AERASGARD® KFTM-LQ-CO_2
AERASGARD® KLQ-CO_2-W

Multifunctional duct sensors and measuring transducers incl. mounting flange, for humidity, temperature, CO_2 content and air quality (VOC), calibratable, with active/switching output

NEW

S+S REGELTECHNIK

The maintenance-free, microprocessor-controlled **AER**ASGARD® **KFTM-LQ-CO_2** or **KLQ-CO_2-W** 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, CO_2 concentration as well as air quality (VOC). All measurands are converted to standard signals (0-10 V or 4...20 mA). As an option, the measurands can also be continuously indicated in the illuminated display. By using a single device to monitor all four measurands, it is possible to effectively monitor and regulate the entire room climate. The KFTM-LQ-CO_2 or KLQ-CO_2-W measures CO_2 in the range of 0...2000 ppm or 0...5000 ppm, VOC at one of three selectable sensitivity levels LOW / MEDIUM (default) / HIGH, temperatures in the range of –35...+80 °C, as well as relative air humidity from 0...100 % r.H.

The relative humidity (% r.H.) quotient of water vapour partial pressure divided by the saturation vapour pressure at the respective gas temperature. A digital, long-term stable sensor used as measuring element for relative air humidity and temperature guarantees exact measurement results.

The CO_2 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® CO_2 sensor.

The explanations above demonstrate that there are applications for CO_2 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 CO measuring instrument measures selectively and cannot detect any VOC; a VOC mixed gas sensor cannot recognize CO_2 molecules. For more information, see the start of the chapter.

TECHNICAL DATA

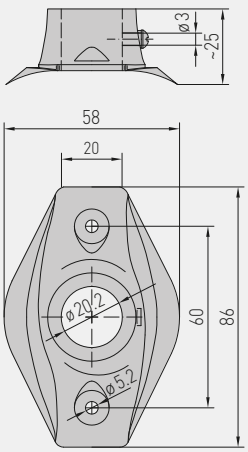
Voltage supply:	24 V AC / DC (± 10 %)
Power consumption:	< 4.8 W / 24 V DC typical; < 6.8 VA / 24 V AC typical; peak current 200 mA
Outputs:	**0-10 V or 4...20 mA** (selectable via DIP switches, selected variant applies for all outputs) working resistance < 800 Ω
HUMIDITY	
Sensors:	digital humidity sensor 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. (output equivalent to 0-10 V or 4...20 mA)
Operating range, humidity:	0...95 % r. H. (without dew formation)
Deviation of humidity:	**± 3 % r.H.** (20...80 %) at +20 °C, otherwise ± 5 % r. H.
Output, humidity:	0-10 V or 4...20 mA (selectable via DIP switches)
TEMPERATURE	
Measuring range, temperature:	–35...+80 °C (output equivalent to 0-10 V or 4...20 mA)
Operating range, temperature:	–10...+60 °C
Temperature deviation:	± 0.8 K at 20 °C, under standard conditions
Output, temperature:	0-10 V or 4...20 mA (selectable via DIP switches)
AIR QUALITY (VOC)	
Air quality sensor:	VOC sensor (metal oxide) **with automatic calibration** (VOC = volatile organic compounds)
Measuring range, air quality:	0...100 % air quality; referred to calibrating gas; **multi-range switching** (selectable via DIP switches) VOC sensitivity low, medium, high
Output, air quality:	0-10 V (0 V = clean air, 10 V = polluted air) or 4...20 mA (selectable via DIP switches) (switchpoint can be adjusted from 0...100 % of the output signal)
Measuring accuracy, air quality:	± 20 % of final value (referred to calibrating gas)
Service life:	> 60 months (under normal load conditions)
CARBON DIOXIDE (CO_2)	
Sensor CO_2:	optical NDIR sensor (non-dispersive infra-red technology) **with automatic calibration**
Measuring range, CO_2:	**multi-range switching** (selectable via DIP switches) 0...2000 ppm; 0...5000 ppm
Output CO_2:	0-10 V or 4...20 mA (selectable via DIP switches)
Measuring accuracy CO_2:	± 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 (continued on next page!)

