

# Level pressure sensing transmitter type 681

Pressure range  
0 ... 0.1 – 25 bar



The pressure transmitters of type 681 with piezoresistive measuring elements have compensated, calibrated and amplified sensor signals which are available as standard voltage or current outputs.

In the immersion-sensor version with a salt water and oil-resistant connection cable they are specially suited for level measurement, even in the presence of corrosive liquids.

The cable incorporates a tube for compensation of the ambient pressure.

Manufactured from stainless steel, its welded construction provides a watertight seal.

- Mechanically protected diaphragm due to special head design
- Supplementary weight (option) improves stabilization of sensor in turbulent media
- Effective overload protection due to chemically etched chip diaphragm and specially designed glass gland
- Compact construction using SMD technology, enhances operational reliability in the presence of shock and vibration
- Welded construction provides 100% sealing against media

## Technical overview

### Pressure ranges <sup>1)</sup>

Relative	0 ... 25 bar
Absolute	optional available

### Overload

3x pressure range, min. 3 bar

### Rupture pressure

> 200 bar

### Medium

Permissible medium	according order code selection table (other medium on request)
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### Material

Diaphragm, case	Stainless steel 1.4435 (316L) Titan
Sealing material	FPM (other at request)
Cable	PUR, PE oder teflon

### Temperature <sup>2)</sup>

Medium temperature	-5 ... +80 °C
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### Output and power supply <sup>3)4)</sup>

	output	power supply	permissible load <sup>5)</sup>
3 wire	0 ... 5 V 0 ... 10 V	12 ... 30 VDC 12 ... 30 VDC	> 10 kOhm > 10 kOhm
2 wire	4 ... 20 mA	9 ... 33 VDC	supply voltage: -9V 0.02 A [Ohm] max.
2 wire (Ex)	4 ... 20 mA	9 ... 28 VDC	supply voltage: -9V 0.02 A [Ohm] max.

### Ex-version

	gas	dust
Ex-Admission	II 1G Ex ia IIB/IIC T3 ... T6	II 1D Ex iaD 20 IP6x T145 ... T70 °C
Standards	EN 60079-0 / EN 60079-11	EN 61241-0 / EN 61241-11

### Temperature class Ex-version

	T6	T4
Medium temperature	-5 ... +50 °C	-5 ... +80 °C

### Electrical connection

Cable	PUR, PE or teflon (In variable lengths)
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### Tests / Admissions

	norm	character	level
Mechanical load	EN 60068-2-6	vibration	10 g (4 ... 2000 Hz, oscillation ± 10 mmp)
	EN 60068-2-27	shock	100 g (pulse duration 6 ms)
Interference emit	EN 55022	emitted interference, class B	< 30 dBµV/m (0.03 ... 1 GHz)
	EN 61000-4-2	discharge static electricity	8 kV contact-, 15 kV air discharge
Interference resitance	EN 61000-4-3	electromagnetic radiation	10 V/m, 0.08 ... 2.7 GHz, 80% AM 1 kHz, 3 s
	EN 61000-4-4	fast transients (burst)	4 kV
	EN 61000-4-5	impulse voltage (surge)	Line-Line 0.5 kV/42 Ohm, Line-Earth 1 kV/42 Ohm
	EN 61000-4-6	grid-bound electromagnetic blockage	10 V, 0.15 ... 80 MHz, 80% AM 1 kHz, 3 s

### Packaging

Single packaging	carton padded cellular material
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### Weight

Without supplementary weight (without cable)	~ 145 g
With supplementary weight (without cable)	~ 405 g
Cable	~ 50 g/m

## Accuracy

	total error band <sup>(*)</sup> [±%fs] per pressure ranges [bar]		
	0.1 ... 0.5	> 0.5 ... 2	> 2 ... 25
Characteristic line deviation [±%fs] 0.25 oder 0.1 (typ./ max.) -5 ... +50 °C	1.0 / 1.5	0.7 / 1.0	0.7 / 1.0
(typ./ max.) -5 ... +80 °C	2.0 / 2.5	1.0 / 1.5	1.0 / 1.5
Characteristic line deviation [±%fs] 0.05 (typ. / max.) -5 ... +50 °C	–	0.3 / 0.5	0.3 / 0.5
(typ. / max.) -5 ... +80 °C	–	0.75 / 1.0	0.75 / 1.0

<sup>(\*)</sup> total error band incl. characteristic line deviation, temperature error zero point and operating range, hysteresis and repeatability at max. signal range.

<sup>1)</sup> See order code selection table. Other on request.

