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**better measurement**



# **SCHMIDT® Flow Sensor SS 20.260 Instructions for Use**

# SCHMIDT® Flow Sensor SS 20.260

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Subject to modifications

# 1 Important information

The instructions for use contain all required information for a fast commissioning and a safe operation of the **SCHMIDT® Flow sensor SS 20.260**:

- These instructions for use must be read completely and observed carefully, before putting the unit into operation.
- Any claims under the manufacturer's liability for damage resulting from non-observance or non-compliance with these instructions will become void.
- Tampering with the device in any way whatsoever - with the exception of the designated use and the operations described in these instructions for use - will forfeit any warranty and exclude any liability.
- The unit is designed exclusively for the use described below (see chapter 2). In particular, it is not designed for direct or indirect protection of personal or machinery.
- **SCHMIDT Technology** cannot give any warranty as to its suitability for certain purpose and cannot be held liable for accidental or sequential damage in connection with the delivery, performance or use of this unit.

## Symbols used in this manual

The symbols used in this manual are explained in the following section.



### **Danger warnings and safety instructions – read carefully!**

Non-observance of these instructions may lead to injury of personnel or malfunction of the device.

## General note

All dimensions are indicated in mm.

## 2 Application range

The **SCHMIDT® Flow sensor SS 20.260** (article number: 506 690) is designed for stationary measurement of the flow velocity as well as the temperature of pure<sup>1</sup> air and gases under atmospheric pressure.

The sensor is based on the measuring principle of a thermal anemometer and measures the mass flow of the measuring medium as flow velocity which is output in a linear way as standard velocity<sup>2</sup>  $w_N$  (unit: m/s), based on standard conditions of 1013.25 hPa and 20 °C. Thus, the resulting output signal is independent of pressure and temperature of the medium to be measured. The sensor is designed for the use inside closed rooms and is not suitable for outdoor use.



When using the sensor outdoors, it must be protected against direct exposure to the weather.

## 3 Mounting instructions

### General information on handling

The sensor **SS 20.260** is a precision instrument with high measuring sensitivity. In spite of the robust construction of the sensor tip soiling of the inner sensor element can lead to distortion of measurement results (see also chapter 8). During procedures that could yield soiling like transport, mounting or dismounting of the sensor it is recommended to place the enclosed **SCHMIDT Technology** protective cap on the sensor tip and remove it only during operation.



During processes with enhanced risks of soiling such as transport, the protective cap should be placed onto the sensor tip.

### General installation conditions

The sensor measures the flow speed correctly only in the direction given on the housing and sensor head (arrow). Make sure that the sensor is adjusted in flow direction (see Figure 1); a tilting<sup>3</sup> of up to  $\pm 3^\circ$  is allowed.



The sensor measures unidirectional and must be adjusted correctly relative to the flow direction.

The sensor should preferably be installed in horizontally positioned pipes. A sensor mounted in opposite direction of the flow direction leads to wrong measuring values (too high).

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<sup>1</sup> No chemically aggressive parts / abrasive particles. Check suitability in individual cases.

<sup>2</sup> Corresponds to the actual flow velocity under standard conditions.

<sup>3</sup> Measurement deviation < 1 %



Due to system characteristics the lower measuring range limit of the sensor is 0.2 m/s.



At lower flow velocities ( $< 2$  m/s), the measured medium temperature is too high.

The center of the chamber head is the actual measuring point of the flow measurement; therefore, this point is used for specification of probe length  $L$  (see Figure 3). It must be placed in the flow as advantageous as possible, for example in the middle of a pipe (see Figure 1).



Always position the sensor head, if possible, in the middle of the pipe or shaft.

