Simply a question of
better measurement

SCHMIDT® Technology

SCHMIDT® Flow Sensor SS 20.420

The ultra-compact, cost-efficient specialist for responsive air flow measurement with integrated detection of direction

- Mechanical and Plant Engineering
- Semiconductor and Electronics Manufacturing
- Clean room and Pharmaceutical

Flow measurement for industrial applications in manufacturing processes

The direct measurement of flow velocity or standard volume flow of air is the ideal solution for many applications. A precise sensor is the basis for an efficient process to enable regulation and control in industrial applications. Therefore the thermal **SCHMIDT® Flow Sensor SS 20.420** with its robust design and quick-acting electronics is well suited.

Improving production quality with the bi-directional **SCHMIDT® Flow Sensor SS 20.420** by measuring room overflow

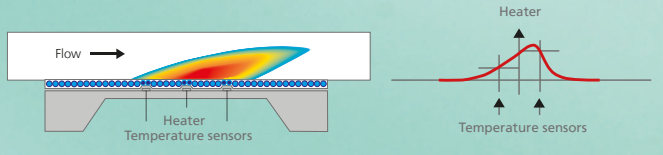
In cascaded pressure cleanrooms maintaining the overflow from one room to another is the basic requirement for keeping the goods clean produced therein. Here, the direct measurement of overflow is much more accurate than traditional pressure measurement. Thus, a simple and consistent monitoring of all clean areas to local Clean Machines is feasible. Prerequisite for measurement of room overflow is a sensor that measures flow in both directions. Thus, it can be ensured continuously that no contamination of the clean area has taken place. Based on the industry-standard interface of the sensor integration into the parent control is possible. The sensor has no moving parts and mainly consist of stainless steel, which guarantees complete cleanability. When used in Clean Machines, the sensor is also suitable for laminar-flow monitoring, due to its characteristics and easy regulating and mounting.

Measuring accuracy in black and white

Upon request it will be supplied with an additional high-precision calibration system. This system enhances the precision even more by the use of more calibration points, and the documentation of the target and actual values as ISO calibration log. Our high precision wind tunnels are matched to the respective application and are regularly calibrated using a Laser-Doppler-Anemometer.

SCHMIDT® Flow Sensor SS 20.420 with bidirectional measurement with one sensor

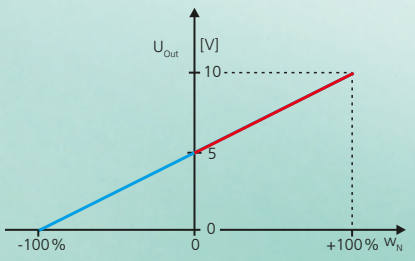
The thermal **SCHMIDT® Flow Sensor SS 20.420** uses the so-called temperature-scale process and can thus detect and show the direction of flow in addition to the flow velocity.



Ultra-compact for space-constrained conditions

Nowadays many machines and systems are very compact, leaving little space for required measurement technology. This dilemma solves the ultra-compact **SCHMIDT® Flow Sensor SS 20.420** with a minimum length of only 60 mm and a diameter of 9 mm.

Despite its small size the **SCHMIDT® Flow Sensor SS 20.420** does not compromise on quality. With its highly integrated sensor element and electronics, the sensor calculates each millisecond the flow velocity and gives it linearly out to its analogue output. All this is of a high quality that was previously only known from much lager sensors. The only necessity is an industrial power supply between 12 and 24 V DC.



Bidirectional
Representation of the direction: 0 m/s = 50 % signal

Well protected

Before disinfecting the switched on sensor with aqueous cleaning agents, the protective cap included in the delivery must be placed on the sensor head. Small dust deposits in the measuring chamber can be removed by blowing air through it.

Technical Data

Data	
Measurement values	Normal velocity w_N of air referred to standard conditions of T_N = 20 °C and p_N = 1,013.25 hPa
Measurement medium	Clean air
Measurement ranges w_N	0 … 1/2.5/5/10 m/s
Lower detection threshold w_N	0.05 m/s
Measurement precision	
Default [1]	±5 % o. Mv. + (1 % fmr; min. 0.05 m/s)
High precision (option) [1]	±3 % o. Mv. + (1 % fmr min. 0.05 m/s)
Repeatability w_N	±2 % o. Mv.
Response time t_{90} w_N	0.2 s
Operating temperature	
Operating temperature	0 … +60 °C
Storage temperature	-20 … +85 °C
General Data	
Medium, environment	Non condensating (up to 95 % rh)
Operating pressure	700 … 1,300 hPa
Supply voltage	12 ... 26.4 V DC
Power consumption	Typ. < 6 mA (max. 10 mA)
Analog output	0 … 10 V (R_L > 10 kΩ), protected against short-circuit
Connection	Permanently connected cable, 3-pin, length 5 m, with cable end sleeves
Maximum line length	15 m
Protection type / class	IP 65/III (SELV), PELV (EN 50178)
Material	
Sensor head	ø 9 mm x 10 mm sluminium anodized
Sensor tube	ø 9 mm stainless steel 1.4404
Full length of sensor	60 mm/110 mm

