



DESCRIPTION AND APPLICATION

The flow switches are designed for switching loads after reaching the air flow preset value. Combined with the central mounting holder, it is possible to use the switch for measurements of flow in air conditioning ducts or piping. The temperature resistance of the switch head is -30 to 70 °C. This critical temperature should not be exceeded, not even for a short time. The switches can be used for all types of load. Easy mounting of the temperature sensor is ensured by the unique "S head" design.

The switches are designed for operation in chemically non-aggressive environment.

ACCESSORIES

- The plastic central holder

DECLARATION, CERTIFICATES, CALIBRATION

EC Declaration of Conformity – in accordance with Act No. 22/1997 Coll. as amended for sensors with an output of 0 to 10 V.

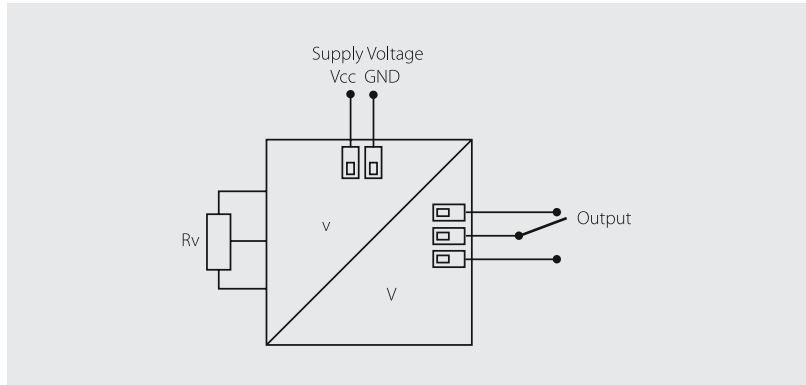
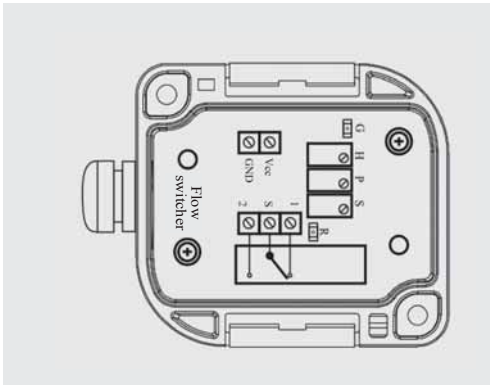
Calibration – at the customer's request the calibration can be provided in an accredited laboratory.



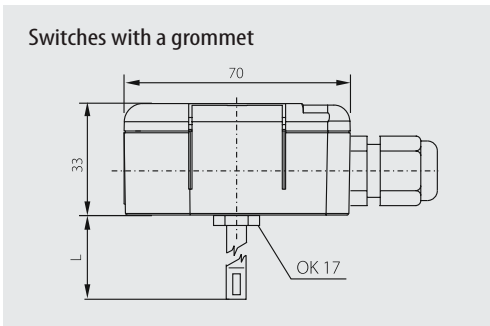
SPECIFICATION

Sensor type	SPP	
Sensing element type	FS5	
Standard measuring range / Recommended measuring range	0–5 m/s / 2–5 m/s	
	0–10 m/s / 2–10 m/s	
	0–20 m/s / 2–20 m/s	
	user selectable 0–100 m/s	
Supply voltage	15 to 30 VDC (recommended 24 VDC)	
Power consumption	1 W	
Switched load	8 A / 250 VAC	
Measurement sensitivity	0.01 m/s	
Measuring principle	Thermoelectric and anemometric principle	
Settling time after power-up	15 minutes	
Measurement error	< ±3 % of the range or ±0.3 m/s (Applicable to air, temperature 25±5 °C, humidity 40±5 % RH, Atmospheric pressure 1000±10 hPa in recommended measuring range. Error after power-up is approx. +2V, after 5 min. < +0.3 V, after 10 min. < +0.1V.)	
Speed of response	< 2 s	
Switch wiring	according to wiring diagram	
Recommended wire cross-section	0.35 to 1.5 mm ²	
Material enclosure	Polyamide	
Dimensions enclosure	70 x 63 x 34 mm	
Operating temperature enclosure	-30 to 70 °C	
Operating temp. probe with sensing element	-20 to 150 °C	
Degree of protection of enclosure	IP 65 according to EN 60 529	
Degree of protection of measuring probe	IP 20 according to EN 60 529	
EMC compatibility - criterion A for:	EMC emission	EN 61 000-6-3
	EMC immunity	EN 61 000-6-2
	Electrostatic discharge	IEC 61 000-4-2
	Electromagnetic field	IEC 61 000-4-3
	Fast transient phenomena	IEC 61 000-4-4
	Shock pulse	IEC 61 000-4-5
	Electromagnetic interference	IEC 61 000-4-6
Short-time interruption	IEC 61 000-4-11	
Type of grommet	M 16 x 1.5	
Measuring probe diameter	10 mm	
Measuring probe standard lengths	100 mm a 200 mm	
Weight	0.15 kg	

WIRING DIAGRAM



DIMENSIONAL DRAWING



SWITCH INSTALLATION AND OPERATION

It is necessary to open the plastic head before the supply cable is connected. To open the head, use a standard flat-tip screwdriver and insert the tip subsequently into both of the slots in the cap and release it by tilting the tool up. Put the supply cable through the loose grommet and connect it to the terminals according to the wiring diagram. The recommended wire cross-section is 0.35 up to 1.5 mm² and the external diameter of the circular section of the cable is 4 to 8 mm.