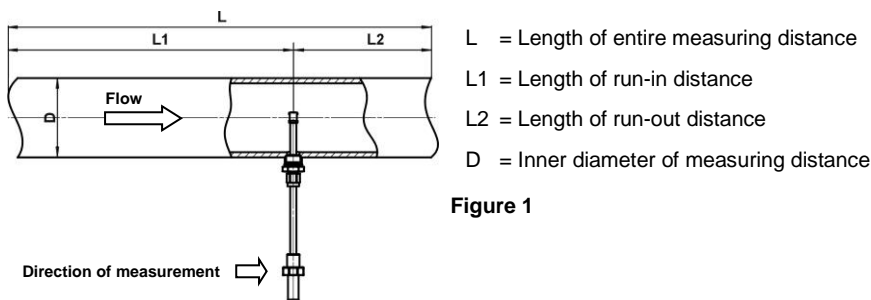
## Installation with low disturbance

Local turbulences of the medium can cause distortion of measurement results. To achieve an accurate measurement the flow profile should be laminar/non-turbulent at the point of measurement (see chapter 9).



Correct measurements require quiet flow, as low-turbulence as possible.

The best way to achieve this is to ensure that you have sufficient straight lengths upstream ("Run-in distance") and downstream ("Run-out distance") of the installed sensor (see installation drawing, Figure 1).



**Figure 1**

We recommend that the sensor is installed with distances according to Table 1 downstream and upstream of any source of disturbance (e.g. a bend, fan, valve, damper or line size change) to ensure a laminar/nonturbulent flow profile.

Flow obstacle upstream of the measuring distance	Minimum length of distance	
	Run-in L1	Run-out L2
Light bend (< 90°)	10 x D	5 x D
Reduction / expansion / 90° bend or T-junction	15 x D	5 x D
Two 90° bends in one plane (2-dimensional)	20 x D	5 x D
Two 90° bends (3-dimensional change in direction)	35 x D	5 x D
Shut-off valve	45 x D	5 x D

**Table 1**

This table lists the minimum values required in each case.

If the listed straight conduit lengths cannot be achieved, measurement accuracy may be impaired or additional measures<sup>4</sup> must be applied.

The profile factors specified in Table 2 may become void by the use of flow rectifiers.

## Calculation of volume flow

If the cross-section area of the pipe is known, the output signal of the measured flow velocity  $w_N$  can be used to calculate the standard volumetric flow of the medium.

For this purpose, an average flow velocity  $\overline{w_N}$ , that is constant over the pipe's cross-section, is calculated with the help of the profile factor<sup>5</sup> PF, which is dependent on the pipe's inner diameter D:

$$\begin{aligned}
 A &= \frac{\pi}{4} \cdot D^2 & D & \text{Inner diameter of pipe [m]} \\
 \overline{w_N} &= PF \cdot w_N & A & \text{Cross-section area of pipe [m}^2\text{]} \\
 \dot{V}_N &= \overline{w_N} \cdot A \cdot 3600 & w_N & \text{Flow velocity in the middle of the pipe [m/s]} \\
 & & \overline{w_N} & \text{Average flow velocity in the pipe [m/s]} \\
 & & PF & \text{Profile factor (for pipes with circular cross-sections)} \\
 & & \dot{V}_N & \text{Standard volumetric flow [m}^3\text{/h]}
 \end{aligned}$$

Table 2 lists profile factors and volume flow measuring ranges (with certain sensor measuring ranges) for standard pipe diameters.

<sup>4</sup> Alternatively, flow rectifiers could be used, e.g. honeycombs made of plastic or ceramics.

<sup>5</sup> Considers the flow profile and the sensor obstruction.

