

Multifunctional duct sensors and measuring transducers incl. mounting flange, for humidity, temperature, CO2 content and air quality (VOC), calibratable, with active/switching output

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

Maintenance-free duct sensor **AERASGARD® KTM-CO2-SD** with active output, automatic calibration, in an impact-resistant plastic housing with quick-locking screws, for determining the CO2 content of the air (0...2000 ppm/0...5000 ppm) and the temperature (-35...+80 °C). The measuring transducer converts the measured values into a standard signal of 0-10V.

Maintenance-free duct sensor **AERASGARD® KFTM-LQ-CO2-W** with active/switching output, automatic calibration, in an impact-resistant plastic housing with quick-locking screws, optionally with/without Display, for determining the CO2 content of the air (0...2000 ppm/0...5000 ppm), the quality (0...100% VOC), the temperature (-35...+80 °C) as well as the relative air humidity (0...100% RH). The measuring transducer converts the measured values into a standard signal of 0-10V or 4...20mA (switchable).

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 room area 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. As an alternative, use IAQ categories (from excellent to unhealthy) following the guidelines of the German Federal Environmental Agency to assess the room air.

SF-K
Plastic sinter filter (standard)



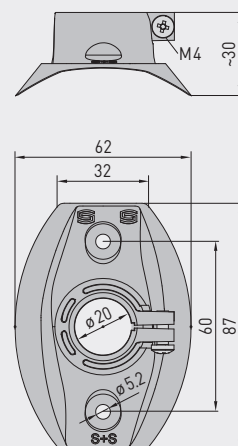
SF-M
Metal sinter filter (optional)



MFT-20-K
Mounting flange, plastic



Dimensional drawing (mm) **MFT-20-K**



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:	KTM-CO2-SD 0-10 V (fixed) Kxx-CO2-W 0-10 V or 4...20 mA, working resistance < 800 Ω (selectable via DIP switches, selected variant applies for all outputs), with offset potentiometer (± 10 % of the measuring range)
Relay output:	KTM-CO2-SD without changeover contact Kxx-CO2-W with potential-free changeover contact (24 V / 1 A) (assignment selectable via DIP switches, switchpoint adjustable)

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%
Output, humidity:	0-10 V or 4...20 mA (selectable via DIP switches)

TEMPERATURE

Measuring range, temperature:	-35...+80 °C
Operating range, temperature:	-10...+60 °C
Accuracy temperature:	typically ± 0.2K at +25 °C
Output, temperature:	KTM-CO2-SD 0-10 V (fixed) Kxx-CO2-W 0-10 V or 4...20 mA (selectable via DIP switches)

AIR QUALITY (VOC)

Sensor, VOC:	VOC sensor (metal oxide) (VOC = volatile organic compounds), with manual calibration (using zero button) and automatic calibration (permanently active)
Measuring range, VOC:	0...100% air quality; referred to calibrating gas; multi-range switching (selectable via DIP switches) VOC sensitivities (low/medium/high) or IAQ category (Indoor Air Quality)
Output, VOC:	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)
Accuracy, VOC:	typically ± 20% of final value (referred to calibrating gas)
Service life:	> 60 months (under normal load conditions) depending on the type of loading and gas concentration

CARBON DIOXIDE (CO2)

Sensor, CO2:	optical NDIR sensor (non-dispersive infra-red technology), with manual calibration (via zero button), KTM-CO2-SD with automatic calibration (fixed) Kxx-CO2-W with automatic calibration (can be switched off via DIP switch)
Measuring range, CO2:	0...2000 ppm or 0...5000 ppm (selectable via DIP switches)
Output, CO2:	KTM-CO2-SD 0-10 V (fixed) Kxx-CO2-W 0-10 V or 4...20 mA (selectable via DIP switches)
Accuracy, CO2:	typically ± 30 ppm ± 3% of measured value
Temperature dependence, CO2:	± 5 ppm per °C or ± 0.5% of measured value per °C (whichever is higher)

