

# Piezoelectric Pressure Sensor

- ✓ Compact design with M5x0.5 thread
- ✓ Various pressure ranges up to 1000 bar (14500 psi)
- ✓ High temperature stability up to 400°C (750 °F)
- ✓ Wide range of applications
- ✓ Virtually constant sensitivity over the entire lifetime

The S-Series sensors are widely used for complex measurement tasks of fast or high frequent events where robustness, precision and repeatability are key requirements. Offering a wide pressure and temperature range Piezocryst's S-Series combines unique features in a compact size with an M5x0.5 mounting thread. Various cable options, accessories and adaptors for installation and different sealing options qualify these versatile sensors as solution for many applications.

Piezocryst's GaPO<sub>4</sub> crystal elements, tailored material selection and minimal tolerances in production make these sensors highly precise instruments that deliver a reliable, undistorted signal even during high temperature gradients. The Double Shell™ decouples the sensing elements from mechanical impact and its well-proven design elements guarantee highest durability and constant performance over the entire lifetime.



# Specifications

Name **	S1-Ax	S1-Bx	S1-C1	S1-D1	S1-Kx	S1-L1	S1-R1	S1-R2	S2-Ax
<b>Operating principle</b>	Piezoelectric, charge output								
<b>Sensing element</b>	GaPO <sub>4</sub> (gallium phosphate)								
<b>Dynamic measuring range</b>									
0 ... 250 bar, (0 ... 3625 psi)	•						•	•	
0 ... 300 bar, (0 ... 4350 psi)		•							
0 ... 500 bar, (0 ... 7250 psi)			•		•				
0 ... 600 bar, (0 ... 8700 psi)				•					
0 ... 650 bar, (0 ... 9430psi)						•			
0 ... 1000 bar, (0 ... 14500 psi)									•
<b>Overload pressure</b>									
300 bar, (4350 psi)	•						•	•	
350 bar, (5075 psi)		•							
550 bar, (8000 psi)			•						
600 bar, (8700 psi)					•				
700 bar, (10150 psi)				•		•			
1050 bar, (15200 psi)									•
<b>Sensitivity (nominal)</b>									
1.5 pC/bar (0.1pC/psi)									•
6.5 pC/bar (0.1pC/psi)				•					
10 pC/bar, (0.69 pC/psi)			•			•			
15 pC/bar (1 pC/psi)							•		
16 pC/bar, (1.1 pC/psi)								•	
19 pC/bar, (1.3 pC/psi)	•	•			•				
<b>Linearity</b>									
≤ ± 0.3% FSO	•	•	•				•	•	
≤ ± 0.5% FSO				•	•	•			•
<b>Operating temperature</b>									
-55°C ... +120°C, (-67°F ... +250°F)					•	•			
-55°C ... +350°C (-67°F ... +660°F)									•
-55°C ... +400°C, (-67°F ... +750°F)	•	•	•	•			•	•	
<b>Thermal sensitivity change *</b>	1 %	2 %						6 %	
<b>Internal insulation resistance</b>	> 10 <sup>13</sup> Ω (25°C / 77°F), > 10 <sup>9</sup> Ω (400°C / 752°F)								
<b>Acceleration sensitivity (typ.)</b>									
axial ≤ 0.05 mbar/g (0.0007 psi/g)								•	
axial ≤ 0.5 mbar/g (0.007 psi/g)	•	•	•	•	•	•			•
axial ≤ 0.8 mbar/g (0.011 psi/g)							•		
<b>Shock resistance</b>	>2000 g						>7000g	>2000 g	
<b>Natural Frequency</b>	160 kHz	170 kHz	200 kHz	170 kHz		160 kHz	165 kHz	400 kHz	
<b>Capacitance (nominal)</b>	7.5 pF pole/ground								
<b>Mounting torque</b>	Type 1 and Type 2: 1.5 Nm; Type 3: 2 Nm								
<b>Sensor and mount**</b>									
Type 1	•	•	•	•	•	•	•		•
Type 2	•	•			•			•	
Type 3									•

\* 20°C ... max temperature, full pressure range

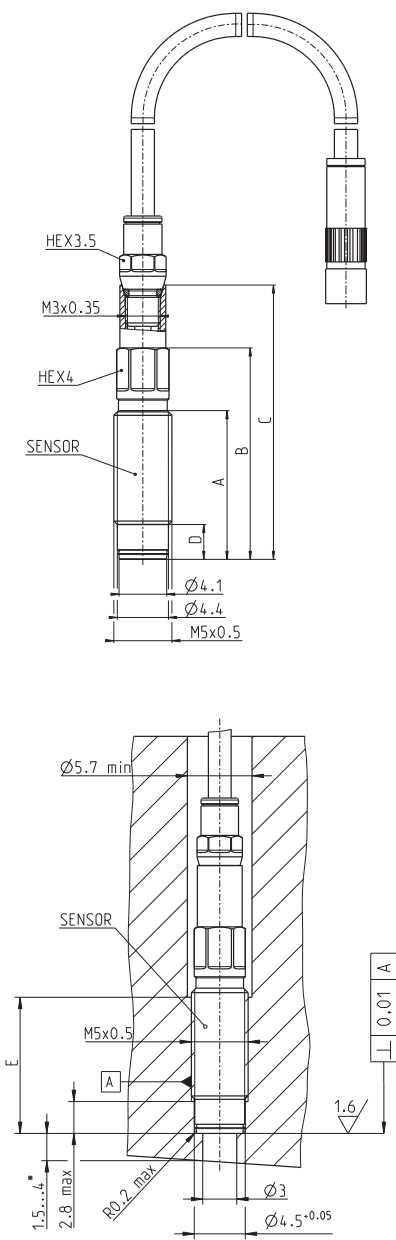
\*\* e.g. S1-A1 is S1-Ax Sensor Type 1  
If desired configuration is not available please contact us!

