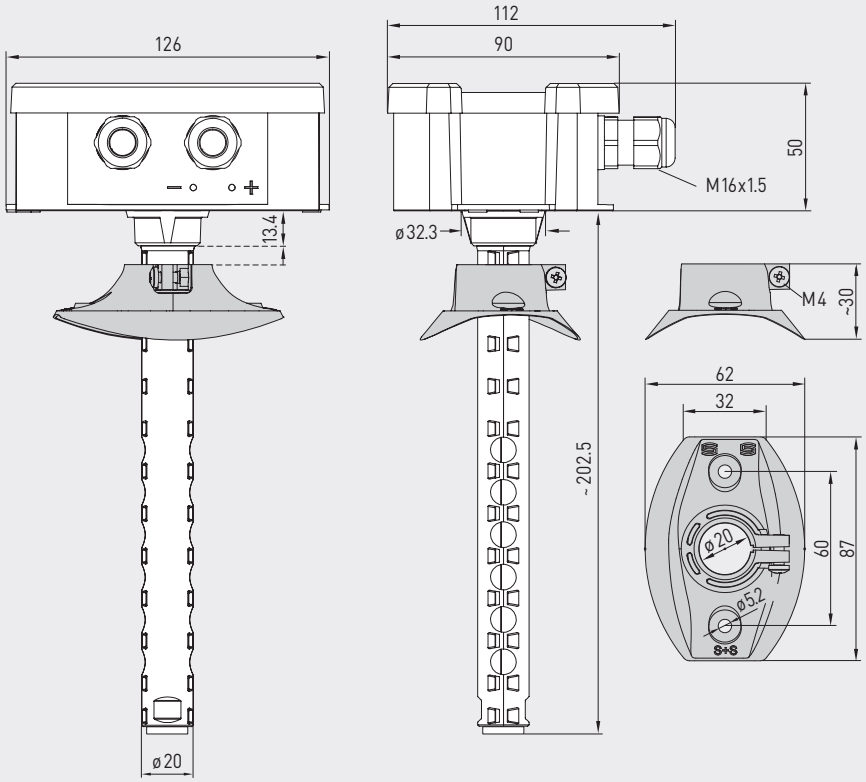
Dimensional drawing
[mm]

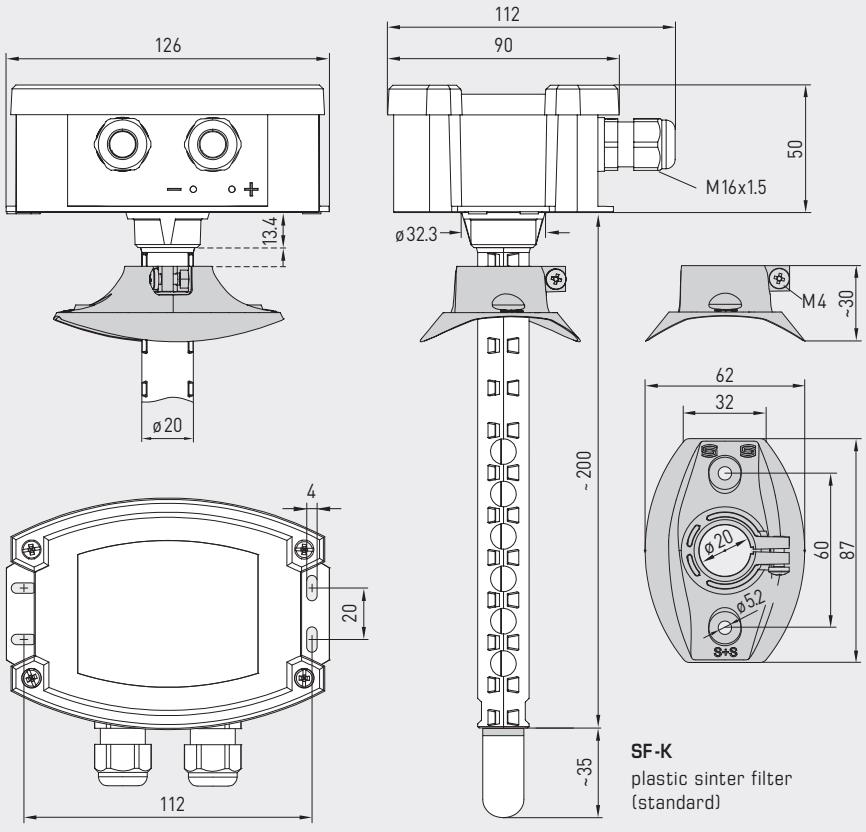
KCO2-Modbus
KLQ - CO2-Modbus



KCO2-Modbus
KLQ - CO2-Modbus

Dimensional drawing
[mm]