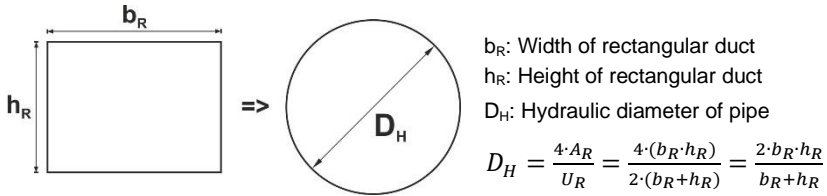
Diameter of measuring pipe				Profile faktor PF	Measuring range of volumetric flow [m³/h]			
Nominal size	Norm value		Inner [mm]		Min. @ 0.2 m/s	@ sensor measuring range [m/s]		
	DN	[inch]				2.5 m/s	20 m/s	50 m/s
25	25	1	26.0	<b>0.796</b>	0.30	3.80	30.4	76.1
	32		32.8	<b>0.796</b>	0.48	6.05	48.4	121
		1 1/4	36.3	<b>0.770</b>	0.57	7.17	57.4	143
40	40	1 1/2	39.3	<b>0.748</b>	0.65	8.17	65.3	163
			43.1	<b>0.757</b>	0.80	9.94	79.5	199
			45.8	<b>0.763</b>	0.91	11.3	90.5	226
50	50	2	51.2	<b>0.772</b>	1.14	14.3	114	286
			57.5	<b>0.777</b>	1.45	18.2	145	363
65	65	2 1/2	70.3	<b>0.786</b>	2.20	27.5	220	549
			76.1	<b>0.792</b>	2.59	32.4	259	648
80	80	3	82.5	<b>0.797</b>	3.07	38.3	307	767
100	100	4	100.8	<b>0.804</b>	4.62	57.7	462	1.155
125	125	5	125.0	<b>0.812</b>	7.17	89.7	717	1.794
150	150	6	150.0	<b>0.817</b>	10.4	130	1.040	2.599
180			182.5	<b>0.825</b>	15.5	194	1.554	3.885
200	200	8	206.5	<b>0.829</b>	20.0	250	1.999	4.998
	250	10	260.4	<b>0.835</b>	32.0	400	3.202	8.004
300	300	12	309.7	<b>0.840</b>	45.6	570	4.556	11.390
	350	14	339.6	<b>0.842</b>	54.9	686	5.491	13.728
400	400	16	389	<b>0.845</b>	72.2	903	7.223	18.058
450	450	18	437	<b>0.847</b>	91.5	1.143	9.147	22.867
500	500	20	486	<b>0.850</b>	114	1.419	11.353	28.383
600	600	24	585	<b>0.854</b>	165	2.066	16.527	41.317
700	700	28	684	<b>0.857</b>	227	2.834	22.673	56.683
800	800	32	783	<b>0.859</b>	298	3.723	29.781	74.452
900	900	36	882	<b>0.862</b>	379	4.740	37.920	94.800
1000	1000	40	980	<b>0.864</b>	469	5.865	46.923	117.308

**Table 2**

**SCHMIDT Technology** provides a convenient calculation tool to compute flow velocity or volume flow in circular pipes or rectangular ducts for all its sensor types and measuring ranges on its homepage:

[www.schmidt-sensors.com](http://www.schmidt-sensors.com) or [www.schmidttechnology.de](http://www.schmidttechnology.de)

Due to the similar situation to a circular pipe, the volume flow in a rectangular duct can be calculated by using its hydraulic diameter  $D_H$  (equivalent to a circular pipe, see Figure 2).



**Figure 2**

According to this, the volume flow in a chamber is calculated:

$A_H = \frac{\pi}{4} \cdot D_H^2$	$b_R / h_R$	Width / height of rectangular duct [m]
$= \frac{\pi}{4} \cdot \left( \frac{2 \cdot b_R \cdot h_R}{b_R + h_R} \right)^2$	$A_R$	Cross-section area of rectangular duct [m <sup>2</sup> ]
$= \pi \cdot \left( \frac{b_R \cdot h_R}{b_R + h_R} \right)^2$	$D_H$	Inner diameter of equivalent pipe [m]
$\bar{w}_N = PF \cdot w_N$	$A_H$	Cross-section area of equivalent pipe [m <sup>2</sup> ]
$\dot{V}_N = \bar{w}_N \cdot A_H$	$w_N$	Flow velocity in the middle of duct [m/s]
$= PF \cdot \pi \cdot \left( \frac{b_R \cdot h_R}{b_R + h_R} \right)^2 \cdot w_N$	$\bar{w}_N$	Average flow velocity in equivalent pipe [m/s]
	$PF$	Profile factor of equivalent pipe
	$\dot{V}_N$	Standard volumetric flow [m <sup>3</sup> /s]

## Mounting in a wall

The housing has an external thread M18x1 (length: 19 mm) for direct mounting on or in the medium separating wall. Its advantage lies in the simplicity of installation without special accessories; however, the probe length defines the immersion depth in this case and this method requires access from both sides for operation:

- Drill a bore in the wall with 13 ... 14 mm diameter.
- Carefully insert measuring probe with an attached protection sleeve into the bore so that the mounting block of the enclosure is in contact with the wall.
- Screw on the enclosed fastening nut by hand on the medium side, turn sensor into required position and tighten fastening nut (SW22) while holding up the enclosure on the mounting block by means of SW30.