If the supply cable is laid in the proximity to high voltage cables or those supplying the units generating interfering electromagnetic fields, a shielded cable should be used. The switches are installed on a horizontal surface using the plastic holder with grommet or the internal holes in the switch head. The holes are accessible after removing the cap from the head. The plastic holder is not included in the delivery.

The recommended operating position is with the grommet not facing up. In order to ensure impermeability, the grommet should be tightened after connection of the supply cable. When closing the head, the clips must click into their original seats.

The switch may only be installed by the person with electrical qualification according to § 5 Regulation No. 50/1978 Coll. and who has been well familiarized with the "Operating Instructions".

Switches must not be used for measuring in the following locations:

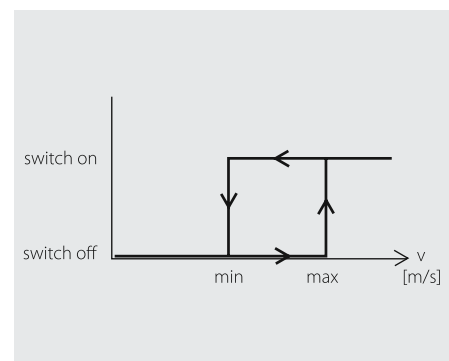
- Where the switch may be subject to vibrations or mechanical effects,
- With explosion hazard or with substantial electrical interference,
- In chemically aggressive environments,
- Where they could be exposed to direct thermal radiation (lamps, radiators, etc.) or to solar radiation.

FLOW SWITCH SETTING

Once the supply voltage is connected to Vcc and GND terminals, the G LED (green) is on, the relay is tested; it is powered and de-powered for 1 second. The energised relay is indicated by the R (red) LED. Once the output relay is de-powered, terminals S and 1 are connected. Once the required air flow speed is reached, the relay is powered and terminals S are 2 connected.

The relay load current may be 8 A at 250 V. The flow switch is factory set during its initial calibration to 10 m/s at which the relay gets energised.

The unit contains three adjustable trimmers to adjust the sensitivity of the sensing element, switching threshold and hysteresis. The sensitivity of the element is adjusted with trimmer S, the hysteresis with trimmer H. The switching threshold of the switch is adjusted with trimmer P, which can be adjusted to the full extent. The width between the minimum and maximum flow values to activate the switch is adjusted with trimmer H. The trimmer S is adjusted by the manufacturer and it is not allowed to re-adjust it.

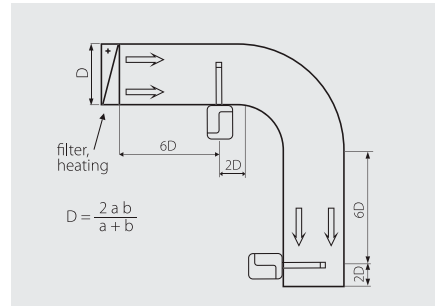
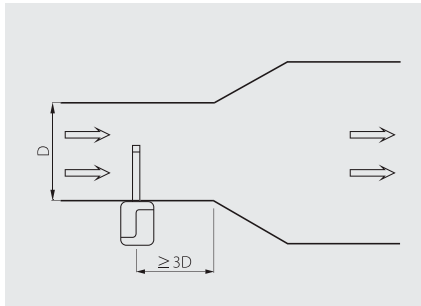
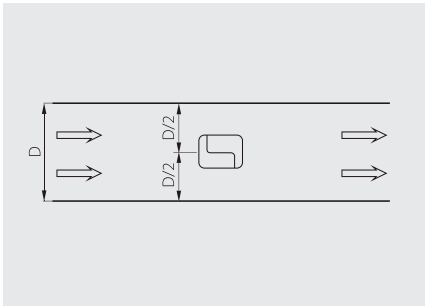


RECOMMENDED MOUNTING OF THE SPP-SERIES FLOW SWITCHES:

For the switch to operate correctly, it is essential it is properly mounted. The positioning and mounting of the sensing head in the air flow has a relevant impact on the measurement accuracy. Please find below the basic guidelines on correct positioning of the switch in the duct system:

Correct:

The axis of the cable grommet should be horizontally in line with the air flow direction.



For rectangular ducts, the diameter **D** is calculated from the rectangle sides **a, b**.

Incorrect:

