Huba Control

FOR FINE PRESSURE AND FLOW MEASUREMENT

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 [1]	
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)

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

Temperature [2]	
Medium temperature	-5 ... +80 °C

Output and power supply [3] [4]	output	power supply	permissible load [5]
3 wire	0 ... 5 V	12 ... 30 VDC	> 10 kOhm
	0 ... 10 V	12 ... 30 VDC	> 10 kOhm
2 wire	4 ... 20 mA	9 ... 33 VDC	$\frac{\text{supply voltage} - 9V}{0.02\ A}$ [Ohm] max.
2 wire **(Ex)**	4 ... 20 mA	9 ... 28 VDC	$\frac{\text{supply voltage} - 9V}{0.02\ A}$ [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)

Tests / Admissions	norm	character	level
Mechanical load	EN 60068-2-6	vibration	10 *g* (4 ... 2000 Hz, oscillation ± 10 mmpp)
	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)
Interference resitance	EN 61000-4-2	discharge static electricity	8 kV contact-, 15 kV air discharge
	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

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

Accuracy

	total error band [*] [±%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

[*] total error band incl. charactersistic line deviation, temperature error zero point and operating range, hysteresis and repeatability at max. signal range.

[1] See order code selection table. Other on request.
[2] Compensated temperature range see order code selection table
[3] Short circuit proof with polarity reversal protection
[4] Influence from the supply voltage types < 0.05% fs
[5] Influence permissable load < 0.05% fs

Order code selection table

					1	2	3	4	5	6	7	8	9	10
					681.	X	X	X	X	X	X	X	X	X	X
			Cable	Case										
Medium [1]	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 [2]	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	overvoltage protection [3]					4						
Characteristic line deviation	≤ ±0.25% fs								1					
	≤ ±0.10% fs								2					
	≤ ±0.05% fs (≥ 0.5 ... 25 bar)							3,4	3					
Temperature range [4]	-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)									2				
	Ex T4 (Ta: -5 ... +80 °C) -5 ... +80 °C compensated (medium temperature permissible: -5 ... +80 °C)				0,2,4					3				
Cable length	Data in meters	Example: 2 0)												
Construction	Fig. 1	closed, short case											0	
	Fig. 1	closed, with supplementary weight [5]											1	
	Fig. 2	open, short case											2	
	Fig. 2	open, with supplementary weight [5]											3	
Version														N

Dimensions in mm / Electrical connections

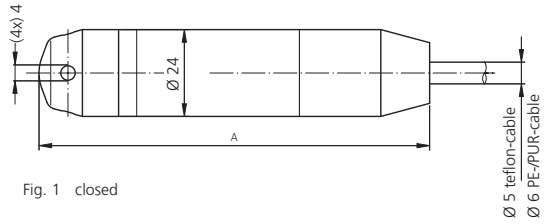


Fig. 1 closed

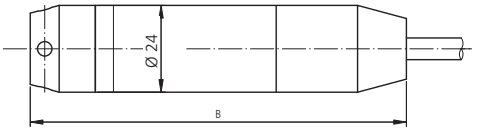


Fig. 2 open

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

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

[1] Other medium on request
[2] Other pressure ranges on request
[3] II 1G Ex ia IIB/IIC T3...T6 / II 1D Ex iaD 20 IP6x T145...T70 °C
[4] For medium temperatur > 50°C, PE or Teflon cable must be used
[5] Not available with titan case

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