KFTM - CO2 - Modbus
KFTM - LQ - CO2 - Modbus



SF-K
plastic sinter filter
(standard)

KFTM - CO2 - Modbus
KFTM - LQ - CO2 - Modbus

SF-M
metal sinter filter
(optional)

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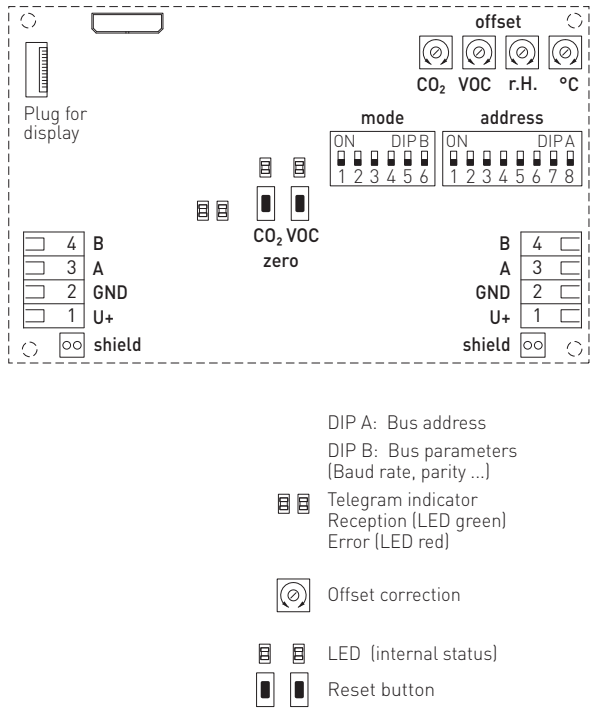
AERASGARD® KCO2 / KLQ - CO2 - Modbus
AERASGARD® KFTM - (LQ) - CO2 - Modbus

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

Schematic diagram — **KFTM - LQ - CO2 - Modbus**



KFTM - LQ - CO2 - Modbus
with display

AERASGARD® KCO2 - Modbus	Duct sensor for CO2 content, *Deluxe*
AERASGARD® KLQ - CO2 - Modbus	Duct sensor for air quality (VOC) and CO2 content, *Deluxe*
AERASGARD® KFTM - CO2 - Modbus	Multifunctional duct sensor for humidity, temperature and CO2 content, *Deluxe*
AERASGARD® KFTM - LQ - CO2 - Modbus	Multifunctional duct sensor for humidity, temperature, air quality (VOC) and CO2 content, *Deluxe*

Type / WG02	Measuring Range Humidity	Temperature*	CO2	VOC	Display	Item No.	Price
KCO2-Modbus							
KCO2-Modbus	–	–	5000 ppm	–		1501-8110-6001-200	**402,14 €**
KCO2-Modbus **LCD**	–	–	5000 ppm	–	■	1501-8110-6071-200	**466,65 €**
KLQ - CO2-Modbus							
KLQ-CO2-Modbus	–	–	5000 ppm	0...100 %		1501-8111-6001-500	**453,96 €**
KLQ-CO2-Modbus **LCD**	–	–	5000 ppm	0...100 %	■	1501-8111-6071-500	**530,38 €**
KFTM - CO2-Modbus							
KFTM-CO2-Modbus	0...100 % RH	–35...+80 °C	5000 ppm	–		1501-8116-6001-200	**412,51 €**
KFTM-CO2-Modbus **LCD**	0...100 % RH	–35...+80 °C	5000 ppm	–	■	1501-8116-6071-200	**503,18 €**
KFTM - LQ - CO2-Modbus							
KFTM-LQ-CO2-Modbus	0...100 % RH	–35...+80 °C	5000 ppm	0...100 %		1501-8118-6001-500	**539,46 €**
KFTM-LQ-CO2-Modbus **LCD**	0...100 % RH	–35...+80 °C	5000 ppm	0...100 %	■	1501-8118-6071-500	**634,00 €**
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101 shortened protective tube **PLEUROFORM**™, NL = 100 mm					on request on request	
Note:	This unit **must not** be used as safety-relevant device!						
*	International system of units **SI** (default) can be changed to **imperial** (via Modbus).						

ACCESSORIES			
KA2-Modbus	**Communication adapter** (USB/RS485) for system connection	1906-1200-0000-100	**229,23 €**
LA-Modbus	**Line termination device** (with terminating resistor) as an active bus termination	1906-1300-0000-100	**85,49 €**
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable, stainless steel **V4A** (1.4404)	7000-0050-2200-100	**45,34 €**
MFT-20-K	**Mounting flange,** plastic (included in the scope of delivery)	7000-0031-0000-000	**10,24 €**
	For further information, see last chapter Accessories!		