

## Pressure transducer for industrial application

# S M L

### 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 2004/108/EG
  - 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 varied applications. With its remarkably wide measuring range (-1 to 1000 bar) it is extremely resilient. Thanks to its modular system, it allows for most diverse customized plugging and threading configurations that can be supplied within very short time. Its robust design guarantees highest reliability even in very rugged environments.



## 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 etc. or absolute pressure are available)			
Burst pressure	p [bar]	1000	1000	1050	1500				

### 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	$5 \pm 10\%$
Load resistor	$R_A$ in Ohm	$R_A = (U_s - 10V)/0,02A$	max. 200Ω**	$\geq 4.7k\Omega$	$\geq 4.7k\Omega$	$\geq 4.7k\Omega$
Response time	t [ms]	$\leq 2$	$\leq 1$	$\leq 1$	$\leq 1$	$\leq 1$
Maximum supply current	I [mA]	23	40	10	10	7,5
				** > AppNote (see www.adz.de)		
Isolation voltage*	U [V <sub>DC</sub> ]	50	option 500/710			

### ACCURACY

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

### 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	**** The mean TC are relevant for the compensated range only, outside the compensated range the total error statements apply.
Temperature coefficient within the compensated range			
Mean TC offset	% of the range $\leq 0,15 / 10K$		
Mean TC range	% of the range $\leq 0,15 / 10K$		
Total error	% of the range -40°C	2,00%	
	% of the range 105°C	2,00%	

### MECHANICAL PARAMETER

Wetted components		stainless steel
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	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, 2014/68/EU German Lloyd, Railway application DIN EN 50155
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-

SML (MVS/C Conn.)



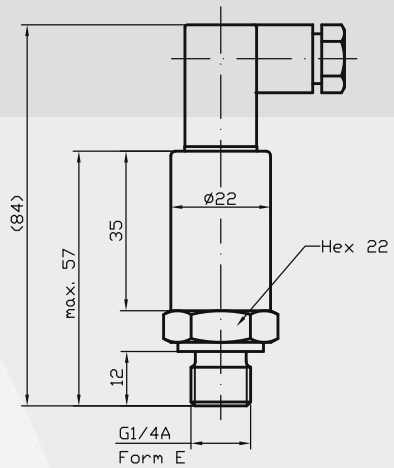
MVS/A



MVS/C



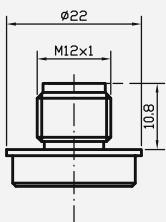
M12x1 (S763)



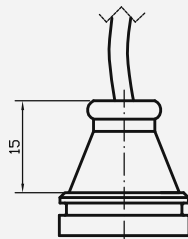
(deviations are possible)

Electrical connections\* -examples-

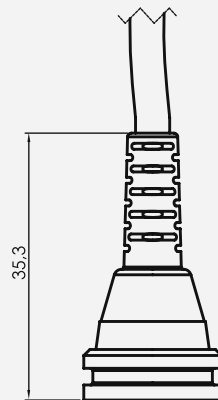
male socket  
M12x1 (S763)  
(IP67)



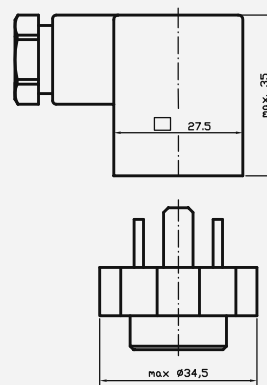
cable output  
(IP67/IP69K)



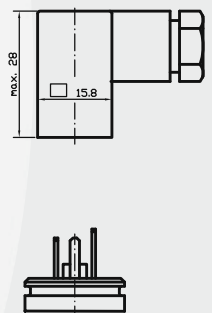
cable output  
(IP67) with  
bend protection



MVS/A  
DIN EN 175301-803  
(IP65)

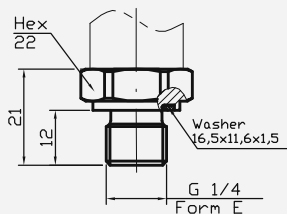


MVS/C  
DIN EN 175301-803  
(IP65)

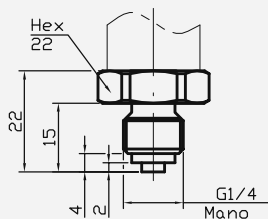


Pressure Connections\* -examples-

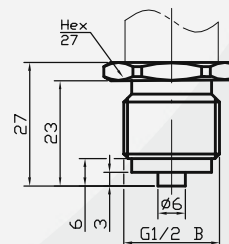
G 1/4 A; Form E



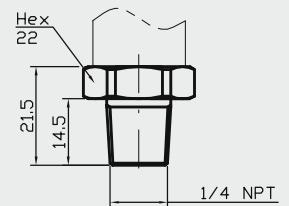
G 1/4 B



G 1/2 B

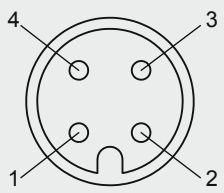
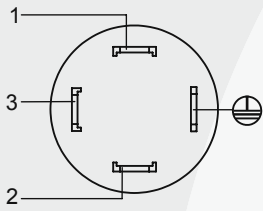
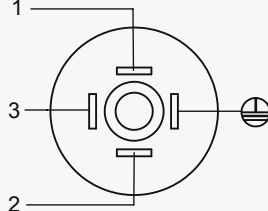


1/4 NPT



\* customer specific configurations available

## Electrical Configuration\*

Plug M12x1	Cable port	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	SME	Pressure Transmitter in Miniature Design
DPSX9I	Intrinsically Safe Electronic Pressure Switch for Current	SMF	Pressure Transmitter with Flush Diaphragm
DPSX9U	Intrinsically Safe Electronic Pressure Switch for Voltage	SMH	High Pressure Transmitter
PS1/17	Level Sensor	SML	Pressure Transmitter for Industrial Application
PSX2	Intrinsically Safe Level Sensor	SMO	Pressure Transmitter in Mobile Hydraulics
SHP	High Precision Pressure Transmitter	SMS	OEM Pressure Transmitter for Hydraulics and Pneumatics
SIS	Low Pressure Transmitter in Short and Compact Design	SMX	Intrinsically Safe Pressure Transmitter for Industrial Application
SIL	Low Pressure Transmitter for Industrial Application	SMX2	Intrinsically Safe Pressure Transmitter for Industrial Application
SKE	High Temperature Pressure Transmitter with Detached Electronics	TPSE	Multi-Function Transmitter for Pressure and Temperature – external sensor
SKL	High Temperature Pressure Transmitter with Cooling Fins	TPSI	Multi-Function Transmitter for Pressure and Temperature – internal sensor
SMC	Pressure Transmitter with CANopen Interface and J1939		

