

Simply a question of
better measurement



Flow Sensor EM 20225

A small all-rounder for
universal use and high-
performance

Ventilation / air-conditioning

Industrial processes





Perfect flow measurement

For ventilation, air-conditioning and industrial processes.

In many applications, direct measurement of the flow velocity and of the volumetric flow in air and gases is the ideal solution. Owing to the high requirements in modern control technology, the flow sensor used must be able to measure precisely and quickly over an extremely wide range from "almost zero" to the maximum value.

Typical applications of the Flow Sensor EM 20225 with dumbbell head technology include:

- Monitoring and energy-efficient controlling of fans
- Continuous monitoring of filter units
- Safe control of the volumetric flow of extraction units
- Monitoring and control of supply air in industrial burners
- Detection of air flows in quality relevant drying processes

A small all-rounder

Thanks to its compact mechanical design, the **EM 20225** can be installed very easily via a flange or a compression fitting. Its electronics are housed in a separate small enclosure and the robust stainless steel sensor tube has a diameter of only 9 mm.

Technology

Thanks to the dumbbell technology used and the high flow angle (radial: 360°, axial: $\pm 45^\circ$), the sensor can be positioned in the gas flow safely and quickly. In addition to detecting the standard flow velocity of 0.06 to 20 m/s, it also measures the temperature of the medium. The available linear output signals are 0...10 V in each case.

Measuring accuracy in black and white

Optionally, the **Flow Sensor EM 20225** can also be delivered with high-precision calibration and factory calibration certificate, which documents its high precision and reproducibility. You can have this calibration renewed at any time.

Protection from dust and aggressive gases

Using the patented dumbbell head also allows measurements to be made in dust-containing gases. If the sensor gets dirty, it can be cleaned again by the user without problems. Upon request the sensor can also be delivered with a special protective coating to increase the resistance against aggressive media.

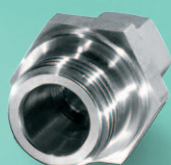
Accuracy in black and white

On request the flow sensor EM 20225 can be delivered with a factory calibration certificate which documents the high accuracy and reproducibility of flow measurement on the basis of real measuring values and deviations. EM carries out the measurement in reference channels. This calibration can be re-newed by the user at any time.

With protective coating (black)



Accessories



Compression fittings



Welding sleeves



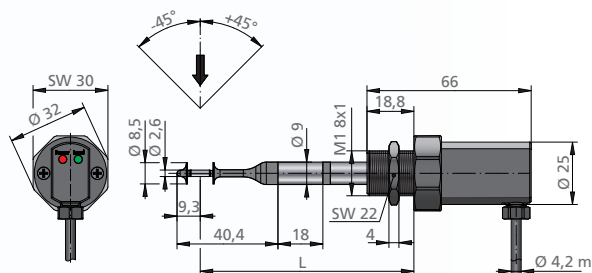
Mounting flange



Protective clip

Everything
Dual LEDs clear
energized and

Flow angle



The integrated temperature measurement is located behind a metal sleeve in the sensor tube which is inserted into the medium to be measured. This allows fast response to changes in flow and temperature of the media.

The sensor element for the flow measurement is located between the two "dumbbell disks", which ensures an aerodynamic flow line. A resistant plastic coating (PU, black) is available as an option.



