

Pressure Transmitter with Flush Diaphragm

Main features

- Measuring ranges 0...0,2 bar to 0...200 bar and 0...1000 bar
- All standard signals for industry, hydraulics and pneumatics
- Media temperature range -40°C to 100°C, optional bis 120°C
- Shock and vibration-resistant > 1000 g shock, > 20 g vibration
- Compact and robust stainless steel design
- Degree of protection from IP65 (special version up to IP69K)
- Precision class 0.5 %

Applications

- Food industry
- Pharmaceutical
- Sanitary engineering
- General industrial applications
- Mechanical engineering
- Pneumatics
- Chemistry
- Plant engineering and automation

Description

The SMF pressure transducer with a flush mount membrane made of stainless steel 316L can especially be used in applications where fast and easy cleaning is a necessity. It can also be used in applications with viscous media and media temperature from -40 to +100°C. Due to the flexibility of the usage for the SMF applications like agricultural machinery or fertilizers are common. Also medical or pharmaceutical applications can be addressed. Food or beverage installations require a high grade of cleanliness and hygienic installations – all this can be fulfilled with the SMF product family.

The flush mount sensing element is an isolated MEMS with oil filling. The laser welded configuration provides best possible media compatibility and the option for relative and absolute pressure ranges.



Specifications

PRESSURE RANGE

Measuring range*, relative pressure	p [bar]	0,2	0,6	1,0	1,6	2,0	2,5	4,0	6,0	10,0	20,0
Overload pressure	p [bar]	0,4	3,0	3,0	4,0	4,0	7,0	7,0	15,0	15,0	30,0
Measuring range*, absolute pressure	p_{abs} [bar]	1,0	2,0	2,5	6,0	10,0	20,0	40,0			
Overload pressure	p_{abs} [bar]	3	4	7	15	15	30	100			
Measuring range*, absolute pressure	p_{abs} [bar]	60	100	160	200	400	600	1000			
Overload pressure	p_{abs} [bar]	200	200	300	400	750	840	1200			

(other pressure range as -1...0 bar, -1...9/24 bar etc. or absolute pressure are available)

ELECTRICAL PARAMETER

		2-wire	3-wire	3-wire	3-wire	3-wire
Output signal*		4...20 mA	0...20 mA	0...10 V	0...5 V	0,5...4,5 V ratiometric
Supply voltage	U_s [V _{DC}]	10...32**	9...30	12...32	8...32	5 ± 10 %
Load resistor	R_L in Ohm	$R_L=(U_s-10V)/0,02A$	max. 200Ω**	≥4.7kΩ	≥4.7kΩ	≥4.7kΩ
Response time	t [ms]	≤ 2	≤ 1	≤ 1	≤ 1	≤ 1
Maximum supply current	I [mA]	23	40	10	10	7,5
Isolation voltage*	U [V _{DC}]	50				

** > AppNote (see www.adz.de)

ACCURACY

for pressure range ≤ 1000 bar

for pressure range > 1 bar

Accuracy @ RT	% of the range	≤ 0,50***	Option ≤ 0,25	≤ 1,00***
Non-linearity	BFSL	≤ 0,15		≤ 0,30
Stability/year	% of the range	≤ 0,15		*** incl. nonlinearity, hysteresis, repeatability, zero-offset- and final-offset (acc. to IEC 61298-2)

ACCEPTABLE TEMPERATURE RANGES

Media	T [°C]	-40...100
Ambience	T [°C]	-30...100
Storage	T [°C]	-40...100
Compensated range*	T [°C]	-20...85
Mean TC offset	% of the range	≤ 0,15 / 10K
Mean TC range	% of the range	≤ 0,15 / 10K
Total error	% of the range	-20°C 2,00%
	% of the range	100°C 2,00%