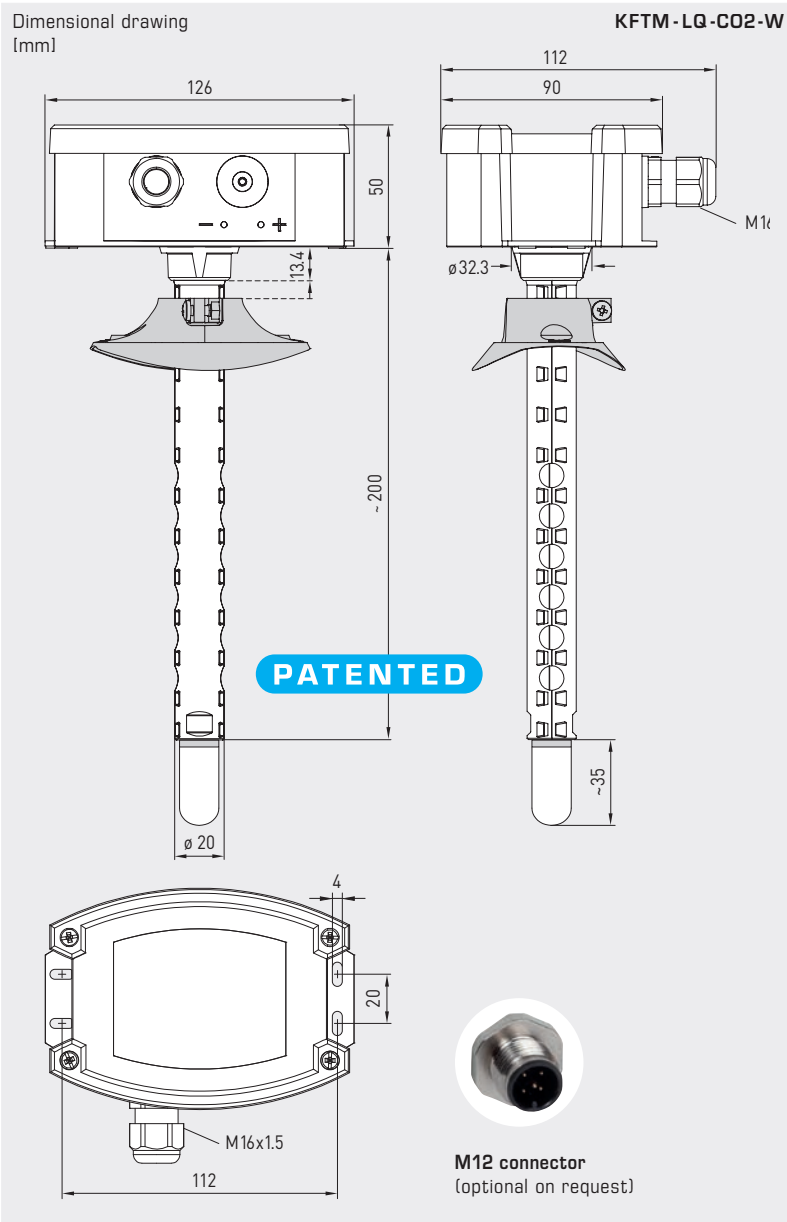
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S+S REGELTECHNIK

AERASGARD® KFTM - (LQ) - CO2 - W / KTM - CO2 - SD

Multifunctional duct sensors and measuring transducers incl. mounting flange, for humidity, temperature, CO2 content and air quality (VOC), calibratable, with active/switching output