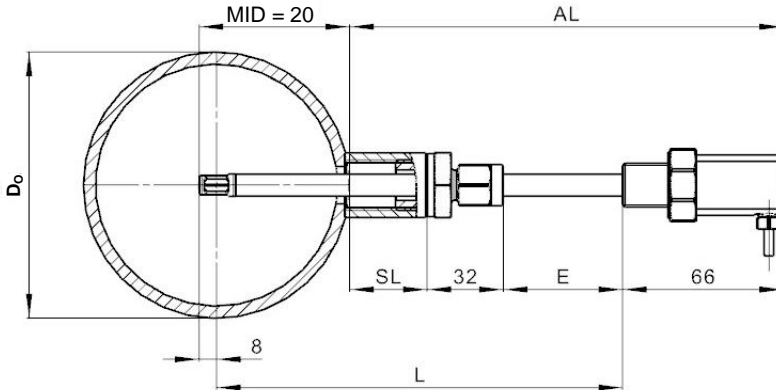
Angular deviation should not be wider than  $\pm 3^\circ$  relative to flow direction.

- Check the set angular position carefully, for example by means of a spirit level at the octagonal part of the sensor enclosure.
- Finally, remove protective cap from sensor tip.



## Mounting with a compression fitting

The sensor is installed using a special compression fitting (517206 or 539746). Normally, a sleeve is welded as a connecting piece onto a bore in the medium-guiding pipe, in which the external thread (G½) of the compression fitting is screwed (see Figure 3).



**Figure 3**

<i>L</i>	Probe length [mm]	<i>D<sub>o</sub></i>	Outer diameter of pipe [mm]
<i>SL</i>	Length of weld-in sleeve [mm]	<i>E</i>	Sensor tube setting length [mm]
<i>AL</i>	Projecting length [mm]	<i>MID</i>	Minimum immersion depth [mm]

- Bore a mounting opening in pipe wall.
- Weld connecting piece with an internal thread G½ resp. Rp½ centered above the mounting opening of the pipe.  
Recommended length of sleeve: 15 ... 40 mm
- If necessary, wrap thread of compression fitting with common sealing tape, for example made of PTFE.
- Screw thread of compression fitting by hand into connecting piece then tighten it firmly with a fork wrench (SW27).
- Remove spigot nut of compression fitting and extract both seal halves.
- Remove protective cap from sensor tip and attach spigot nut on sensor probe.
- Insert probe in threaded part of compression fitting, attach seal halves and screw on spigot nut manually to such an extent that the sensor probe can be inserted without jamming.
- In case of a longer sensor probe push it partly into the pipe as required.



Always avoid bending of the probe tube during screwing.

- Carefully slide probe so that the center of the chamber head is placed at the optimum measuring position in the middle of the pipe.
- Tighten spigot nut slightly by hand so that sensor is fixed.
- Adjust sensor manually at its enclosure into required measuring direction and precise position while maintaining immersion depth.
- Hold sensor and tighten spigot nut by turning the fork wrench (SW17) a quarter of a turn.  
Recommended torque: 10 ... 15 Nm
- Check the set angular position carefully, for example by means of a spirit level at the octagonal part of the sensor enclosure.



Angular deviation should not be wider than  $\pm 3^\circ$  relative to the ideal measuring direction.

Otherwise, measurement accuracy may be affected.

- In case of wrong adjustment, the compression fitting has to be loosened and the alignment procedure must be repeated.