# Sensor & Mount Dimensions

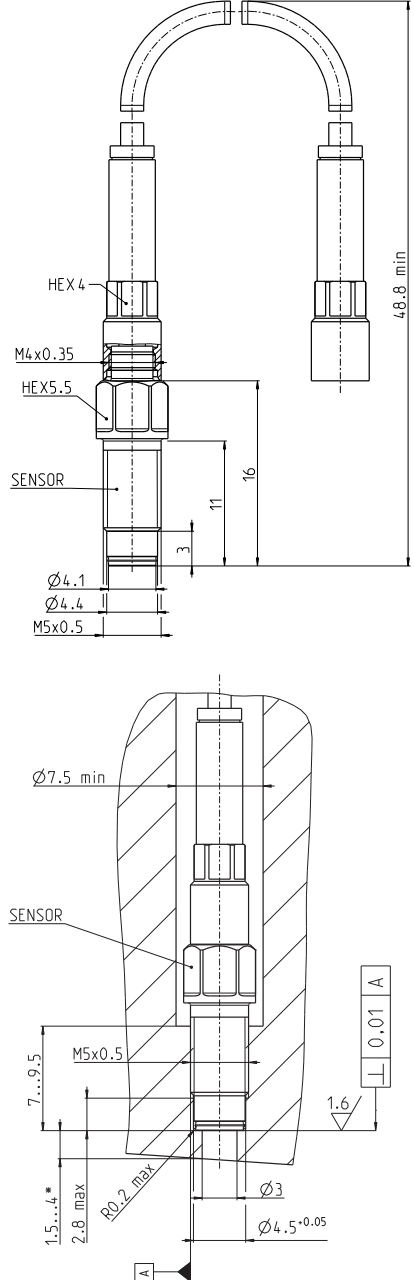
Name	S1-A1	S1-B1	S1-K1	S1-C1	S1-L1	S1-R1	S1-D1	S2-A1
<b>Dimensions Type 1</b>								
A		13 mm		9 mm		12 mm		9.5 mm *
B		18.2 mm		14.3 mm		16,9 mm		14.9 mm *
C		23.6 mm		19.8 mm		22 mm		20.3 mm *
D				3 mm				3.5 mm *

\* including flame arrester welded to sensor

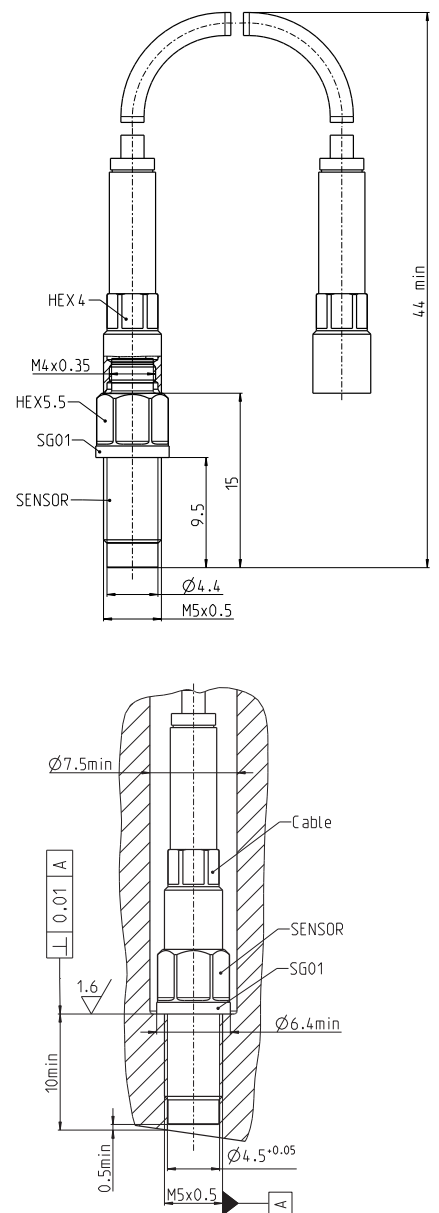
## Type 1



## Type 2



## Type 3



All dimensions are in mm.

## Scope of Supply

Name	Scope of supply
Sensor	✓
Cable	1m Teflon™ cable (M4x0.35 to M4x0.35 or M3x0.35 to M3x0.35)
Coupling	M4x0.35 to BNC coupling or M3x0.35 to BNC coupling
Accessory kit	Protection cap and 2 spare O-rings
Calibration sheet	✓
Documentation	✓

## Accessories

Cable / Extension cables	1 ... 10m Teflon™ coated cable	M3x0.35 to M3x0.35 M3x0.35 to UNF M4x0.35 to M4x0.35 M4x0.35 to UNF
	1 ... 3m Metal shielded - Viton™ coated cable	
	1 ... 3m Viton™ oil proof cable	
Couplings	M3x0.35 neg. to BNC pos. M4x0.35 neg. to BNC pos. M4x0.35 neg. to M4x0.35 neg. M4x0.35 neg. to M4x0.35 pos.	
Machining tool for mount	Step drill, tap drill, reaming tools	
Mounting tool	Mounting tool set	Mounting socket Torque wrench Dismounting tool
	Cable mounting tool	HEX3.5 or HEX4
Flame arrestors	✓	
Dummy plugs	✓	
Dummy removal tool	✓	
Mounting paste	✓	

Piezocryst reserves the right to change specifications and accessories without notice.

## Customer support

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