

## Easy Improved Measurement! SCHMIDT<sup>®</sup> Flow Sensor SS 20.500



The solution for flow measurement – even for dusty air and gases. Highly precise and compact!

# Easy Improved Measurement!

## SCHMIDT® Flow Sensor SS 20.500

### Flow measurement easily handled

To be able to measure air and gas flows precisely and with repeatability a number of 'correct' parameters are required. For many flow sensors orientation relative to flow direction is essential for quality of results. The choice of sensor is also dependant on the gas to be measured. Dust and aggressive gases will also impact on the quality of results and also introduce increased maintenance and premature replacement, with evident additional costs. In areas with potential for explosion hazard, as found in powder handling and oil/gas plants for example, then sensors with appropriate approval are required, and this will limit the option of sensor supplier.

### This flow sensor makes selection easier

The **SCHMIDT® thermal flow sensor SS 20.500** offers an ideal solution for energy efficiency and complicated applications to include drying processes, exhaust discharge, glovebox and fume cupboard flows, volume flow control and many more. In addition to velocity the sensor also measures the process temperature and both of these parameters are available as independent outputs. This combined measurement capability reduces the number of tapping points, easing installation and also offers an obvious cost benefit. Extreme flow angles of 360 degrees axial and  $\pm 45$  degrees from vertical simplify positioning in the gas flow. A wide measuring range of 0.06 up to 35 m/s and traceable calibration via precision calibration ensures accuracy and reliability of measurement.

### Dust and aggressive gases? No problem!

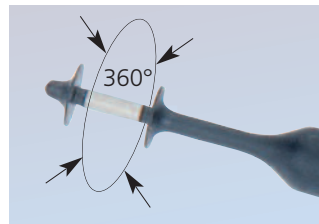
The patented dumb-bell head makes measurement possible in dust laden applications without influencing the measured value. If required, cleaning is easily carried out by the user. As options the sensor is available ATEX certified for use in hazardous areas and with a special protective coating for resistance to aggressive mediums, trace acids for example.

### Accuracy in black and white

Also as an option the sensor is available with high precision adjustment. This option includes the supply of an ISO calibration certificate with recorded accuracy and repeatability. This calibration is carried out in house at **SCHMIDT Technology** with traceability to National Standards. A re-calibration service is also offered.

### You have the choice!

As well as catalogued standard lengths, custom lengths up to 1000 mm area available. Selecting a custom length allows ideal positioning of the measuring element in the flow stream.



The aerodynamically shaped dumb-bell head offers optimal performance where problematic flow characteristics exist and the crevice free design allows easy cleaning. As an option and where applications demand a special protective coating is available.



The LED display is dual function. In 'normal' operation the 4 x LED's illuminate steady green in sequence. In 'fault' condition reportable faults are indicated by red flashing LED's. The instrument will output V and mA and change-over is automatic.



ATEX-version (option)  
category III zone 2 G+D





### Technical Data

Measuring quantity	standard flow velocity $w_N$ normalized to $T_N = 20\text{ °C}$ and $p_N = 1\,013.25\text{ hPa}$
Measuring fluid	air, nitrogen, other gases on request
Measuring range flow ( $w_N$ )	0 ... 1 / 5 / 10 / 20 / 35 m/s
Lower detection limit ( $w_N$ )	0.06 m/s
Accuracy ( $w_N$ ) <sup>1)</sup>	
Standard	$\pm (3\% \text{ of m.v.} + 0.4\% \text{ of f.s.}^2)$
High precision (optional)	$\pm (1\% \text{ of m.v.} + 0.4\% \text{ of f.s.}^2)$
Repeatability ( $w_N$ )	$\pm 1\% \text{ of m.v.}^2$
Response time ( $t_{90}$ ) ( $w_N$ )	1 s (at 0 to 5 m/s transient)
Temperature range measuring	-40 ... +85 °C
Temperature accuracy	$\pm 1\text{ K}$
ATEX category	II 3 GD Ex nA T4
Operating temperature	-40 ... +85 °C (measuring fluid) -20 ... +70 °C (electronics)
Maximum pressure	10 bar max. (only compact sensor)
Temperature gradient ( $w_N$ )	2 K/min @ $w_N = 5\text{ m/s}$
Supply voltage ( $U_B$ )	24 V DC $\pm 20\%$ 24 V AC $\pm 20\%$
Current consumption	60 mA typ. @ $w_N = 20\text{ m/s}$ and $T_{\text{fluid}} = +85\text{ °C}$
Switch-on current	100 mA for max. 5 s
Run-in time	approx. 10 s after switched on
Electrical connection	plug-in connection M12, screwed
Maximum cable length	
- voltage output	15 m
- current output	100 m
Analog outputs for temperature and velocity	
- auto U/I	0 .. 10 V / 4 .. 20 mA
Auto U/I switch-over	
- voltage output	$> 500\ \Omega$
- current output	$< 500\ \Omega$
- Change-over hysteresis	50 $\Omega$
Material	
- housing	aluminium AlMgSiPb, anodised
- sensor tube	stainless steel X6 CrNiMoTi 1.4571
- sensor head	PBT fibre-glass reinforced
Mounting	installation thread G 1/2 or with optional accessories
Mounting position	any
Installation length (L)	100 / 150 / 350 mm, special lengths on request
Weight by mass	200 g max. (without cable)
Protection class	IP 65 (housing) IP 67 (sensor head)
Fluid humidity	$< 95\% \text{ r.h.}$ , not condensing

