Simply a question of
better measurement

SCHMIDT® Technology



SCHMIDT® Flow Sensor SS 20.250 Hygienic Design

The smallest all-rounder for universal use and high-performance

Ventilation / air-conditioning

Cleanroom / pharmaceuticals



Perfect flow measurement

For ventilation, air-conditioning, cleanroom and pharmaceutical applications.

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 SCHMIDT® Flow Sensor SS 20.250 with dumbbell head technology include:

- Monitoring and energy-efficient controlling of fans
- Continuous monitoring of filter units
- Safe control of volumetric flow of extraction units
- Monitoring of laminar flow in cleanrooms

The smallest all-rounder

Thanks to its compact mechanical design, the SS 20.250 can be installed very easily via a flange or a compression fitting. Its complete electronics are housed in the robust metal sensor tube, which has a diameter of only 9 mm.

Technology

Thanks to the dumbbell technology used and the high flow angle (radial: 360°, axial: ±45°), the sensor can be positioned in the gas flow safely and quickly. In addition to detecting standard flow velocity of 0.06 to 20 m/s, it also measures temperature of the medium. The available linear output signals are 4 … 20 mA and 0 … 10 V in each case – depending on the connected load resistance (function "Auto-U/I").

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.

Measuring accuracy in black and white

Optionally, the **SCHMIDT® Flow Sensor SS 20.250** 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

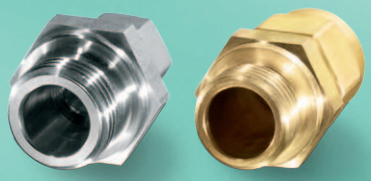
Hygienic Design

- Smooth finished surface - no chance for production residues to stick on
- Corrosion resistant (stainless steel V4A)
- Easy to clean
- Resistant against commercially available cleaning agents
- No dirt pockets





Accessories



Compression fittings



Welding sleeves



Mounting flange

Protective clip



Everything in view

Function monitoring by means of an integrated 2-color LED display (green & red) signals the operating state and assists in quick troubleshooting on site.

Everything in flow

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.

Everything in its place

The sensor element for the flow measurement is located between the two "dumbbell disks", which ensure an aero-dynamic flow line. A resistant plastic coating (PM, black) or Parylene (transparent) is available as an option.



Wall mounting flange



LED display in wall housing

Technical data

Measurement specific 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	standard: 0 ... 1 / 10 / 20 m/s special measuring range [1]: 1 ... 20 m/s
Lower detection limit w_N	0.06 m/s
Measuring range T_M	-20 ... +70 °C
Measuring accuracy	
Standard w_N [2]	±(5 % of measured value + [0.4 % of fmr; min. 0.02 m/s])
High precision w_N [2] (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	
Sensor tube	stainless steel 1.4571
Sensor head	PBT glass-fiber-reinforced, stainless steel 1.4571
Connecting cable	Hygienic Design, PP-EPDM, halogen-free
General data	
Humidity	measuring mode: non-condensing (< 95 % RH)
Operating pressure	atmospheric (700 ... 1,300 hPa)
Display	dual LED green / red
Supply voltage	24 V AC/DC ± 10 %
Current consumption	< 60 mA (typical), max. 100 mA
Output signals for temperature and flow Auto-U/I	0 ... 10 V / 4 ... 20 mA (short-circuit protected): voltage output: R_L > 500 Ω current output: R_L < 500 Ω hysteresis: 50 Ω
Connection	attached to sensor: 1.5 m Hygienic Design cable, 5-pol M12 plug additional content of delivery: 10 m Hygienic Design cable, 5-pol M12 bushing
Admissible cable length [3]	max. 100 m
Installation position	arbitrary
Minimum immersion depth	58 mm (< 58 mm upon request)
Ingress protection / protection class	IP65 / III (SELV or PELV)
Sensor length	300 / 500 mm
Weight	200 g max.

[1] in steps of 1 m/s
[2] under reference conditions, related to the calibration reference
fmr = final measuring range
[3] signal output in voltage mode: Use AGND and $R_L \geq 10$ kΩ (mass offset)

Order information SCHMIDT® Flow Sensor SS 20.250 Hygienic Design

	Description	Article number					
Basic sensor	**SCHMIDT® Flow Sensor SS 20.250**; 2x output signal 4 ... 20 mA / 0 ... 10 V; Hygienic Design cable	526 340-	X	Y	Z	P	A
	Options						
Mechanical type	Sensor length 300 mm		1				
	Sensor length 500 mm		2				
Measuring range, adjustment accuracy and calibration	Measuring range 0 ... 1 m/s			1			
	Measuring range 0 ... 10 m/s			2			
	Measuring range 0 ... 20 m/s			3			
	Special measuring range 1 ... 20 m/s (step 1 m/s)			9			
	Standard adjustment				1		
	Standard adjustment with factory calibration certificate				3		
	High-precision adjustment incl. factory calibration certificate				2		
	Without protective coating					1	
Connecting cable	Fix linked to sensor: 1.5 m Hygienic Design cable, 5-pol M12 plug Additional content of delivery: 10 m Hygienic Design cable, 5-pol M12 bushing						3
	Description	**Article number**					
Accessories	Mounting flange, steel, galvanic zinc-plated	301 048					
	Wall-mounting flange, stainless steel, PTFE- clamping ring	520 181					
	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	532 160					
	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_2O_2 resistant	559 124					
	Power supply: output 24 V DC / 1 A; input 115 / 230 V AC	535 282					
	SCHMIDT® LED display MD 10.010 in wall housing to show volume flow and flow velocity, 85 ... 250 V AC and sensor power supply	527 320					
	SCHMIDT® LED display MD 10.010, similar to 527 320 but with 24 V DC voltage supply	528 240					
	SCHMIDT® LED display MD 10.015, similar to 527 320 but with an additional sum function and a second measuring input	527 330					
	SCHMIDT® LED display MD 10.015, similar to 527 330 but with 24 V DC voltage supply	528 250					
	Assembly kit for pipe assembly suitable for MD 10.010 / 10.015, including pipe clamps and collar for adjustment to the pipe diameter	531 394					

Form 1090/05/2022/1000/2 · Art. No. 551474.02 Subject to technical changes

SCHMIDT Technology GmbH
Feldbergstr. 1
78112 St. Georgen/Germany
Phone +49 7724/8990
sensors@schmidttechnology.de
www.schmidttechnology.de
www.schmidt-sensors.com