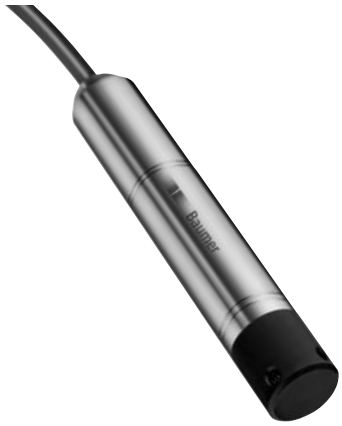
PSMN / PSMX
Pressure transmitter for hydrostatic level measurement

Main features



- **Excellent long term stability**
- **Wide range of medium compatibility**
- **External programming of Zero point and span with Flexprogrammer 9701**
- **Piezoresistive silicon sensor**
- **ATEX II 1G, II 2G (in progress)**

Applications

■ **Process technic**	□ Health care
□ Hydraulic	□ Biotechnology
□ Pneumatic	■ **Food**
□ Refrigeration	■ **Beverage**
■ **Water treatment**	□ Pharmaceutical
□ Car industry	■ **Petro-chemical**
□ Test benches	■ **Chemical**
■ **Safety**	□ HVAC
□ Aerospace	■ **Energy**
□ Railways	□ Medical gas
■ **Shipbuilding**	□ Agriculture vehicules
□ Heavy vehicule	■ **Pumps and compressors**

Main characteristics

Long term stability	0.1 % FS / Year
Accuracy	0.1 % FS, 0.25% FS
Medium temperature	-5 … 80 °C

Ordering details - PSMN / PSMX

		PSM	N	2	4	J15	R	A1	U3	91	2	1	1	0	0	0
Model / type																
PSMN			N													
PSMX			X													
Material																
Stainless steel 1.4404 AISI 316L				2												
Stainless steel 904L for seawater applications				4												
Accuracy																
0.25 % FS					4											
0.10 % FS	(P > 250 mbar)				5											
Pressure range																
0 … 1 mH2O	only for relative pressure					J08										
0 … 1.6 mH2O	only for relative pressure					J09										
0 … 2.5 mH2O	only for relative pressure					J10										
0 … 4 mH2O						J11										
0 … 6 mH2O						J12										
0 … 10 mH2O						J15										
0 … 16 mH2O						J16										
0 … 20 mH2O						J17										
0 … 25 mH2O						J18										
0 … 40 mH2O						J19										
0 … 60 mH2O						J20										
0 … 100 mH2O						J22										
0 … 160 mH2O						J24										
0 … 200 mH2O						J25										
0 … 250 mH2O						J26										
0 … 0.1 bar	only for relative pressure					B08										
0 … 0.16 bar	only for relative pressure					B09										
0 … 0.25 bar	only for relative pressure					B20										
0 … 0.4 bar						B11										
0 … 0.6 bar						B12										
0 … 1 bar						B15										
0 … 1.6 bar						B16										
0 … 2 bar						B17										
0 … 2.5 bar						B18										
0 … 4 bar						B19										
0 … 6 bar						B20										
0 … 10 bar						B22										
0 … 16 bar						B24										
0 … 20 bar						B25										
0 … 25 bar						B26										
Kind of pressure																
Relative							R									
Absolute(	(P > 400 mbar)						A									
Output signal																
4 ... 20 mA								A1								
0 … 10 VDC								A2								
1 … 5 VDC								A3								
0 … 5 VDC								A4								
0.5 … 4.5 VDC								A5								
Cable																
PUR 5 meter									U0							
PUR 10 meter									U1							
PUR 20 meter									U3							
PUR xxx meter	(additional code / 9001 cable length in meter)								U9							
ETFE 5 meter									F0							
ETFE 10 meter									F1							
ETFE 20 meter									F3							
ETFE xxx meter	(additional code / 9001 cable length in meter)								F9							
Versions																
G1/2 flush, diaphragm protection cap closed (POM)										91						
G1/2 flush, diaphragm, protection cap open (POM)										92						
G1/2 flush diaphragm, closed incl. ballast weight 300 g										93						
G1/2 flush diaphragm, with hex 27 mm										96						
Material diaphragm																
Stainless steel 1.4435 AISI 316L											2					
Hastelloy-C 276											H					
Sealing of the cable																
NBR (Standard with cable type PUR)												1				
FKM (Viton®) (Standard with cable type ETFE)												3				
Oil filling																
Silicon oil													1			
FDA approved white oil													2			
Display																
Without														0		
ATEX																
Without															0	
ATEX II 1G															1	
Ex ia IIC T5 : -40 < T_{amb} < 85 °C	(in progress)														1	
Ex ia IIC T6 : -40 < T_{amb} < 50 °C	(in progress)														1	
Approvals																
CE certified																0
GL	(planned)															4