[1] under reference conditions, related to the calibration reference

Accessories

LED display of the measurement values

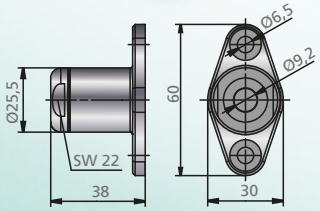
(see separate brochure)

To visualize the values directly on site, a LED measurement value display can be supplied.

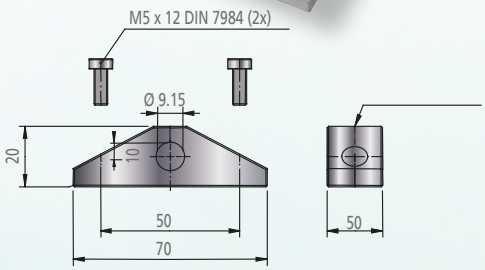
Advantages:

- Display in m/s or m³/h
- Programmable output signal
- Two programmable relays outputs
- Power supply 85 – 250 V AC or 24 V DC
- Power supply of the connected sensor
- Separate version with sum function and a second measuring input

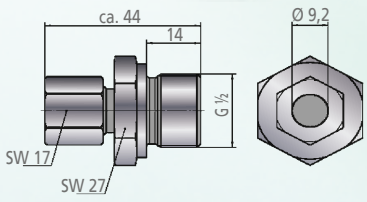
Mounting accessories



Wall mounting flange (item no. 520 181)
For mounting on wall sthrough wall openings
Material: Stainless steel 1.4404, PTFE



Wall mounting bracket (item no. 503 895)
For mounting in front of wall openings
Material: Anodized aluminium



Through-bolt joint (item no. 532 160)
For gas-tight mounting in tubes and channels; atmospheric pressure
Material: Stainless steel 1.4571, clamping ring PTFE

Order information SCHMIDT® Flow Sensor SS 20.420

	Description	Article number						
Basic sensor	**SCHMIDT®** Flow Sensor SS 20.420	538 045 -	A	B	C	D	E	F
	Options							
Type	Standard		1					
Mechanical type	Sensor length 60 mm			1				
	Sensor length 110 mm			2				
Measurement range	Measurement range 0 ... 1 m/s				1			
	Measurement range 0 ... 2.5 m/s				2			
	Measurement range 0 ... 5 m/s				3			
	Measurement range 0 ... 10 m/s				4			
Measurement direction, setting and calibration	Unidirectional standard adjustment (5-%-class)					1		
	Unidirectional standard adjustment with certificate (5-%-class)					5		
	Bidirectional standard adjustment (5-%-class), representation of direction with halved analog signal: 0 m/s = 5 V output signal (analog output 50 %)					2		
	Bidirectional standard adjustment with certificate (5-%-class), representation of direction with halved analog signal: 0 m/s = 5 V output signal (analog output 50 %)					6		
	Unidirectional high precision adjustment with certificate (3-%-class)					3		
	Bidirectional high precision adjustment with certificate (3-%-class), representation of direction with halved analog signal: 0 m/s = 5 V output signal (analog output 50 %)					4		
Analog output	0 ... 10 V						1	
Connection cable	5 m cable with open ends							1

	Description	Article number
Accessories	Mounting flange steel galvanized	301 048
	Through-bolt joint brass G½	517 206
	Through-bolt joint stainless steel G½ atmospheric pressure	532 160
	Wall mounting bracket material aluminium anodized	503 895
	Wall mounting flange stainless steel clamping ring PTFE	520 181
	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 visualize volumetric flow and flow velocity, 85 ... 230 V AC and sensor supply	527 320
	SCHMIDT® LED display MD 10.010; as with 527 320 but with 24 V DC voltage supply	528 240
	SCHMIDT® LED display MD 10.015; in wall housing, similar to 527 320 but with additional sum function and second measuring input	527 330
	SCHMIDT® LED display MD 10.015; as with 527 330 but with 24 V DC voltage supply	528 250

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