<sup>2)</sup> Compensated temperature range see order code selection table

<sup>3)</sup> Short circuit proof with polarity reversal protection

<sup>4)</sup> Influence from the supply voltage

<sup>5)</sup> Influence permissible load

Order code selection table		Cable	Case	681	X	X	X	X	X	X	X	X	X	X
Medium <sup>1)</sup>	Fig. 1, 2, 3, 4 Diesel oil / fuel oil / kerosene	teflon	stainless steel	0										
	Fig. 1, 2 Salt water / brackish water	PUR	Titan	1										
	Fig. 1, 2, 3, 4 Drinking water, potable	PE	stainless steel	2										
	Fig. 1, 2, 3, 4 Lake water / river water	PUR	stainless steel	3										
	Fig. 1, 2, 3, 4 Benzene	teflon	stainless steel	4										
Fig. 1, 2 Chlorinated water	PUR	Titan	5											
Pressure range <sup>2)</sup>	0 ... 100 mbar				0	0								
	0 ... 160 mbar				0	1								
	0 ... 250 mbar				0	2								
	0 ... 400 mbar				0	3								
	0 ... 600 mbar				0	4								
	0 ... 1 bar				0	5								
	0 ... 1.6 bar				0	6								
	0 ... 2.5 bar				0	7								
	0 ... 4 bar				0	8								
	0 ... 6 bar				0	9								
	0 ... 10 bar				1	0								
	0 ... 16 bar				1	1								
	0 ... 25 bar				1	2								
Output / power supply	0 ... 5 V 12 ... 30 VDC								0					
	0 ... 10 V 12 ... 30 VDC								1					
	4 ... 20 mA 9 ... 33 VDC								3					
	4 ... 20 mA 9 ... 28 VDC								4					
Characteristic line deviation	≤ ±0.25% fs											1		
	≤ ±0.10% fs											2		
	≤ ±0.05% fs (≥ 0.5 ... 25 bar)											3,4	3	
Temperature range <sup>4)</sup>	-5 ... +50 °C compensated, medium temperature permissible: -5 ... +50 °C												0	
	-5 ... +80 °C compensated, medium temperature permissible: -5 ... +80 °C			0,2,4									1	
	Ex T6 (Ta: -5 ... +50 °C) -5 ... +50 °C compensated (medium temperature permissible: -5 ... +50 °C)										4		2	
	Ex T4 (Ta: -5 ... +80 °C) -5 ... +80 °C compensated (medium temperature permissible: -5 ... +80 °C)			0,2,4							4		3	
Cable length	Data in meters		(Example: 2   0   )											
	Construction	Fig. 1 closed, short case												0
Construction	Fig. 1 closed, with supplementary weight <sup>5)</sup>													1
	Fig. 2 open, short case													2
	Fig. 2 open, with supplementary weight <sup>5)</sup>													3
	Fig. 3 closed, screwable version, short case													4
	Fig. 4 open, screwable version, short case													6
Version														N

Dimensions in mm / Electrical connections

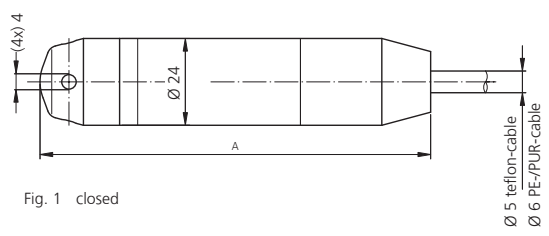


Fig. 1 closed

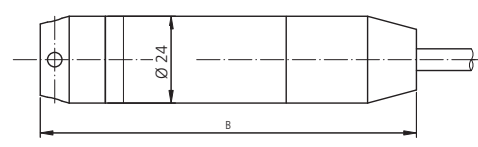


Fig. 2 open

(mm)	A (mm)	B
without supplementary weight	88	84
with supplementary weight	175	171

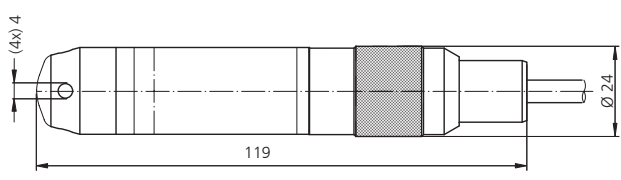


Fig. 3 closed, screwable version

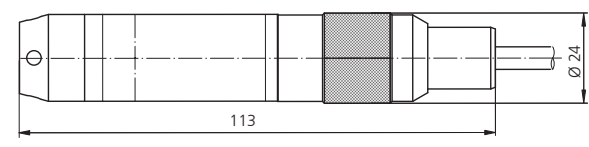


Fig. 4 open, screwable version

colour	2-wire	3-wire
white	IN	IN
yellow	OUT	GND
brown		OUT

<sup>1)</sup> Other medium on request <sup>2)</sup> Other pressure ranges on request <sup>3)</sup> II 1G Ex ia IIB/IIC T3...T6 / II 1D Ex iaD 20 IP6x T145...T70 °C  
<sup>4)</sup> For medium temperature > 50°C the special cable must be used. <sup>5)</sup> Not available with the sensor.  
 SUNSTAR 自动化 <http://www.sensor-ic.com/> TEL: 0755-83376489 FAX: 0755-83376182 E-MAIL: szss20@163.com



FOR FINE PRESSURE AND FLOW MEASUREMENT

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