SF-K
Plastic sinter filter (standard)

SF-M
Metal sinter filter (optional)

MFT-20-K
Mounting flange, plastic

Dimensional drawing **MFT-20-K**



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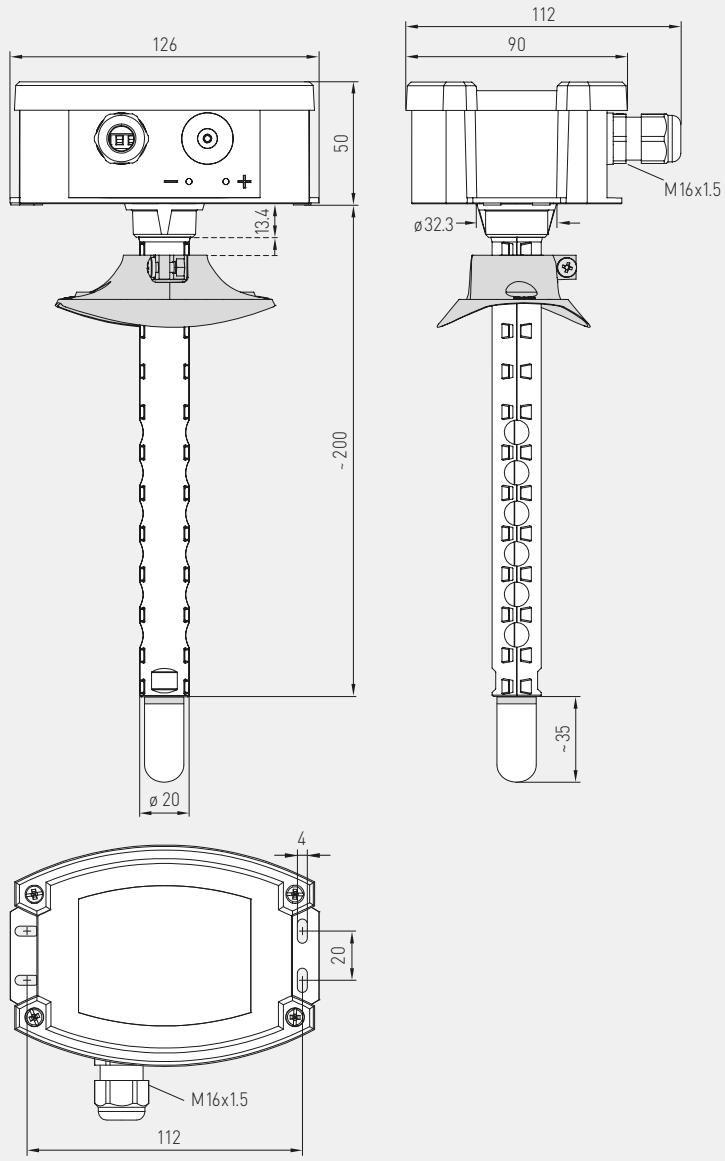
NEW

AERASGARD® KFTM - LQ - CO_2
AERASGARD® KLQ-CO_2-W

Multifunctional duct sensors and measuring transducers incl. mounting flange, for humidity, temperature, CO_2 content and air quality (VOC), calibratable, with active / switching output

Dimensional drawing **KFTM - LQ - CO_2**



KFTM - LQ - CO_2

KFTM - LQ - CO_2
with display

TECHNICAL DATA (continued)