## Mounting accessories

Type / art. no.	Drawing	Mounting
Clamp <sup>6</sup> a.) 524 916 b.) 524 882		<ul style="list-style-type: none"> <li>- Internal thread Rp<math>\frac{1}{2}</math></li> <li>- Material: a.) Steel, black b.) Stainless steel 1.4571</li> </ul>
Compression fitting <sup>7</sup> 517 206		<ul style="list-style-type: none"> <li>- Immersion sensor</li> <li>- Pipe (typ.), wall</li> <li>- Screwing into a welding stud</li> <li>- Material: Brass PTFE, NBR</li> <li>- Atmospheric pressure use!</li> </ul>

**Table 3**

<sup>6</sup> Must be welded.

<sup>7</sup> Version in stainless steel: 539 746

## 4 Electrical connection


The sensor is equipped with a 4-pin cable firmly fixed to the sensor enclosure (pigtail; pin assignment refers to Table 4).

Wire colour	Pin Nr.	Designation	Function
Brown (BR)	1	Power	Operating voltage: +U <sub>B</sub>
White (WH)	3	GND <sup>8</sup>	Operating voltage: Ground
Yellow (YE)	2	Analogue w <sub>N</sub>	Output signal: Flow velocity
Green (GN)	4	Analogue T <sub>M</sub> <i>or</i>	Output signal: Temperature of medium <i>or</i>
		AGND <sup>8</sup>	Ground connection of analog output

**Table 4**

Standard cable length is 2 m, optional versions are:

- Special length with 3 ... 100 m (pigtail; in steps of 1 m)
- Cable (0.2 m) with M12 connector (for details see Table 5)

Gender	Male, A-coded	
Locking	M12 (locking nut on connecting cable)	
Protection	IP67 (cable connected)	
Model	Binder, series 713	
Pinning	See Table 4 and right drawing (view on connector of sensor)	

**Table 5**



During electrical installation, ensure that no voltage is applied and inadvertent activation is not possible.

### Operating voltage

For proper operation the sensor requires DC voltage with a nominal value of 24 V with permitted tolerance of  $\pm 10\%$ . It is protected against a polarity reversal; typical operating current is 40 mA, at maximum<sup>9</sup> 60 mA.



Only operate sensor within the defined range of operating voltage (24 V DC  $\pm 10\%$ ).

Undervoltage may result in malfunction; overvoltage may lead to irreversible damage to the sensor.

The specifications for the operating voltage are valid for the internal connection of the sensor. Voltage drops generated due to cable resistances must be considered by the customer.

<sup>8</sup> The reference grounds AGND and GND are coupled within the sensor.

<sup>9</sup> Both signal outputs emitting 21.6 resp. 21.2 mA at minimum operating voltage.

## Analogue outputs

The basic sensor variant (“-1”), which measures only flow velocity, can be ordered with voltage<sup>10</sup> (0 ... 10 V) or current interface (4 ... 20 mA). The enhanced version (“-2”) with an additional analogue output for signaling medium temperature comes with 2 current interfaces. Either type of analogue output is short-circuit protected against both rails of the operating voltage  $U_B$ .

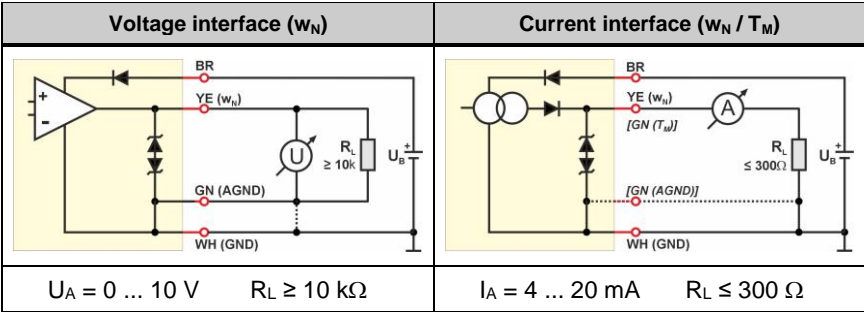


Figure 4

The apparent ohmic resistance  $R_L$  must be connected between the signal output and GND (see Figure 4).

Load capacity  $C_L$  is limited to a maximum of 10 nF.

## 5 Signalization

### Light emitting diodes

The sensor **SS 20.260** indicates its functional state via two light emitting diodes (LED; see Table 6).

