

High Temperature Pressure Transmitter with Cooling Fins

Main Features

- Measuring ranges -1 bar to 5000 bar
- All standard signals for industry, hydraulics and pneumatics
- Media temperature range - 40°C to 180°C, optional to 200°C
- Ambient temperature range -40°C to 105°C
- Shock and vibration-resistant > 1000 g shock, 20 g vibration
- No internal transmitting media (fully welded, "dry" measuring cell)
- Degree of protection from IP65 (special version up to IP69K)
- Compact and robust stainless steel design
- Precision class 0.5 %



Applications

- Chemical industry
- Automotive engineering
- Hydraulics
- Plant and automation engineering
- Pneumatics
- Test stand design

Description

The SKL is a high-temperature pressure transducer with a cooling section. It can be used with liquid and gaseous media in temperatures of up to 180°C. These media are cooled down before measuring by means of cooling ribs that have been placed outside the sensor. This makes the SKL fit for use in heating systems, automotive equipment and in the chemical industry as well as for hydraulic and pneumatic applications involving higher temperatures.

The SKL has a stainless-steel chip with a semi-conductor thin film has been installed inside the SKL. The stainless-steel membrane is absolutely vacuum-tight and extremely burst-proof. Its robust design guarantees to be highly reliable even in very rugged environments. Its modular design offers a multitude of signaling, threading and connecting options. Furthermore, special customized calibration in a desired measuring range is available on request. Optionally, the material version is also in titanium.

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 | 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 | 600 | 1000 | 1600 | 2000 | 2500 | 4000 | 5000 |
| Overload pressure | p [bar] | 750 | 840 | 1200 | 2400 | 2400 | 3600 | 4800 | 6000 |
| Burst pressure | p [bar] | 1000 | 1050 | 1500 | 3000 | 3000 | 4500 | 6000 | 7000 |

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_{DC} [V] | 10...32** | 9...30 | 12...32 | 8...32 | $5 \pm 10\%$ |
| Load resistor | R_L in Ohm | $R_L = (U_S - 10V) / 0,02A$ | max. 200Ω** | $\geq 4.7k\Omega$ | $\geq 4.7k\Omega$ | $\geq 4.7k\Omega$ |
| 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 | | | | |

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 ****

**** customized configurations possible

| | | | |
|--------------------------------|----------------------------------|-----------|--|
| Measuring medium, always | T [°C] | -40...160 | |
| Measuring medium, up to 15 min | T [°C] | -40...180 | |
| 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. |
| 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% | |
| | % of the range 160°C | 3,00% | |

MECHANICAL PARAMETER

| | | | | |
|--|-------|--|---|--|
| Wetted components | | stainless steel, titanium | | |
| Housing | | stainless steel, titanium | | |
| Weight | m [g] | ~250 | 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; 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. | | |

Note: Not every specification listed here applies to all configurations, thus affecting the appropriate approval.

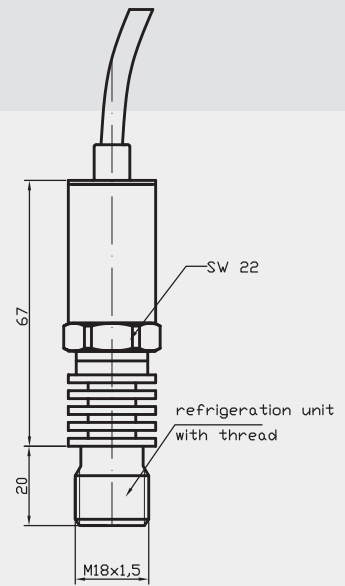
Configurations -examples-



G1/2 Manometer
with cooling adapter
M12

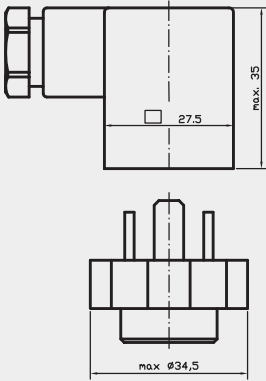


G1/4E
with cooling adapter
MSV/A

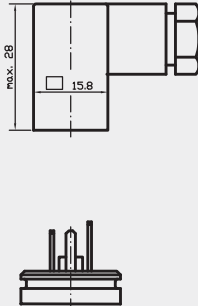


Electrical connections* -examples-

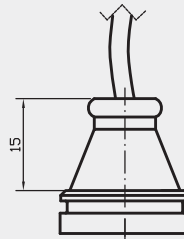
MVS/A
DIN EN 175301-803
(IP65)



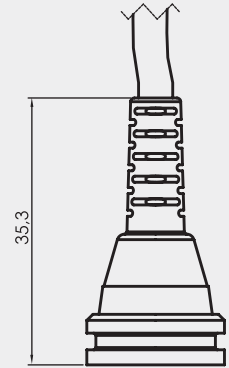
MVS/C
DIN EN 175301-803
(IP65)



cable output
(IP67/IP69K)

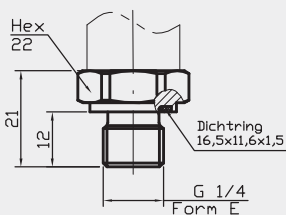


cable output
(IP67) with
bend protection

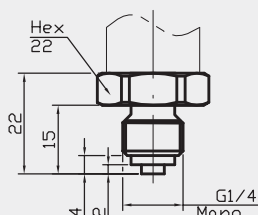


Pressure Connections* -examples-

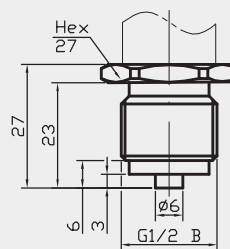
G 1/4 A; DIN 3852; Form E



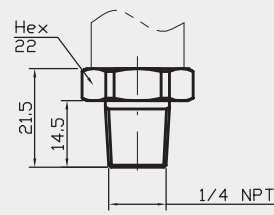
G 1/4 B



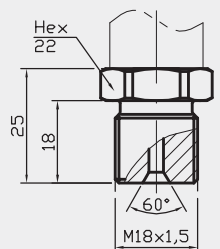
G 1/2 B



1/4 NPT

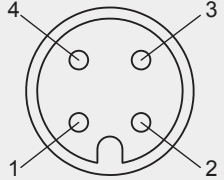
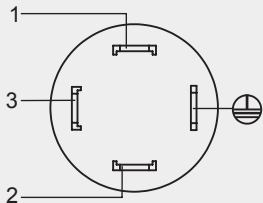
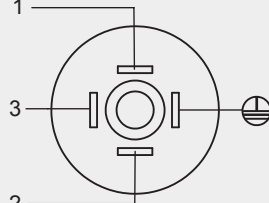


M18x1,5



* customer specific configurations available

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 rt: UB+ sw: out ws: 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 rt: UB+ sw: UB- ws: 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 | | |

