

# High Temperature Pressure Transmitter with Cooling Fins

# SKL

## 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. Further-Options are available on request.



### 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]	$\leq 2$	$\leq 1$	$\leq 1$	$\leq 1$	$\leq 1$
Maximum supply current	I [mA]	23	40	10	10	7,5
				** > AppNote (see www.adz.de)		
Isolation voltage*	U [V <sub>DC</sub> ]	50				

#### 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 \*\*\*\*

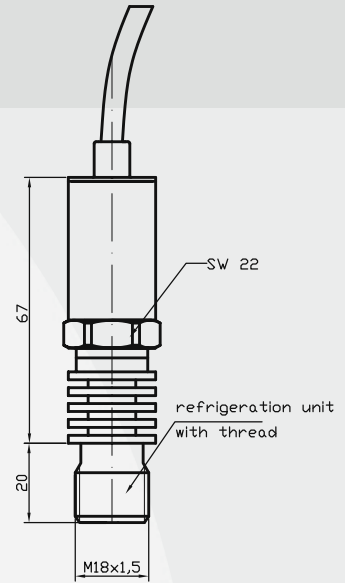
\*\*\*\* customized configurations possible

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

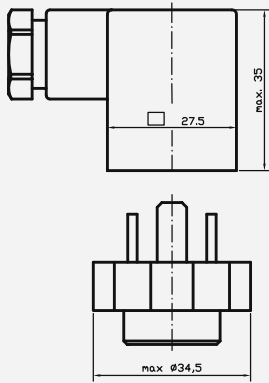
Wetted components		stainless steel, titanium		
Housing		stainless steel, titanium		
Weight	m [g]	~250	depending on design	
Shock resistance/drop	g	1000	acc. to DIN EN 60068-2-32 – free fall	
Vibration resistance	g	20	acc. to DIN EN 60068-2-6 – vibration sinusoidal	
Shock resistance/constant	g	50	acc. to DIN EN 60068-2-27 – shock	
Approvals		CE Declarations of conformity 2014/30/EU, 2014/68/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.		

Configurations -examples-

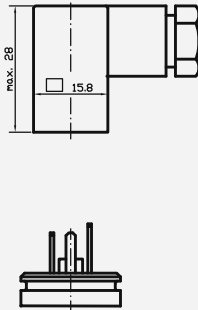


Electrical connections\* -examples-

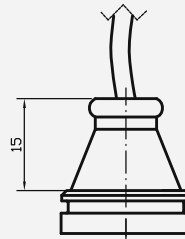
MVS/A



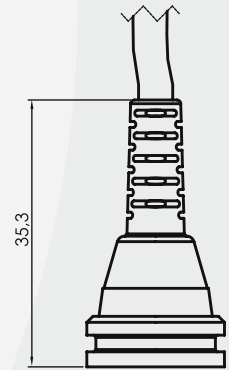
MVS/C



cable output  
(IP67/IP69K)

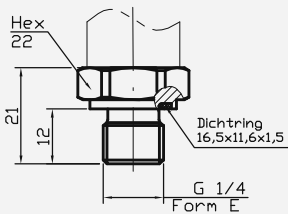


cable output  
(IP67) with  
bend protection

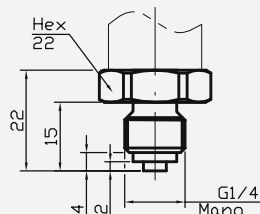


Pressure Connections\* -examples-

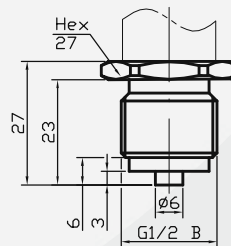
G 1/4 A; DIN 3852; Form E



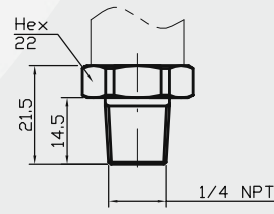
G 1/4 B



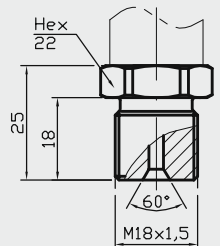
G 1/2 B



1/4 NPT

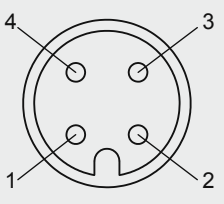
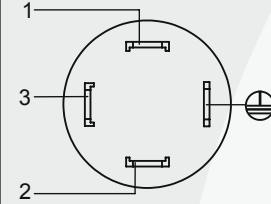
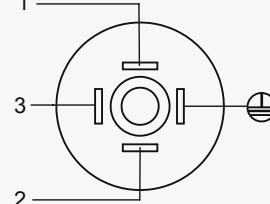


M18x1,5



\* customer specific configurations available

### Electrical Configuration\*

Plug M12x1	Cable port	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	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		