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



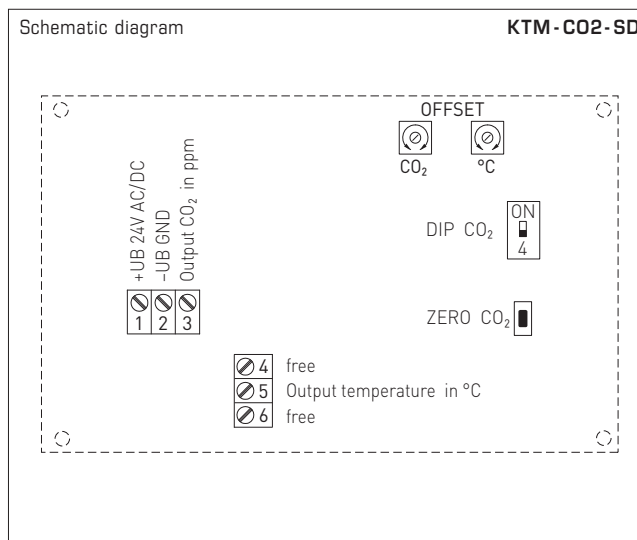
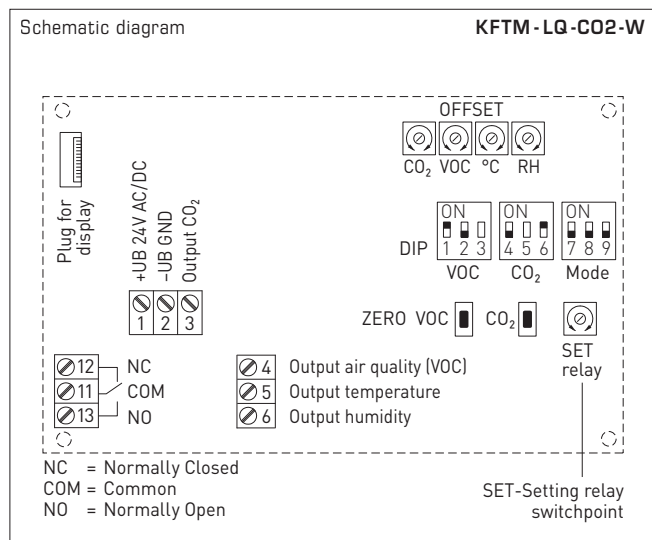
KFTM - LQ - CO2 - W
with display and
plastic sinter filter
(standard)



TECHNICAL DATA		(continued)
Pressure dependence:	± 0.13 % per mm Hg	
Long-term stability:	< 2 % in 15 years	
Gas exchange:	by diffusion	
Response time:	< 2 minutes, minimum flow rate 0.3 m/s (air)	
Ambient temperature:	-10...+60 °C	
Electrical connection:	0.14 - 1.5 mm ² , via screw terminals	
Cable connection:	cable gland , plastic (M 16 x 1.5; with strain relief, exchangeable, max. 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 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:	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 CO2 content	



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 calibratable, with active/switching output



DIP switches	KFTM-LQ-CO2-W	
VOC sensitivity	DIP 1	DIP 2
LOW	OFF	OFF
MEDIUM (default)	ON	OFF
HIGH	OFF	ON
IAQ (Indoor Air Quality)	ON	ON
CO2 content	DIP 4	
0...2000 ppm (default)	OFF	
0...5000 ppm	ON	
CO2 automatic zero point	DIP 6	
deactivated	OFF	
activated (default)	ON	
Relay assignment	DIP 7	DIP 8
CO2 (default): 600...1900 ppm / 900...4700 ppm	OFF	OFF
VOC: 10...95%	ON	OFF
Temperature: -23...+74 °C	OFF	ON
Humidity: 10...95% RH	ON	ON
Output	DIP 9	
Voltage 0-10V (default)	OFF	
Current 4...20 mA	ON	
Note: DIP 3 and DIP 5 are not assigned!		

DIP switches	KTM-CO2-SD	
CO2 content	DIP 4	
0...2000 ppm (default)	OFF	
0...5000 ppm	ON	

Level	IAQ (Indoor Air Quality)	VOC
1	excellent no action required	0...19%
2	good prompt airing recommended	20...39%
3	moderate airing recommended	40...59%
4	poor increased airing required	60...79%
5	unhealthy intense airing necessary	80...100%

Table according to TVOC guidelines of the German Federal Environmental Agency to assess indoor air contamination
 (Bundesgesundheitsbl - Gesundheitsforsch - Gesundheitsschutz 2007, 50: 990-1005)



S+S REGELTECHNIK

AERASGARD® KLQ-CO2-W AERASGARD® KFTM-(LQ)-CO2-W / KTM-CO2-SD

Multifunctional duct sensors and measuring transducers incl. mounting flange, for humidity, temperature, CO2 content and air quality (VOC), calibratable, with active/switching output

KFTM-LQ-CO2-W
with display



Humidity table

MR: 0...100% RH

% RH	U _A [V]	I _A [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 ...

