

The Robust One

S M O

Pressure transmitter in mobile hydraulics

Main features

- Measuring ranges 0...10 mbar and to 0...5000 bar
- Output signals 4...20 mA; 0...5 V; 0.5...4.5 V ratiometric
- Temperature range of media -60°C bis 150°C
- Shock and vibration resistance > 1000 g shock, > 30 g vibration
- Protection class IP67 (special version up to IP69K)
- Compact and rugged model in stainless steel
- High flexibility for options thanks to modular design
- Highly reliable

Applications

- Automotive industry
- Building, forestry and agricultural machinery
- Diesel and natural gas engines
- Braking systems

Description

The SMO has been designed for powerful technology and is distinct for its long-term stability and media compatibility thanks to the stainless-steel membrane and semiconductor thin-film technology. The measuring transmitter has a built-in choke which provides high resistance to pressure peaks. The welded stainless-steel housing offers a high degree of robustness, even in the very rugged environmental conditions of mobile hydraulic applications.

In addition, the EMC properties of the SMO series permit its application in demanding areas, that is in wind, weather, snow and ice, in the event of vibrations from nearby motors, for example, or if exposed to contaminations. Its ratiometric variant has passed tests subjecting it to up to 300 V/m.

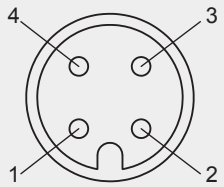
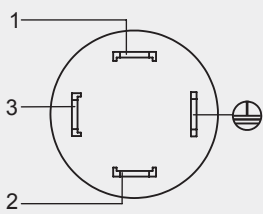
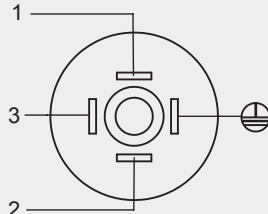
With its performance level:d, the SMO also provides for maximum reliability in safety-critical applications and can, therefore be used in cranes and building machinery.



Specifications

PRESSURE RANGE									
Measuring range*	p [mbar]	10	40	100	160	200	250	400	600
Overload pressure	p [mbar]	50	200	500	800	1000	1250	1200	1800
Burst pressure	p [mbar]	150	600	1500	2000	2000	2000	2000	3000
Measuring range*	p [bar]	1,0	1,6	2,0	2,5	4,0	6,0	10,0	16,0
Overload pressure	p [bar]	6	6	6	6	10	20	20	40
Burst pressure	p [bar]	9	9	9	9	15	30	30	60
Measuring range*	p [bar]	20	25	40	60	100	160	200	250
Overload pressure	p [bar]	40	100	100	200	200	400	400	750
Burst pressure	p [bar]	60	150	150	300	300	600	600	1000
Measuring range*	p [bar]	400	1000	1600	2000	2500	4000	5000	
Overload pressure	p [bar]	750	1200	2400	2400	3600	4800	6000	
Burst pressure	p [bar]	1000	1500	3000	3000	4500	6000	7000	
(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
Output signal*		4...20 mA			0...5 V		0...10 V		0,5...4,5 V ratiometric
Supply voltage	U _s [V _{DC}]	10...32**			8...32		12...32		5 ± 10%
Load resistor	R _λ in Ohm	R _λ = (U _s - 10V)/0,02A			≥4.7kΩ		≥4.7kΩ		≥4.7kΩ
Response time	t [ms]	≤ 2			≤ 1		≤ 1		≤ 1
Maximum supply current	I [mA]	23			10		10		7,5
Isolation voltage*	U [V _{DC}]	50			option 500/710		** > AppNote to EI-000024 (see www.adz.de)		
ACCURACY									
		for pressure range ≤ 2000 bar			for pressure range > 2000 bar		for pressure range < 250 mbar		
Accuracy @ RT	% of the range	≤ 0,50***			≤ 1,00***		≤ 1,00***		
Non-linearity	BFSL	≤ 0,15			≤ 0,30		≤ 0,30		
Stability/year	% of the range	≤ 0,15			≤ 0,20		≤ 0,20		
*** incl. nonlinearity, hysteresis, repeatability, zero-offset-and final-offset (acc. to IEC 61298-2)									
ACCEPTABLE TEMPERATURE RANGES									
Measuring medium	T [°C]	-40...125 option -60...150							
Ambience	T [°C]	-40...105							
Storage	T [°C]	-40...125							
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	-40°C 2,00%							
	% of the range	105°C 2,00%							
MECHANICAL PARAMETER									
Parts in contact with the measuring medium		stainless steel, titanium, silicon							
Housing		stainless steel							
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	30			acc. to DIN EN 60068-2-6 – vibration sinusoidal				
Shock resistance/constant	g	50			acc. to DIN EN 60068-2-27 – shock				
Aprovals/EMI Tests		CE Declarations of conformity 2014/30/EU, E1 R10, ISO 7637, ISO 16750 and ISO 11452							
Options		additional EMC protection, high vibration resistance, with restrictor							
IP system of protection (IEC 60529) up to IP69K		The IP system of protection as specified in the data sheets generally applies, with appropriate mating plug connected.							

Electrical Configuration*

Plug M12x1	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		

