The All-Rounder

S M L

Pressure transducer for industrial application



Main features

- Measuring ranges -1 to 1000 bar
- All standard signals for industry, hydraulics and pneumatics
- Temperature range of media -40°C to 125°C
- No internal transmission media (fully welded, "dry" measuring cell)
- 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
- Approval
  - German Lloyd (GL) for marine application
  - ECE Directive R110 engines powered with compressed natural gas
  - CE Declaration of conformity 2014/30/EU
  - Railway application DIN EN 50155

Applications

- Industrial applications
- Marine application
- Railway application
- Hydraulics / Pneumatics
- Industrial Equipment and Automation technology

Description

The SML pressure transducer is the "all-rounder" in the ADZ portfolio and suited to fit most applications. With its remarkably wide measuring range (-1 to 1000 bar) it is extremely resilient. Thanks to its modular system, it allows for most customized electrical connections and pressure port configurations that can be supplied within very good lead time. Its robust design guarantees highest reliability even in very harsh environments.

ADZ NAGANO Sensortechnik

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Specifications

PRESSURE RANGE									
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**	
Overload pressure	p [bar]	40	100	100	200	200	400	400	
Burst pressure	p [bar]	60	150	150	300	300	600	600	
Measuring range*	p [bar]	**250**	**400**	**600**	**1000**				
Overload pressure	p [bar]	750	750	840	1200	(other pressure range as -1...0 bar, -1...9/24 bar			
Burst pressure	p [bar]	1000	1000	1050	1500	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_A in Ohm	R_A =(Us-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

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

Isolation voltage*	U [V_{DC}]	50	option 500/710

ACCURACY			
Accuracy @ RT	% of the range	≤ 0,50***	option ≤ 0,25
Non-linearity	BFSL	≤ 0,15	
Stability/year	% of the range	≤ 0,15	

*** incl. nonlinearity, hysteresis, repeatability, zero-offset- and final-offset (acc. to IEC 61298-2)

ACCEPTABLE TEMPERATURE RANGES			
Measuring medium	T [°C]	-40...125	
Ambience	T [°C]	-40...105	
Storage	T [°C]	-40...125	
Compensated range****	T [°C]	-20...85	
Temperature coefficient within the compensated range			
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%

**** The mean TC are relevant for the compensated range only, outside the compensated range the total error statements apply.

MECHANICAL PARAMETER			
Wetted components			stainless steel / option titanium
Housing			stainless steel / option titanium
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
Approvals	CE Declarations of conformity 2014/30/EU; German Lloyd, 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	The IP system of protection as specified in the data sheets generally applies, with appropriate mating plug connected.		

Configurations -examples-



MVS/C
G1/4E



MIL-C26482
G1/4E

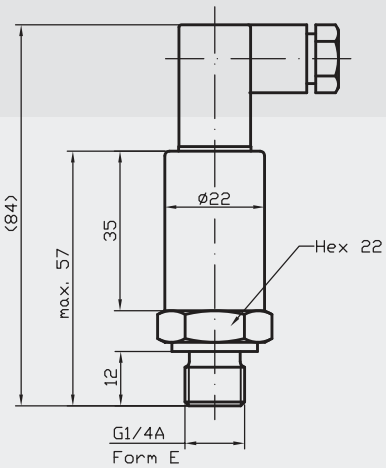


Packard MetriPack
7/16-20 UNF
female



cabel
1/4NPT

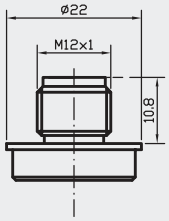
SML (MVS/C Conn.)



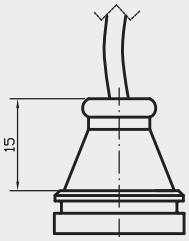
(deviations are possible)

Electrical connections* -examples-

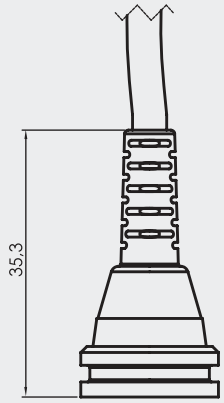
male socket
M12x1 (S763)
(IP67)



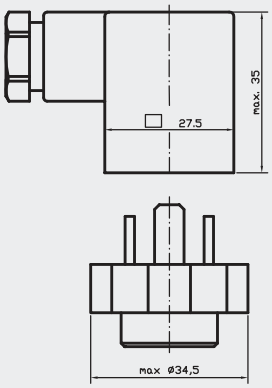
cable output
(IP67/IP69K)



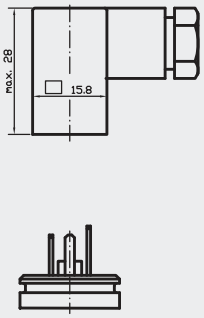
cable output
(IP67) with
bend protection



MVS/A
DIN EN 175301-803
(IP65)

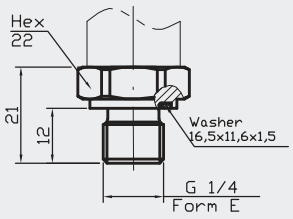


MVS/C
DIN EN 175301-803
(IP65)

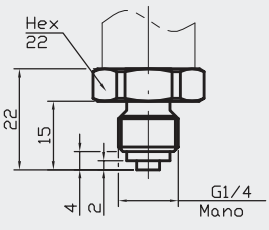


Pressure Connections* -examples-

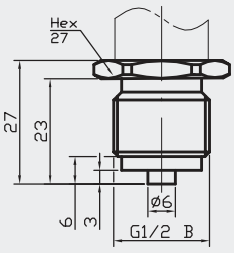
G ¼ A; Form E



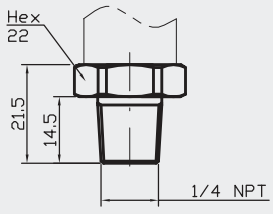
G ¼ B



G ½ B



¼ NPT

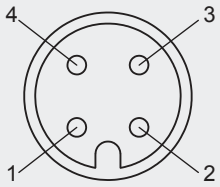
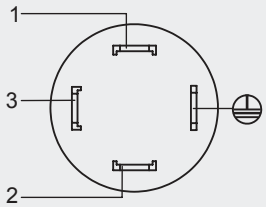
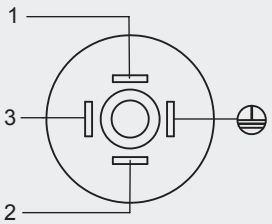


*** customer specific configurations available**

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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		

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Subject to change
due to technical progress.
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