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

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

The maintenance-free, microprocessor-controlled **AER**ASGARD® **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. One sensor for every 30 m² of room area is recommended.

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 (CO2) [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 ± 0.2 K 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, CO2:	optical NDIR sensor (non-dispersive infra-red technology) including atmospheric pressure compensation (up to 1100 mbar) **with automatic and manual calibration**
Measuring range, CO2:	0...5000 ppm
Measuring accuracy, CO2:	typically ± 30 ppm ± 3 % of measured value
Temperature dependence, CO2:	± 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 (continued on next page!)

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

Temperature

Humidity

Air quality (VOC)

Carbon dioxide (CO2)

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

Carbon dioxide (CO2)

Atmospheric pressure

Programmable display screen **Modbus Tyr 2**

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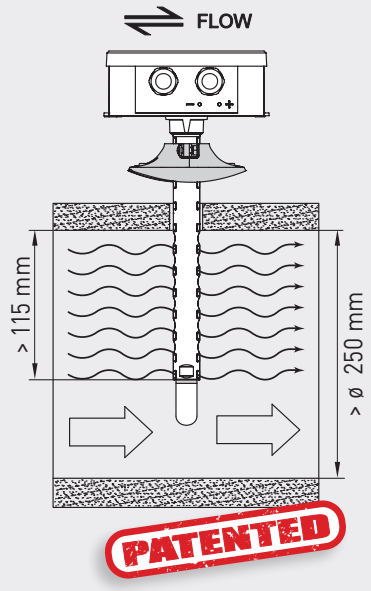
Mounting diagram

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



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)

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 mm², ia push-in terminal
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)
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)
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:	**IP 65** (according to EN 60 529) housing in the built-in state (permeable PLEUROFORM: IP 30)
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 CO2 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

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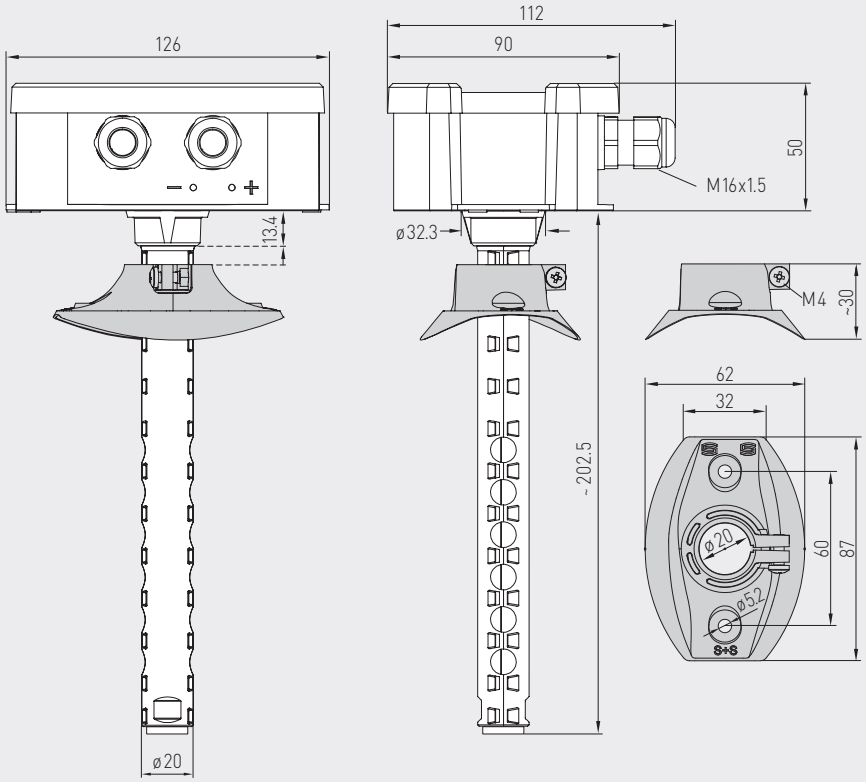
Dimensional drawing