<sup>1)</sup> at 20 °C, 1013 hPa

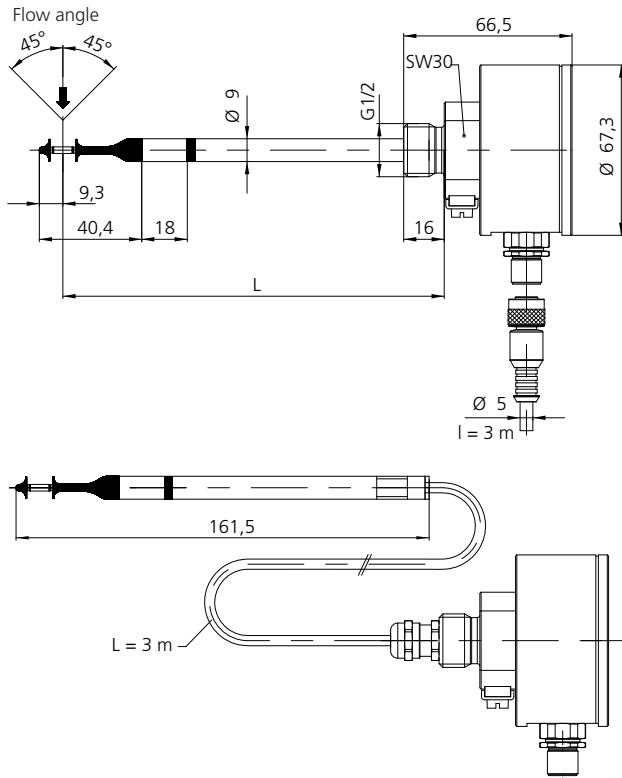
<sup>2)</sup> m.v. = measurement value

f.s. = measurement full scale

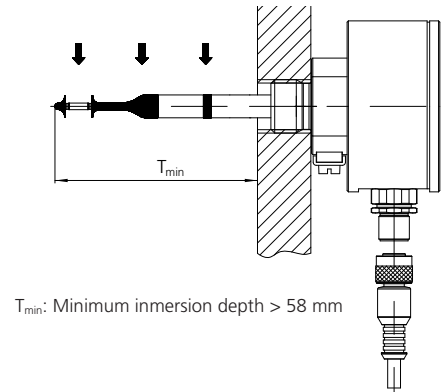
# Easy Improved Measurement! SCHMIDT® Flow Sensor SS 20.500



## Physical Dimensions



## Mounting Instructions



## Ordering Information

Part Number	X	Mounting length L	Y	Measuring range $w_N$	Z	Adjustment	P	Protective coating	A	Explosion proofness
521 501-XYZPA	1	100 mm	1	0 ... 1 m/s	1	Standard 3 %	1	None	1	No
Flow Sensor 20.500	2	150 mm	2	0 ... 5 m/s	2	Precision adjustment with calibration certificate	2	Existent	2	Yes
	3	350 mm	3	0 ... 10 m/s						
	4	3000 mm (cable)	4	0 ... 20 m/s						
	5	special length	5	0 ... 35 m/s						

Please order connection cable or connector separately.

## Accessories

Description	Part Number
Connection cable 5 pole, length 2 m , with clipped cable ends	523 565-1
Connection cable 5 pole, length 5 m , with clipped cable ends	523 565-2
Special cable length	on request
Connector 5 pole, without cable with screw terminals for cable 0.8 mm <sup>2</sup>	523 562
Mounting flange steel, galvanically zinc-plated and chromated, with clamp insert PTFE	301 048
Press fitting stainless steel (VA 1.453), with PTFE clamp ring, max. 6 bar	301 082
Press fitting brass, G ½, with PTFE clamp ring, for atmospheric pressure, multi-removable	517 206
Current / voltage source unit	on request
Power supply 230 V AC 50 Hz / 24 V AC	on request
LED display in wall-mounted housing design	on request