% RH	U _A [V]	I _A [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 [V]	I _A [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 [V]	I _A [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-CO2-W

AERASGARD® KFTM-(LQ)-CO2-W / KTM-CO2-SD

Multifunctional duct sensors and measuring transducers incl. mounting flange, for humidity, temperature, CO2 content and air quality (VOC), calibratable, with active/switching output

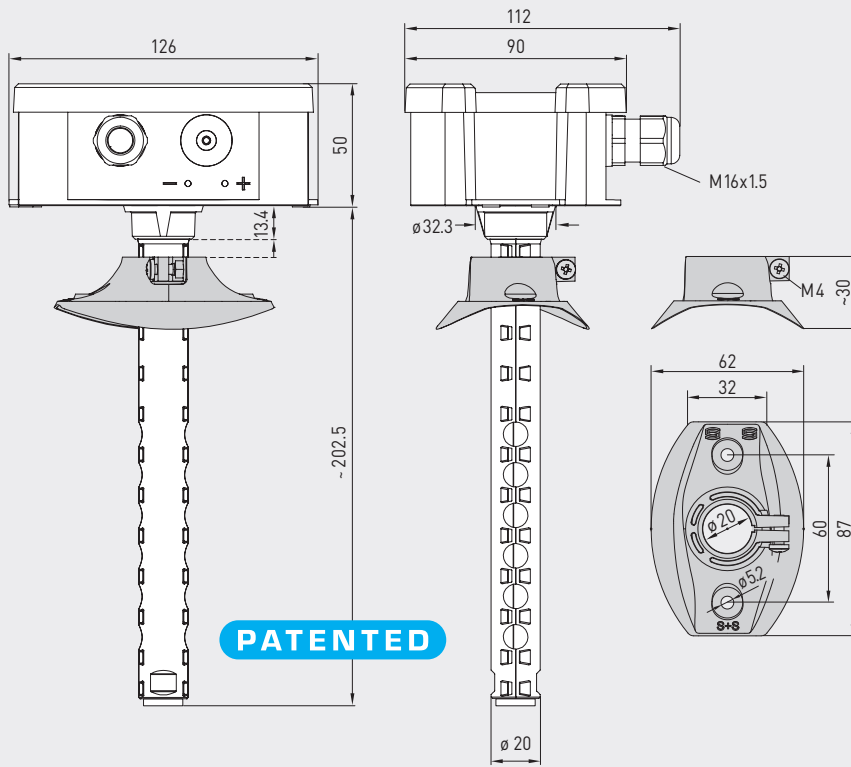


S+S REGELTECHNIK

Dimensional drawing [mm]

KLQ-CO2-W

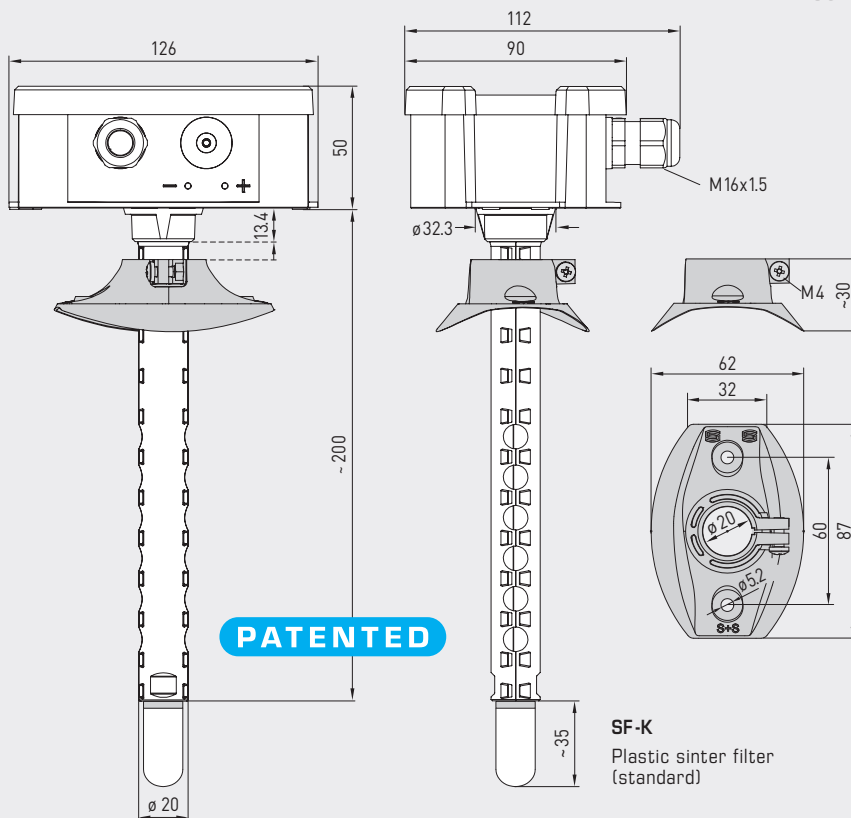
KLQ-CO2-W



Dimensional drawing [mm]