Operating state	LED 1	LED 2	
Supply voltage: None, wrong polarity, too low			
Sensor ready for operation			
Supply voltage beyond specification range or Medium temperature beyond specification range			
Sensor defective			

Table 6

- LED off
- LED on: green
- LED flashes (approx. 2 Hz): green
- LED flashes (approx. 2 Hz): red

<sup>10</sup> With longer connection cable: Set measuring burden against AGND (cable offset)

# Analogue outputs

- Error signaling  
In current mode the interface delivers 2 mA<sup>11</sup>.  
In voltage mode the output switches to 0 V.
- Representation of flow velocity  
The measuring range of the corresponding measuring value is mapped in linearly to the signaling range of its analogue output (see Figure 5).  
For flow measurement the measuring range reaches from zero to the selectable end of the measuring range  $w_{N,max}$  (= 100 % in Figure 5). A higher flow up to 110 % of range (= 11 V or 21.6 mA) is still output in a linear way, moreover the signal remains constant.

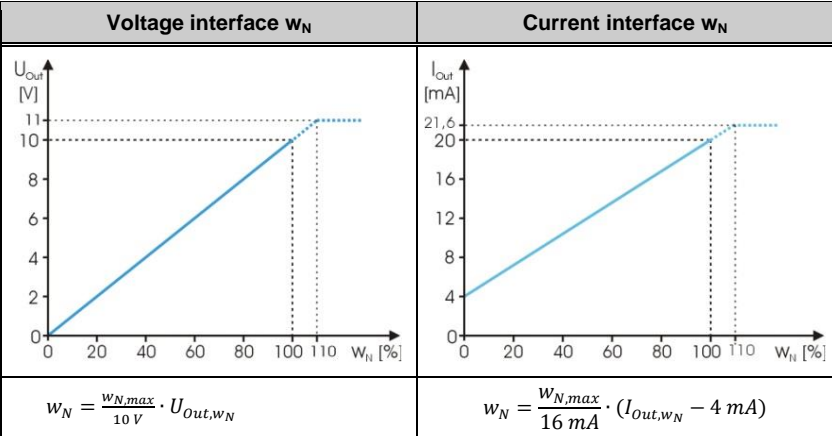


Figure 5 Representation for flow velocity

- Representation of medium temperature  
The measuring range of the medium temperature is -20 to +120 °C (see Figure 6). Falling below this temperature is still output in a linear way down to -30 °C (3 mA), going deeper the signal remains constant. An exceeded temperature is output linearly up to +130 °C (21.2 mA), more-over this output remains constant.

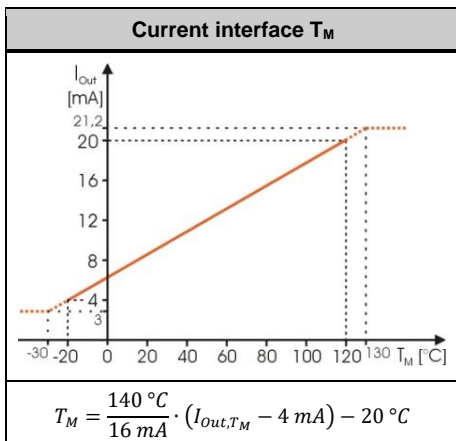


Even short-term overshooting of the operating medium temperature can cause irreversible damage of the sensor.



For a correct temperature measurement, the flow velocity at the sensor head must be > 2 m/s.  
Below this, a temperature value, which is too high, is indicated.

<sup>11</sup> In accordance with NAMUR specification.



**Figure 6 Representation for medium temperature**

## 6 Startup

Prior to switching on the **SCHMIDT® Flow sensor SS 20.260**, the following checks have to be carried out:

- Immersion depth of the sensor probe and alignment of the housing.
- Tightening of the fastening screw of the compression fitting.
- Correct electrical connection in the field (switch cabinet or similar).



Prior to start up the sensor, check mounting and electrical connection.

Five seconds after switch-on the sensor is ready for operation. If the sensor has another temperature than the ambient, this time is prolonged until the sensor has reached its ambient temperature.

