

Monitoring sensors for fluids

- One piece metal encapsulation
- Temperature range -20...+80 °C
- Metal plug-in connection
- Pressure-tight up to 100 bar
- PTFE encapsulation
- High temperature sensors up to 120 °C



Standard sensors

The standard sensors are made of stainless steel and are designed for general application in pipework. When screwing in sensors, care must be taken that the sensor tip is fully immersed in the flow, but does not touch the opposite pipe wall.

TYPE	ID-NO.	DESIGN	
ST 421 K-A4	P10412	G 1/2 stainless steel A4	fixed cable
ST 421 S-A4	P10414	G 1/2 stainless steel A4	plug
ST 431 K-A4	P10424	G 3/4 stainless steel A4	fixed cable
SLG 4-2	Z00445	Plug straight	2m PVC-cable
SLW 4-2	Z00446	Plug angled	2m PVC-cable

High temperature sensors

High temperature sensors may be used for temperatures up to 120 °C. A short-time overload up to 135 °C is allowed; within this time the switching point is not specified. After returning back to temperatures below 120 °C the sensor will work properly again.

TYPE	ID-NO.	DESIGN	
ST 421 KH-A4	P10437	G 1/2 stainless steel A4 120°C	2m PTFE cable
ST 431 KH-A4	P10438	G 3/4 stainless steel A4 120°C	2m PTFE cable

Extra long sensors

TYPE	ID-NO.	DESIGN	
ST 421 K-L80	P10901	G 1/2 stainless steel A4 L= 80 mm	fixed cable
ST 421 K-L120	P10902	G 1/2 stainless steel A4 L= 120 mm	fixed cable
ST 421 S-L80	P10904	G 1/2 stainless steel A4 L= 80 mm	plug
ST 421 S-L120	P10905	G 1/2 stainless steel A4 L= 120 mm	plug

Extra long sensors up to 300 mm on request.

PTFE-sensors

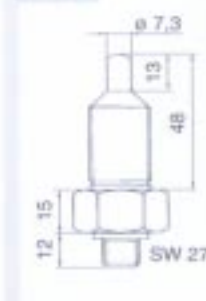
The casing of the PTFE-sensors is stable and resists all chemically aggressive fluids and gases. The switching reaction time is reduced, due to the poor heat conductivity of PTFE compared to that of stainless steel. The thread of the PTFE-Sensors can resist a pressure up to 5 bar.

TYPE	ID-NO.	DESIGN	
ST 421 KF	P10431	G 1/2 PTFE	2m PTFE cable

Note

Different designs, materials and/or electrical data are available on request.

G 1/2

ST 421 K...
G 1/2

ST 421 S...
G 1/2

ST 421 K-L...
G 1/2

ST 421 S-L...
G 1/2

ST 421 KF
G 3/4

ST 431 K...

Combinations sensor-amplifier

ST...	SKZ 400...	SKM 420...	SKV 480...
	●	●	●

FLOW CONTROLLER

Sensors ST... • Series 400



ELEKTRONIK

Technical Data

	Standard / Extra long	High-temperature	PTFE
Detection-range			
Water	1...150 cm/sec.	1...150 cm/sec.	1...70 cm/sec.
Nominal flow	20 cm/sec.	20 cm/sec.	10 cm/sec.
Oil	3...300 cm/sec.	3...300 cm/sec.	2...100 cm/sec.
Nominal flow	60 cm/sec.	60 cm/sec.	15 cm/sec.
Temperature range (Medium)	-20...+80 °C	10...+120 °C	-10...+70 °C
Temperature gradient	250 °C/min	250 °C/min	typ. 30 °C/min (60...20)
Temperature-step	typ. 12 sec.	typ. 12 sec.	typ. 100 sec. (50...150 sec.)
Standby time	typ. 8 sec. (2...15 sec.)	typ. 8 sec. (2...15 sec.)	typ. 60 sec. (40...100 sec.)
Switching delay on	typ. 2 sec. (1...13 sec.)	typ. 2 sec. (1...13 sec.)	typ. 30 sec. (10...50 sec.)
Switching delay off	typ. 2 sec. (1...15 sec.)	typ. 2 sec. (1...15 sec.)	typ. 30 sec. (10...50 sec.)
Compressive strength	100 bar	100 bar	5 bar
Protection (DIN 40030)			
Fixed cable	IP 68	IP 68	IP 68
Plug	IP 67		
Material sensor (DIN 17440)	A4: 1.4571 (AISI-316 Ti)	A4: 1.4571 (AISI-316 Ti)	PTFE
Force thread	100 Nm	100 Nm	10 Nm
Connection with fixed cable	4 x 0.25 mm ² 2m PVC	4 x 0.25 mm ² 2m PTFE	4 x 0.25 mm ² 2m PTFE
Cross sections at extended cables			
up to 10m	4 x 0.25 mm ²	4 x 0.25 mm ²	4 x 0.25 mm ²
up to 50m	4 x 0.50 mm ²	4 x 0.50 mm ²	4 x 0.50 mm ²
up to 100m	4 x 0.75 mm ²	4 x 0.75 mm ²	4 x 0.75 mm ²
Connection	universal plug system SB M12		

Application Notes

The flow controller consists of a sensor and an amplifier. The connecting cable between both parts may be up to 100 m long. For the extension a shielded cable should be preferred. The probe is made of special steel in one piece, to a new type of electronic and mechanical construction. By means of this, absolute tightness and a high compression resistance is obtained. Not all grades of stainless steel are stable with all corrosive or acidic media. For this reason the sensor should be made of the grade of metal that is stable for the particular medium in question. The switching point must be adjusted for the given medium at the amplifier within the detection range. If the flow rate increases higher than the measuring range flow failure or reduction is displayed once medium flow velocity has

dropped back within the sensor range. When installing the flow sensors the medium should flow completely round the measuring pin. In the case of tubes with small cross-sections, care should be taken that the sensor tip does not considerably constrict the cross-section. A good seal can be ensured by using PTFE-tape or flat gaskets. The delivered flat gasket of AFM 34 should be applied for pressures up to 15 bar. When the thread is tightened the gasket must be unpressed less than 30%. For pressure above 15 bar prefer metal flat gaskets or a recess incorporated into the fitting. The recess will keep the flat into the right position. This technique allows a compressive strength up to 100 bar.

Connection



Code: BK = black BN = brown BU = blue GN = green YE = yellow GY = grey PK = pink WH = white