Relay output:	with potential-free changeover contact 24 V (assignment selectable via DIP switches)
Ambient temperature:	–10...+60 °C
Response time:	< 2 minutes
Electrical connection:	0.14 - 1.5 mm², 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 cover for display is transparent!
Enclosure dimensions:	126 x 90 x 50 mm (Tyr 2)
Cable gland:	M 16 x 1.5; including strain relief, exchangeable
Protective tube:	**PLEUROFORM**™, material polyamide (PA6), with torsion protection, Ø 20 mm, without filter: NL = 202.5 mm, with plastic filter: NL = 235 mm (optional with metal filter: NL = 227 mm)
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! (PLEUROFORM IP 30)
Standards:	CE conformity, electromagnetic compatibility according to EN 61 326, EMC Directive 2004 / 108 / EC
Optional:	three-line **display with illumination,** cutout approx. 70 x 40 mm (W x H), for displaying actual humidity, actual temperature, air quality and / or the actual CO_2 content

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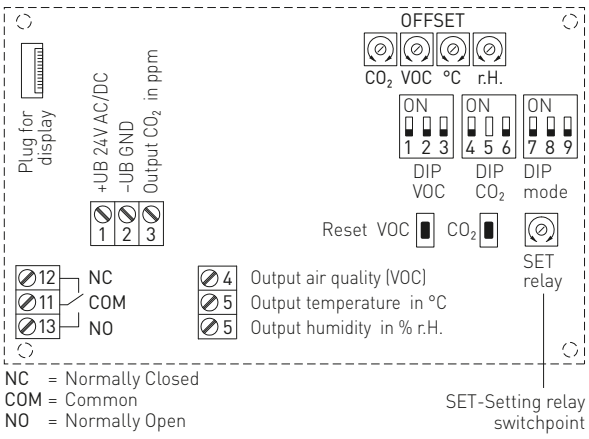
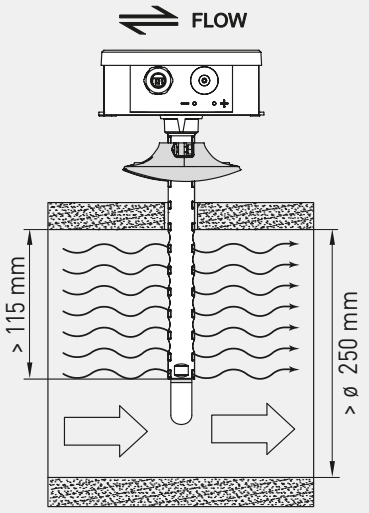
Schematic diagram **KFTM-LQ-CO_2**



DIP switches	**KFTM-LQ-CO_2**	
VOC sensitivity	**DIP 1**	**DIP 2**
VOC LOW	OFF	OFF
VOC MEDIUM (default)	**ON**	OFF
VOC HIGH	OFF	**ON**
VOC-automatic zero point		**DIP 3**
deactivated		OFF
activated (default)		**ON**
CO_2 content		**DIP 4**
0...2000 ppm (default)		OFF
0...5000 ppm		**ON**
CO_2-automatic zero point		**DIP 6**
deactivated		OFF
activated (default)		**ON**
Relay assignment	**DIP 7**	**DIP 8**
CO_2 (default)	OFF	OFF
VOC	**ON**	OFF
Temperature	OFF	**ON**
Humidity	**ON**	**ON**
Output		**DIP 9**
Voltage 0-10 V (default)		OFF
Current 4...20 mA		**ON**
Note: **DIP 5** is not assigned!		

Mounting diagram **KFTM-LQ-CO_2 KLQ-CO_2-W**



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NEW

AERASGARD® KFTM - LQ - CO_2
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KFTM - LQ - CO_2
KLQ - CO_2 - W
with display

Humidity table
MR: 0...100 % r. H.

% r.H.	U_A in V	I_A in 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
50	5.0	12.0
55	5.5	12.8

Continued at the right ...

% r.H.	U_A in V	I_A in mA
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: –35...+80 °C

°C	U_A in V	I_A in mA
- 35	0.0	4.0
- 30	0.4	4.7
- 25	0.9	5.4
- 20	1.3	6.1
- 15	1.7	6.8
- 10	2.2	7.5
- 5	2.6	8.2
0	3.0	8.9
+ 5	3.5	9.6
+ 10	3.9	10.3
+ 15	4.3	11.0
+ 20	4.8	11.7

Continued at the right ...

°C	U_A in V	I_A in mA
+ 25	5.2	12.3
+ 30	5.7	13.0
+ 35	6.1	13.7
+ 40	6.5	14.4
+ 45	7.0	15.1
+ 50	7.4	15.8
+ 55	7.8	16.5
+ 60	8.3	17.2
+ 65	8.7	17.9
+ 70	9.1	18.6
+ 75	9.6	19.3
+ 80	10.0	20.0

AERASGARD® KLQ-CO_2-W

Multifunctional duct sensors and measuring transducers incl. mounting flange, for CO_2 content and air quality (VOC), calibratable, with active/switching output

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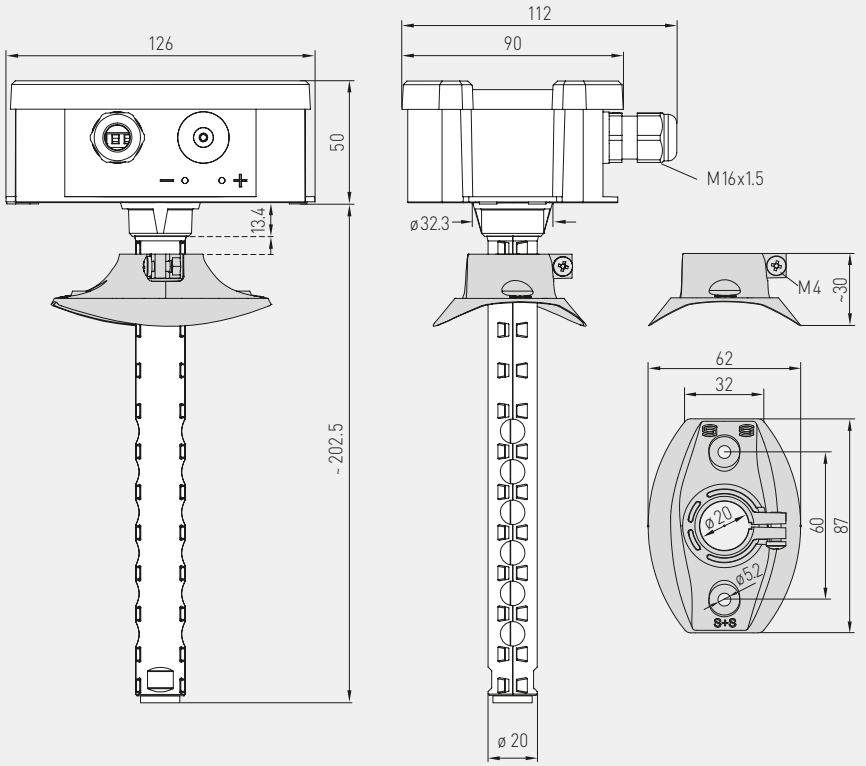
Dimensional drawing **KLQ-CO_2-W**



KLQ-CO_2-W

AERASGARD® **KLQ-CO_2-W** – Duct sensors for CO_2 content and air quality (VOC), *Deluxe*							
Type / WG01	**Measuring Range** Humidity	Temperature	CO_2	VOC	**Display**	**Item No.**	**Price**
KLQ-CO_2-W			(switchable)				
KLQ-CO2-W	–	–	0...2000 / 5000 ppm	0...100 %		1501-8111-7301-200	**340,00 €**
KLQ-CO2-W-DISPLAY	–	–	0...2000 / 5000 ppm	0...100 %	■	1501-8111-7371-200	**399,00 €**
Outputs:	**0-10 V or 4...20 mA** (selectable via DIP switches, selected variant applies for all outputs)						
Note:	This unit **must not** be used as safety-relevant device!						

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NEW

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AERASGARD® KFTM - LQ - CO_2

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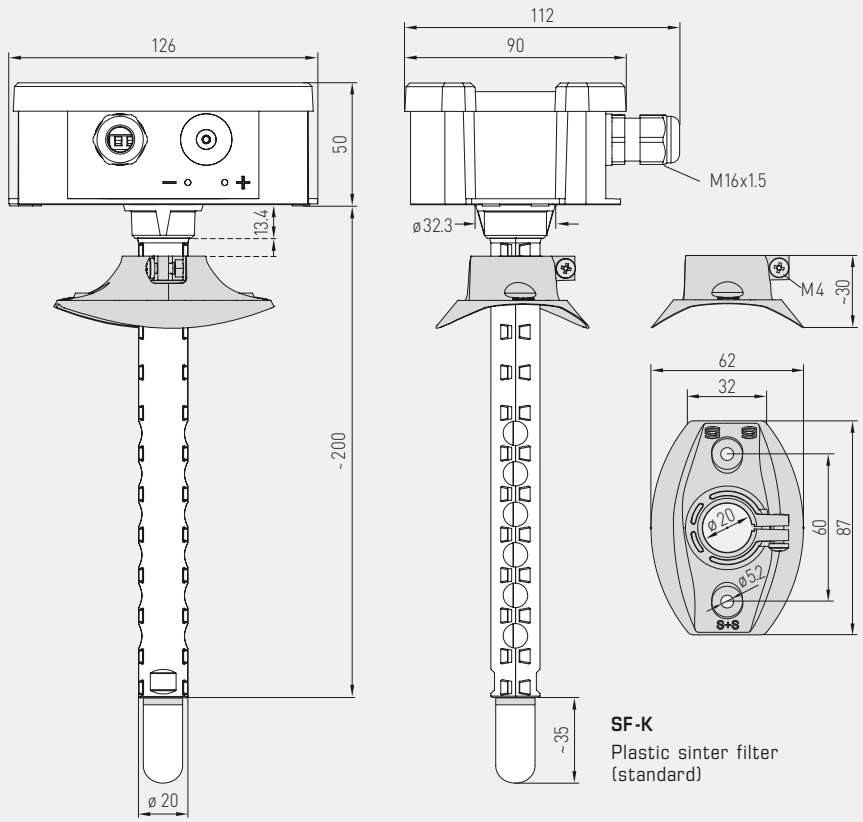
Dimensional drawing

KFTM - CO_2
KFTM - LQ - CO_2



SF-K
Plastic sinter filter
(standard)

KFTM - CO_2
KFTM - LQ - CO_2

SF-M
Metal sinter filter
(optional)

AERASGARD® KFTM - CO_2 - W – Duct sensors for humidity, temperature, CO_2 content, *Deluxe*
AERASGARD® KFTM - LQ - CO_2 - W – Duct sensors for humidity, temperature, CO_2 content and air quality (VOC), *Deluxe*

Type / WG02	Measuring Range Humidity	Temperature	CO_2	VOC	Display	Item No.	Price
KFTM - CO_2			(switchable)				
KFTM-CO2-W	0...100 % r.H.	–35...+80 °C	0...2000 / 5000 ppm	–		1501-8116-7301-200	**318,00 €**
KFTM-CO2-W-DISPLAY	0...100 % r.H.	–35...+80 °C	0...2000 / 5000 ppm	–	■	1501-8116-7371-200	**380,00 €**
KFTM - LQ - CO_2			(switchable)				
KFTM-LQ-CO2-W	0...100 % r.H.	–35...+80 °C	0...2000 / 5000 ppm	0...100 %		1501-8118-7301-200	**406,00 €**
KFTM-LQ-CO2-W DISPLAY	0...100 % r.H.	–35...+80 °C	0...2000 / 5000 ppm	0...100 %	■	1501-8118-7371-200	**486,00 €**
Outputs:	**0-10 V or 4...20 mA** (selectable via DIP switches, selected variant applies for all outputs)						
Note:	This unit **must not** be used as safety-relevant device!						

Accessories			
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel (VA 1.4404)	7000-0050-2200-100	**35,00 €**