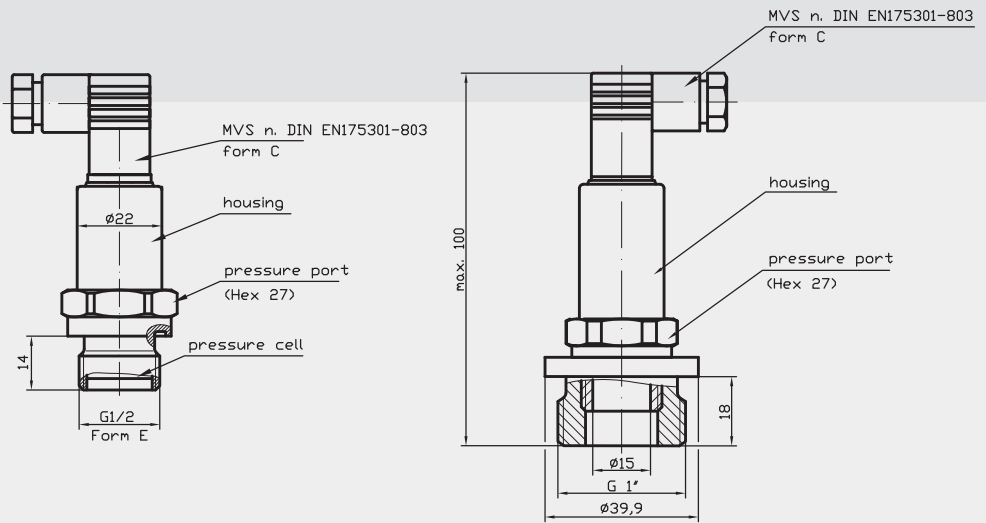
MECHANICAL PARAMETER

Parts in contact with the measuring medium		stainless steel (316L)
Housing		stainless steel (316L)
Weight	m [g]	80-120 depending on design
Shock resistance/drop	g	1000 acc. to DIN EN 60068-2-32 – free fall
Vibration resistance	g	20 acc. to DIN EN 60068-2-6 – vibration (sinusoidal)
Shock resistance/constant	g	50 acc. to DIN EN 60068-2-27 – shock resistance
Approvals		CE Declarations of conformity 2014/30/EU; Railway application DIN EN 50155 Note: Not every specification listed here applies to all configurations, thus affecting the appropriate approval.
IP system of protection (IEC 605029) up to IP69K		IP rating applies with appropriate mating connector only.

Configurations -examples- SMF with MVS/C

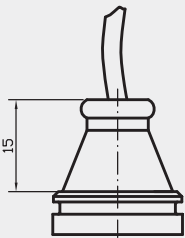


G1/2" Form E
MVS/A

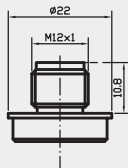


Connectors* -examples-

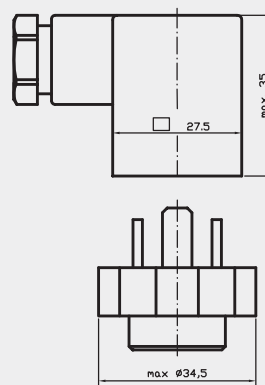
cable output
plastic
(IP67 / IP69K)



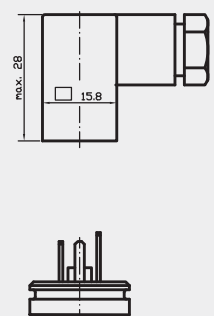
male socket
M12x1 (S 763)
(IP67)



MVS/A
DIN EN 175301-803
(IP65)

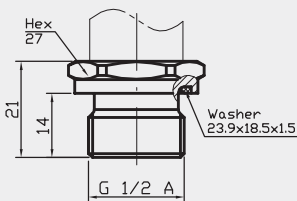


MVS/C
DIN EN 175301-803
(IP65)

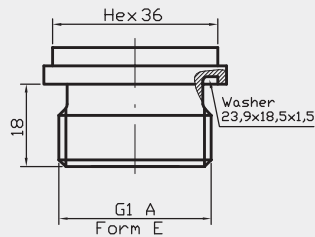


Pressure Connections* -examples-

G 1/2 A; DIN 3852; Form E

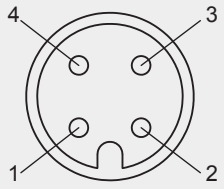
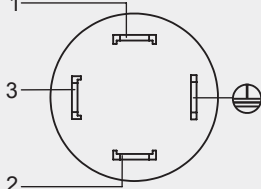
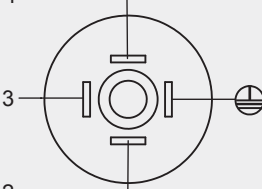


G 1 A; DIN 3852; Form E



* customer specific configurations available

Electrical Configuration*

Plug M12x1 (S 763)	Cable	DIN EN 175301-803-A	DIN EN 175301-803-C
			
2-wire 1: UB+ 2: nc 3: out 4: nc	2-wire red: UB+ black: out white: nc	2-wire 1: UB+ 2: out 3: nc ⊕: nc	2-wire 1: UB+ 2: out 3: nc ⊕: nc
3-wire 1: UB+ 2: nc 3: UB- 4: out	3-wire red: UB+ black: UB- white: out	3-wire 1: UB+ 2: UB- 3: out ⊕: nc	3-wire 1: UB+ 2: UB- 3: out ⊕: nc

nc =
not connected

The electrical connection must be made in accordance with the respective connection diagram unless otherwise agreed upon.

* custom-made adjustments are possible

Product line

DS5	Electronic Pressure Switch	SMC	Pressure Transmitter with CANopen Interface and J1939
DPSX9I	Intrinsically Safe Electronic Pressure Switch for Current	SME	Pressure Transmitter in Miniature Design
DPSX9U	Intrinsically Safe Electronic Pressure Switch for Voltage	SMF	Pressure Transmitter with Flush Diaphragm
PS1/17	Level Sensor	SMH	High Pressure Transmitter
PSX2	Intrinsically Safe Level Sensor	SML	Pressure Transmitter for Industrial Application
SH2	Pressure transmitter for hydrogen applications	SMO	Pressure Transmitter in Mobile Hydraulics
SHP	High Precision Pressure Transmitter	SMX2	Intrinsically Safe Pressure Transmitter for Industrial Application
SIS	Low Pressure Transmitter in Short and Compact Design	TPSE	Multi-Function Transmitter for Pressure and Temperature – external sensor
SIL	Low Pressure Transmitter for Industrial Application	TPSI	Multi-Function Transmitter for Pressure and Temperature – internal sensor
SKE	High Temperature Pressure Transmitter with Detached Electronics	TS1	Temperature transmitter for industrial application
SKL	High Temperature Pressure Transmitter with Cooling Fins		