Technical data

Measurement values	- standard velocity w_N , based on standard conditions of 20 °C and 1,013.25 hPa - temperature of the medium T_M
Medium to be measured	Air or nitrogen, other gases upon request
Measuring range w_N	0 ... 1 / 2.5 / 10 / 20 m/s / selectable
Lower detection limit w_N	0.06 m/s
Measuring range T_M	-20 ... +70 °C
Measuring accuracy	
Standard w_N ¹⁾	±(5 % of measured value + [0.4 % of fmr; min. 0.02 m/s])
High precision w_N ¹⁾ (optional)	±(3 % of measured value + [0.4 % of fmr; min. 0.02 m/s])
Response time (t_{90}) w_N	3 s (jump from 0 to 5 m/s of air)
Temperature gradient w_N	< 2 K/min at 5 m/s
Measurement accuracy T_M (for $w_N > 1$ m/s)	± 1 K (10 ... 30 °C); ± 2 K (remaining measuring range)
Operating temperature	
Sensor and electronics	-20 ... +70 °C
Storage temperature	-30 ... +85 °C
Material	
Housing	PBT glass-fiber-reinforced
Sensor tube	stainless steel 1.4571
Sensor head	PBT glass-fiber-reinforced, Stainless steel 1.4571
Protective coating (optional)	Polyurethanderivat
Connecting cable	PVC
General data	
Humidity	measuring mode: non-condensing (< 95 % RH)
Operating pressure	atmospheric (700 ... 1,300 hPa)
Display	LED green: operating status LED red: sensor defective
Supply voltage	24 V DC ± 10 %
Current consumption	< 60 mA (typical), max. 100 mA
Output signals for temperature and flow	0 ... 10 V
Connection	permanently connected cable, 4-pin, length 2 m or selectable
Admissible cable length	max. 15 m
Installation position	any
Minimum immersion depth	58 mm (< 58 mm upon request)
Ingress protection / protection class	housing IP65 / III (SELV) or PELV sensor head IP67
Sensor length	100 / 200 / 350 / 500 mm
Weight	approx. 100 g (L = 350 mm).

¹⁾ under reference conditions, related to the calibration reference
fmr = final measuring range

Order information Flow Sensor EM 20225

	Description	Article number							
Basic sensor	Flow Sensor EM 20225; basic version: w _N & T _M ; cable 2 m Output signal: 2 x 0 ... 10 V	567 920-	T	X	Y	Z	P	A	
Options									
Type	Standard		1						
Mechanical type	Sensor length 100 mm			1					
	Sensor length 200 mm			2					
	Sensor length 350 mm			3					
	Sensor length 500 mm			4					
Measuring range, adjustment accuracy and calibration	Measuring range 0 ... 1 m/s				1				
	Measuring range 0 ... 2.5 m/s				2				
	Measuring range 0 ... 10 m/s				3				
	Measuring range 0 ... 20 m/s				4				
	Standard adjustment					1			
	Standard adjustment with factory calibration certificate					2			
	High precision adjustment with factory calibration certificate					3			
Protection design	Without protective coating						1		
	Protective coating (PU, black) front-end only						2		
Connecting cable	Cable length 2.0 m							1	
	Special cable length: 3 ... 15 m; 1 m-steps							2	
Description		Article number							
Accessories	Power supply: output 24 V DC / 1 A; input 115 / 230 V AC	535 282							
	Mounting flange, steel, galvanic zinc-plated	301 048							
	Press fitting, stainless steel, G½, atmospheric pressure	532 160							
	Press fitting brass, G½ atmospheric pressure	517 206							
	Welded sleeve, steel, G½, EN 10241, 5 pcs	524 916							
	Welded sleeve, stainless steel, G½, EN10241, 2 pcs	524 882							
	Assembly kit for pipe assembly suitable for EMD 10010 / 10015, including pipe clamps and collar for adjustment to the pipe diameter	531 394							
	LED display EMD 10010 in wall housing to show volume flow and flow velocity, 85 ... 250 V AC and sensor power supply	527 320							
	LED display EMD 10.010, similar to 527 320 but with 24 V DC voltage supply	528 240							
	LED display EMD 10.015, similar to 527 320 but with an additional sum function and a second measuring input	527 330							
	LED display EMD 10.015, similar to 527 330 but with 24 V DC voltage supply	528 250							
	Attachable protective clip for dumbbell head against mechanical influences, stainless steel	531 026							
	Attachable protective 2-wires-clip for protection against mechanical influences, stainless steel, H ₂ O ₂ resistant	559 124							