KFTM-CO2-W
KFTM-LQ-CO2-W
KTM-CO2-SD

KFTM-CO2-W
KFTM-LQ-CO2-W
KTM-CO2-SD

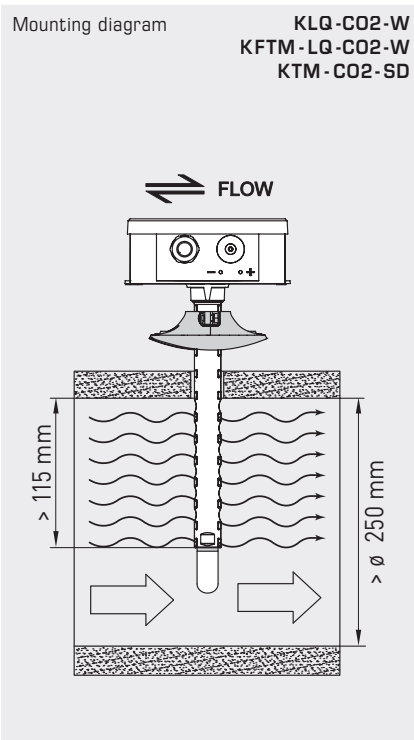




S+S REGELTECHNIK

AERASGARD® KLQ-CO2-W AERASGARD® KFTM-(LQ)-CO2-W / KTM-CO2-SD

Multifunctional duct sensors and measuring transducers incl. mounting flange, for humidity, temperature, CO2 content and air quality (VOC), calibratable, with active/switching output



AERASGARD® KTM-CO2-SD	Duct sensor for temperature and CO2 content, <i>Standard</i>
AERASGARD® KLQ-CO2-W	Duct sensor for air quality (VOC) and CO2 content, <i>Premium</i>
AERASGARD® KFTM-CO2-W	Multifunctional duct sensor for humidity, temperature and CO2 content, <i>Deluxe</i>
AERASGARD® KFTM-LQ-CO2-W	Multifunctional duct sensor for humidity, temperature, air quality (VOC) and CO2 content, <i>Deluxe</i>

Type / WG02	Measuring Range		CO2	VOC	Equipment Display	Item No.	Price
	Humidity	Temperature					
KTM-CO2-SD			(switchable)				
KTM-CO2-SD-U	-	-35...+80 °C	0...2000 / 5000 ppm	-	-	1501-8112-1001-200	326,71 €
KLQ-CO2-W			(switchable)				
KLQ-CO2-W	-	-	0...2000 / 5000 ppm	0...100 %	W	1501-8111-7301-500	418,15 €
KLQ-CO2-W LCD	-	-	0...2000 / 5000 ppm	0...100 %	W ■	1501-8111-7371-500	481,34 €
KFTM-CO2-W			(switchable)				
KFTM-CO2-W	0...100 % RH	-35...+80 °C	0...2000 / 5000 ppm	-	W	1501-8116-7301-200	399,55 €
KFTM-CO2-W LCD	0...100 % RH	-35...+80 °C	0...2000 / 5000 ppm	-	W ■	1501-8116-7371-200	437,96 €
KFTM-LQ-CO2-W			(switchable)				
KFTM-LQ-CO2-W	0...100 % RH	-35...+80 °C	0...2000 / 5000 ppm	0...100 %	W	1501-8118-7301-500	501,16 €
KFTM-LQ-CO2-W LCD	0...100 % RH	-35...+80 °C	0...2000 / 5000 ppm	0...100 %	W ■	1501-8118-7371-500	564,36 €
Outputs:	0-10V or 4...20 mA (selectable via DIP switches, selected variant applies for all outputs) – <i>Standard</i> duct sensor KTM-CO2-SD with fixed output 0-10 V!						
Equipment:	W = changeover contact – <i>Standard</i> duct sensor KTM-CO2-SD without changeover contact!						
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!						

ACCESSORIES			
SF-M	Metal sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel V4A (1.4404)	7000-0050-2200-100	45,34 €