

# Pressure Transmitter in Miniature Design

S M E

## Main features

- Measuring ranges 0...1 to 0...20 bar (housing  $\varnothing$  ~ 14 mm)
- Measuring ranges 0...25 to 0...600 bar (housing  $\varnothing$  ~ 12 mm)
- Output signal 0.5...4.5 V rat., 0...5 V non-ratiometric, 4...20 mA, 0...10 V
- Media temperature range -40°C to 125°C
- In combination with temperature probe (max pressure 20 bar)
- No internal transmitting media (fully welded, "dry" measuring cell)
- Round plug, ribbon cable
- Degree of protection IP67
- Highly reliable
- Miniature design - length ~ 50 mm / housing  $\varnothing$  ~ 14 mm / weight ~ 20 g

## Applications

- Automotive applications
- Race sport
- Embedded systems
- Ultra mobile systems
- Carry-on equipment
- Hydraulics, Pneumatics
- Mechanical engineering

## Description

The SME pressure transducer is a space saving light weight. Despite the compressed dimensions and miniaturized design the SME is robust and all stainless steel. At the same time it is full of Know-How and can be customized to individual requirements such as pressure range or output signal. The SME is not a product "off the rack". Popular applications are motor sport and race cars.

The well-known stainless steel design makes this product as robust and reliable as our standard products.



### Specifications

#### PRESSURE RANGE

##### Measuring range\*,

housing Ø ~ 14 mm	p [bar]	1,0	1,6	2,0	2,5	4,0	6,0	10,0	16,0	20,0
Overload pressure	p [bar]	6	6	6	6	10	20	20	40	40
Burst pressure	p [bar]	9	9	9	9	15	30	30	60	60

##### Measuring range\*,

housing Ø ~ 12 mm	p [bar]	25	40	60	100	160	200	250	400	600
Overload pressure	p [bar]	100	100	200	200	400	400	750	750	750
Burst pressure	p [bar]	150	150	300	300	600	600	1000	1000	1000

(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	5-wire
Output signal*		4...20 mA	0...5 V <sub>DC</sub>	0,5...4,5 V ratiometric	0,5...4,5 V ratiometric
output signal temperature*					PT1000
Supply voltage	U <sub>s</sub> [V <sub>DC</sub> ]	10...32**	8...32	5 ± 10 %	5 ± 10 %
Load resistor	R <sub>λ</sub> in Ohm	R <sub>λ</sub> =(U <sub>s</sub> -10V)/0,02A	≥4.7kΩ	≥4.7kΩ	≥4.7kΩ
Response time	t [ms]	≤ 2	≤ 1	≤ 1	≤ 1
Maximum supply current	I [mA]	23	10	7,5	7,5
Isolation voltage*	U [V <sub>DC</sub> ]	30			

#### ACCURACY

Accuracy @ RT	% of the range	≤ 0,50***	*** incl. nonlinearity, hysteresis, repeatability, zero-offset- and final-offset (acc. to IEC 61298-2)	
Non-linearity	BFSL	≤ 0,125		
Stability/year	% of the range	≤ 0,10	factor 2x accuracy for 4-20mA output signal	

#### ACCEPTABLE TEMPERATURE RANGES

Media	T [°C]	-40...125
Ambience	T [°C]	-40...85
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

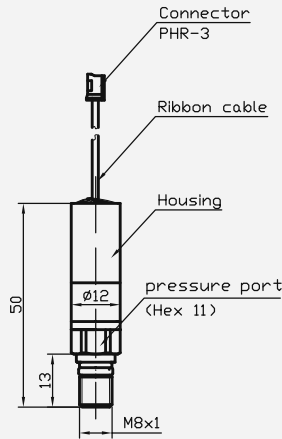
Parts in contact with the measuring medium		stainless steel
Housing		stainless steel
Weight	m [g]	~ 20 depending on design
Shock resistance/drop	g	1000 acc. to DIN EN 60068-2-32 – free fall
Vibration resistance	g	20 acc. to DIN EN 60068-2-6 – vibration (sinusoidal)
Shock resistance/constant	g	50 acc. to DIN EN 60068-2-27 – shock resistance
Approvals		CE Declarations of conformity 2014/68/EU

IP system of protection (IEC 60529) up to IP69K

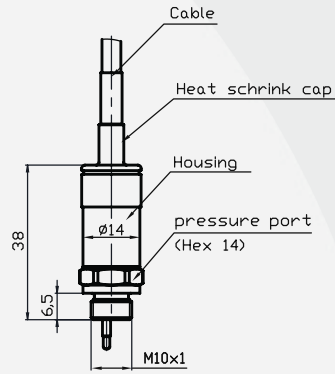
IP rating applies with appropriate mating connector only.

Configurations -examples- SME with

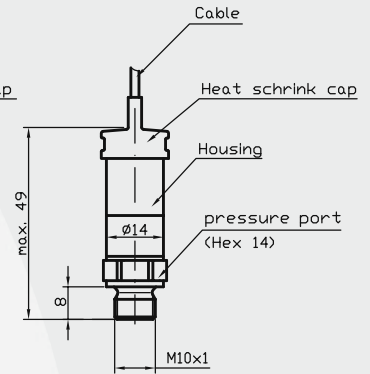
housing 12 mm,  
ribbon cable  
with connector



housing 14 mm,  
M10x1  
temperature probe

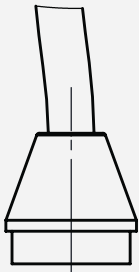


housing 14 mm,  
cable outlet

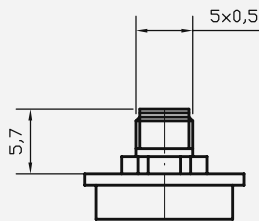


Electrical connections\* -examples-

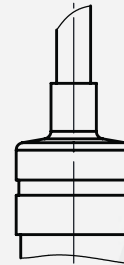
cable output  
steel  
(IP67)



male socket  
M5x0,5 (S707)  
(IP67)

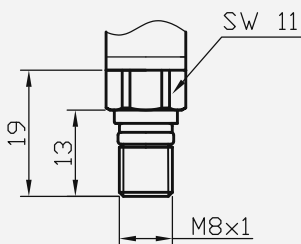


cable output  
heat shrink  
(IP67)

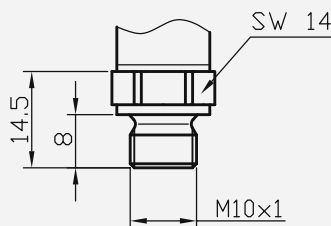


Pressure Connections\* -examples-

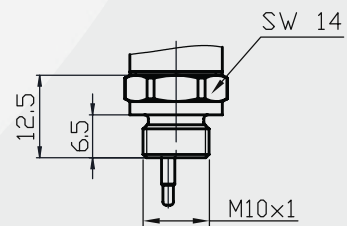
M 8x1



M 10x1

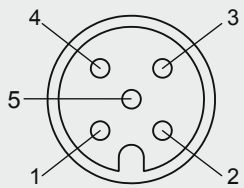


M 10x1 temperature probe



\* customer specific configurations available

## Electrical Configuration\*

Plug M5x0,5	Cable port
	
<b>2-wire</b> 1: UB+ 2: nc 3: out 4: nc	<b>2-wire</b> red: UB+ black: out white: nc
<b>3-wire</b> 1: UB+ 2: Vout 3: nc 4: GND	<b>3-wire</b> red: UB+ black: UB- white: out

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	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		