Model / type PSMN / PSMX

Technical specification

Measuring principle	Piezo resistive silicon sensor
Measuring ranges	0 … 1 mH_2O to 0 … 250 mH_2O 0 … 0.1 bar to 0 … 25 bar
Type of pressure	Relative / Absolute
Accuracy (20°)	0.1% FS 0.25 % FS
Annual stability	0.1% FS / Year
Response time (10…90%)	5 ms
Switch on time	< 1.8 second
Versions	G1/2" flush with protection cap closed or open (see drawing page 4)

Weight

Transmitter	0.200 kg
Cable	
PUR	0.048 kg / meter
ETFE	0.051 kg / meter

Environment

Temperature	
Medium	-5 … 80 °C
Storage	-25 … 85 °C (Silicon oil) -10 … 85 °C (FDA approved white oil)
Protection rating	IP 68
Vibration IEC60068-2-6	1.5 mm p.p (10-57Hz), 10 g (58 Hz – 2 KHz) 10 cycles within 2.5 h per axis
Shock IEC600068-2-27	50 g / 11ms 100g / 6ms 10 x Imp. per axis and direction
Bump IEC600068-2-29	100 g / 2 ms 4000 x Imp. per axis and direction
Random IEC600068-2-64	0.1 g 2 / Hz (20 Hz - 1 KHz) 30 min per axis and direction (> 10 g RMS)

Electrical specification

Output signal / Power Supply	4 … 20 mA / 8 … 30 VDC 0 … 10 V / 13 … 30 VDC 0 … 5 V / 8 … 30 VDC 1 ... 5 V / 8 … 30 VDC 0.5 … 4.5 V / 8 … 30 VDC
Load impedance	
Current ouput	RΩ = (U_{supply}-8 V) / 0.02 A
Voltage ouput	> 5 KΩ
Insulation resistance	>100 MΩ at 500 V
Electrical connections	PUR or ETFE Cable with capillary tube

Material

Housing	Stainless steel 1.4404 AISI 316L or stainless steel suitable for seawater applications
Diaphragm	1.4435 or Hastelloy-C,
Cable	PUR or ETFE black (PSMN) and blue (PSMX) with integrated humidity filter
Sealing cable	NBR or FKM (Viton®)

Approvals

CE conformity	EMC directive 2004/108/CE in accordance with EN61000-6-2, EN 61000-6-3, EN 61326-1 (Tab.2) Pressure directive 97/23/C
ATEX II 1G Ex ia IIC T5 Ga	Supply range: 8 ... 30 VDC Internal inductivity: L1 ≤ 10 µH Internal capacity: C1 ≤ 10 nF Barrier data: U ≤ 30 V ; I ≤ 0.1 A ; P ≤ 0.75 W Temperature class : T1 ... T5: -40 <T amb < 85 °C T1 ... T6: -40 <T amb < 50 °C

Measuring Ranges

	Pressure in bar				
Measurement range (mH_2O)	0 … 1 0 … 1.6 0 … 2.5	0 … 4 0 … 6 0 … 10	0 … 16 / 0 … 20 0 … 25 / 0 … 40	0 … 60 0 … 100 0 … 160 0 … 200	0 … 250
Pressure range (bar)	0 … 0.1 0 … 0.16 0 … 0.25	0…0.4 0…0.6 0 … 1	0 … 1.6 / 0 … 2 0 … 2.5 / 0 … 4	0 … 6 0 … 10 0 … 16 0 … 20	0 … 25
Overpressure (bar)	2	4	8	12	20
Burst pressure (bar)	3	7	12	18	30

Model / type PSMN / PSMX

Electrical connections

Cable Output with integrated capillary tube
(length according to the ordering code)

Connection

Curent output		Voltage output	
4 … 20 mA		0 … 10 / 1 … 5 / 0 … 5 / 0.5 … 4.5 VDC	
+ Supply	: Red	+ Supply	: Red
- Supply	: Blue	- Supply	: Blue
⏚	: Shield	+ Measurement	: White
		⏚	: Shield

Dimensions (mm)