If the sensor has been stored at very cold conditions, before commissioning you have to wait until the sensor and its housing have reached ambient temperature.

## 7 Information concerning operation



Soiling or other gratings on the sensor cause distortions of measurements.

Therefore, the sensor must be checked for soiling at regular intervals and cleaned if necessary.



(Condensing) liquid on the sensor causes serious measurement distortions.

After drying the correct measuring function is restored.

### Eliminating malfunctions

The following Table 7 lists possible errors (error images). A description of the way to detect errors is given. Furthermore, the possible causes and measures to be taken to eliminate errors are listed.


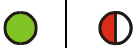

Error image	Possible causes	Troubleshooting
 $I_{WN}, I_{TM} = 0 \text{ mA}$	Problems with supply voltage $U_B$ : ➤ No $U_B$ available ➤ $U_B$ has wrong polarity ➤ $U_B < \text{approx. } 6.5 \text{ V}$  Sensor defective	➤ Sensor cable connected correctly? ➤ Supply voltage connected to control? ➤ Supply cable broken? ➤ Power supply unit large enough?
 $I_{WN}, I_{TM} = 2 \text{ mA}$	Sensor element defective	Send in sensor for repair
 $I_{WN}, I_{TM} = 2 \text{ mA}$	Operating voltage beyond specification range (too low / high) Medium temperature beyond specification range (too low / high)	Check operating voltage and set it correctly Check medium temperature and set it correctly
Flow signal $w_N$ is too large / small	Measuring range too small / large  Medium is not air Sensor element soiled Sensor installed in opposite direction to flow direction	Check sensor configuration Check measuring resistance Is foreign gas factor correct? Clean sensor tip Check installation direction
Flow signal $w_N$ is fluctuating	$U_B$ unstable Mounting conditions: ➤ Sensor head is not in optimal position ➤ Run-in/run-out distance is too short Strong fluctuations of pressure or temperature	Check voltage supply Check mounting conditions  Check operating parameters

Table 7

## 8 Service information

### Maintenance

Soiling of the sensor head may lead to distortion of the measured value. Therefore, the sensor head must be checked for contamination at regular intervals. If contaminations are visible, the sensor can be cleaned as described below.

### Cleaning of sensor head

If the sensor head is soiled or dusty, it must be cleaned carefully by means of compressed air.



The sensor head is a sensitive measuring system.  
During manual cleaning proceed with great care.

In case of persistent deposits, the sensor chip as well as the interior of the chamber head can be cleaned carefully by using residue-free drying alcohol (e.g. isopropyl alcohol) or soapy water with special cotton swabs.



**Figure 7 Suitable cotton swabs with small cleaning pads**

Suitable for this purpose are cotton swabs, which have small, flattened and soft cotton pads (e.g. see Figure 7). The flat side of that pad should fit just between chamber wall and sensor chip to allow the exertion of a controlled, minimal pressure on the chip. Conventional cotton swabs are too big and therefore can break the chip.



Under no circumstances do attempt to pressurize the chip with greater force (e.g. by swabs with thick head or lever movements with its stick).

Mechanical overloading of the sensor element can lead to irreversible damage.



The stick may only be moved with great care back and forth parallel to the chip surface to rub off the dirt. If necessary, use several cotton swabs. Before recommissioning, the sensor head must be completely dry. The drying process can be accelerated by gently blowing. If this procedure does not help, the sensor must be sent to **SCHMIDT Technology** for cleaning or repair.

## **Transport / shipment of the sensor**

Before transport or shipment of the sensor, the delivered protective cap must be placed onto the sensor tip. Avoid soiling or mechanical stress.

## **Calibration**

If the customer has made no other provisions, we recommend repeating the calibration at a 12-month interval. For this, the sensor must be sent in to the manufacturer.

## **Spare parts or repair**

No spare parts are available, since a repair is only possible at the manufacturer's facilities. In case of defects, the sensor must be sent in to the producer for repair.

- **A completed declaration of decontamination must be attached.**

The appropriate form "Declaration of decontamination" is enclosed with the sensor and can also be downloaded at

[www.schmidt-sensors.com](http://www.schmidt-sensors.com)

tab "Service & Support for Sensors", heading "Product downloads".