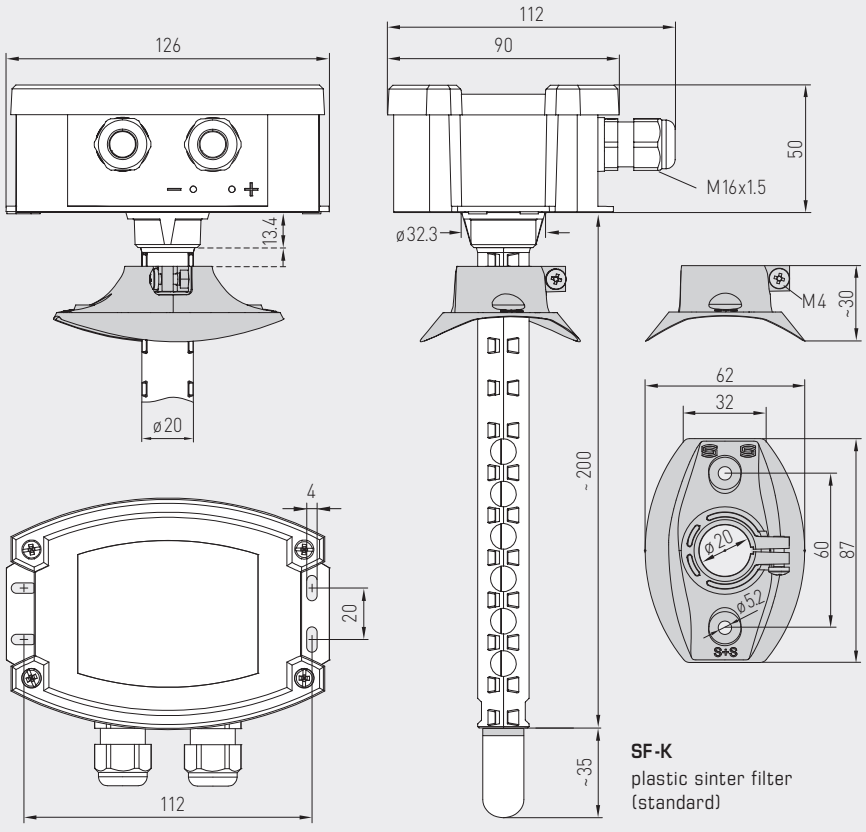
KCO2-Modbus
KLQ - CO2-Modbus



KCO2-Modbus
KLQ - CO2-Modbus

Dimensional drawing

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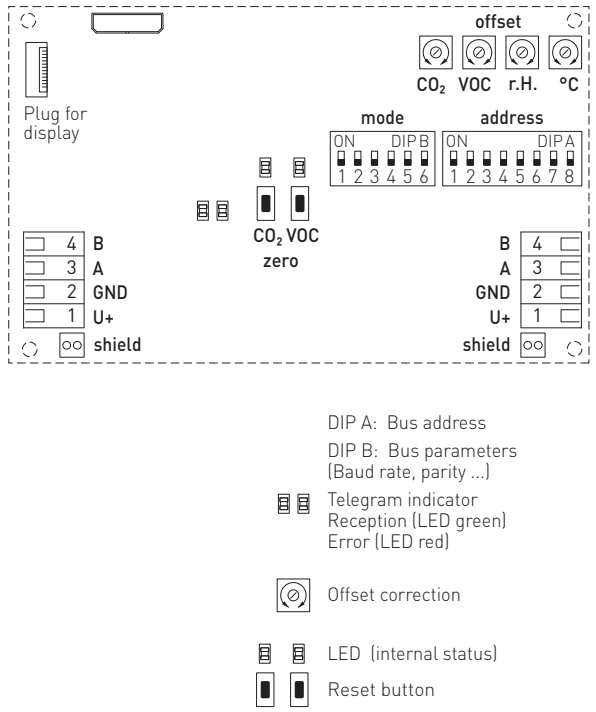
Schematic diagram — **KFTM - LQ - CO2 - Modbus**



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	**357,53 €**
KCO2-Modbus **LCD**	–	–	5000 ppm	–	■	1501-8110-6071-200	**414,89 €**
KLQ - CO2-Modbus							
KLQ-CO2-Modbus	–	–	5000 ppm	0...100 %		1501-8111-6001-500	**403,61 €**
KLQ-CO2-Modbus **LCD**	–	–	5000 ppm	0...100 %	■	1501-8111-6071-500	**471,55 €**
KFTM - CO2-Modbus							
KFTM-CO2-Modbus	0...100 % r.H.	–35...+80 °C	5000 ppm	–		1501-8116-6001-200	**366,75 €**
KFTM-CO2-Modbus **LCD**	0...100 % r.H.	–35...+80 °C	5000 ppm	–	■	1501-8116-6071-200	**447,37 €**
KFTM - LQ - CO2-Modbus							
KFTM-LQ-CO2-Modbus	0...100 % r.H.	–35...+80 °C	5000 ppm	0...100 %		1501-8118-6001-500	**479,62 €**
KFTM-LQ-CO2-Modbus **LCD**	0...100 % r.H.	–35...+80 °C	5000 ppm	0...100 %	■	1501-8118-6071-500	**563,68 €**
Note:	This unit **must not** be used as safety-relevant device!						
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101					on request	

ACCESSORIES			
KA2-Modbus	**Communication adapter** (USB/RS485) for system connection	1906-1200-0000-100	**203,80 €**
LA-Modbus	**Line termination device** (with terminating resistor) as an active bus termination	1906-1300-0000-100	**76,01 €**
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable, stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**
MFT-20-K	**Mounting flange,** plastic (included in the scope of delivery)	7000-0031-0000-000	**9,10 €**
	For further information, see last chapter Accessories!		