If the sensor is used in systems important for operation, we recommend you to keep a replacement sensor in stock.

## **Test certificates and material certificates**

Every new sensor is accompanied by a certificate of compliance according to EN 10204-2.1. Material certificates are not available.

Upon request, we shall prepare, at a charge, a factory calibration certificate, traceable to national standards.

## 9 Technical data

Measuring parameters	Standard velocity $w_N$ of air, based on standard conditions 20 °C and 1013.25 hPa Medium temperature $T_M$
Medium to be measured	Air or nitrogen, other gases on request
Measuring ranges <sup>12</sup> $w_N$	0 ... 10 / 20 / 40 / 50 / 60 m/s
Lower detection limit $w_N$	0.2 m/s
Measuring accuracy <sup>13</sup> $w_N$ - Standard - Precision	$\pm(5\% \text{ of measured value} + [0.4\% \text{ of final value; min. } 0.02 \text{ m/s}])$ $\pm(3\% \text{ of measured value} + [0.4\% \text{ of final value; min. } 0.02 \text{ m/s}])$
Response time ( $t_{90}$ ) $w_N$	3 s (jump of $w_N$ from 5 to 0 m/s)
Temperature gradient $w_N$	< 8 K/min (at $w_N = 5 \text{ m/s}$ )
Measuring range $T_M$	-20 ... +120 °C
Measuring accuracy <sup>14</sup> $T_M$	$\pm 1 \text{ K}$ ( $T_M = 0 \dots 40 \text{ °C}$ ) $\pm 2 \text{ K}$ (remaining measuring range of $T_M$ )
Operating temperature - Medium - Electronics	-20 ... +120 °C -20 ... +70 °C
Humidity range	Measuring mode: non-condensing ( $\leq 95\% \text{ RH}$ )
Operating pressure	Atmospheric (700 ... 1,300 mbar)
Operating voltage $U_B$	24 V <sub>DC</sub> $\pm 10\%$ (reverse voltage protected)
Current consumption	Typ. < 40 mA, max. 60 mA
Analogue outputs - Voltage output - Current output - Maximum load capacity	1 or 2 pcs. (short-circuit protected) 0 ... 10 V ( $R_L \geq 10 \text{ k}\Omega$ ) 4 ... 20 mA ( $R_L \leq 300 \Omega$ ) 10 nF
Electrical connection Options:	Non-detachable connecting cable, pigtail <sup>15</sup> , 4-pin, length 2 m - Special lengths: 3 ... 100 m (pigtail; in steps of 1 m) - Cable (0.2 m) with M12 connector (male, A-coded, 4-pole)
Maximum cable length <sup>16</sup>	100 m
Type of protection	IP64 (enclosure), IP65 (probe), IP67 (plug connection)
Protection class	III (SELV or PELV)
Mounting tolerance	Unidirectional ( $\pm 3^\circ$ relative to flow direction)
Min. tube diameter	DN25
Mounting	Thread M18 x 1 at sensor enclosure, accessories (option)
Installation length	50 / 100 / 200 / 350 / 500 mm
Weight	200 g max.

<sup>12</sup> Measuring ranges of 50 m/s and 60 m/s only for variant "2"

<sup>13</sup> Under conditions of the reference

<sup>14</sup>  $w_N \geq 2 \text{ m/s}$

<sup>15</sup> With cable end sleeves

<sup>16</sup> Voltage output: Utilisation of AGND and  $R_L \geq 10 \text{ k}\Omega$  (ground offset)

## 10 Declarations of conformity

**SCHMIDT Technology GmbH** herewith declares in its sole responsibility, that the product

**SCHMIDT® Flow Sensor SS 20.260**

Part-No. **506 690**

is in compliance with the appropriate



European guidelines and standards

and



UK statutory requirements and designated standards.

The corresponding declarations of conformity can be download from **SCHMIDT®** homepage:

[www.schmidt-sensors.com](http://www.schmidt-sensors.com)

[www.schmidttechnology.de](http://www.schmidttechnology.de)



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