

High Temperature Miniature Pressure Sensor

- ✓ Robust layout derived from a well proven design
- ✓ Single crystalline GaPO₄ sensing elements
- ✓ High signal to noise ratio
- ✓ No pyroelectric effect or popcorn noise
- ✓ Up to 500°C or even 560°C+ short term
- ✓ Various shapes and custom designs

R&D measurement tasks differ profoundly from those for serial applications. Environmental boundary conditions like temperature, mechanical stress or heat flux are often poorly known. Furthermore, testing time is usually limited and the measurement position new, so there is either no data or very little data to compare. This complex situation demands sensors which deliver a reliable signal which is not influenced by other physical quantities.

The CP5x1 is a versatile miniature pressure sensor perfectly suited for measurements in extreme conditions in R&D where space is limited. A particular focus of the design is the simple integration of the sensor in the setup. With the robustness of a piezoelectric sensor, as well as a high natural frequency and the exceptional signal quality of GaPO₄ crystal elements, the CP5x1 boosts the limits for R&D applications in hostile environments. It can tolerate excursions to extreme temperatures with high gradients, mechanical stress and still produce a reliable and stable output.



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**Instrumentation
Devices**

Instrumentation Devices Srl

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Specifications

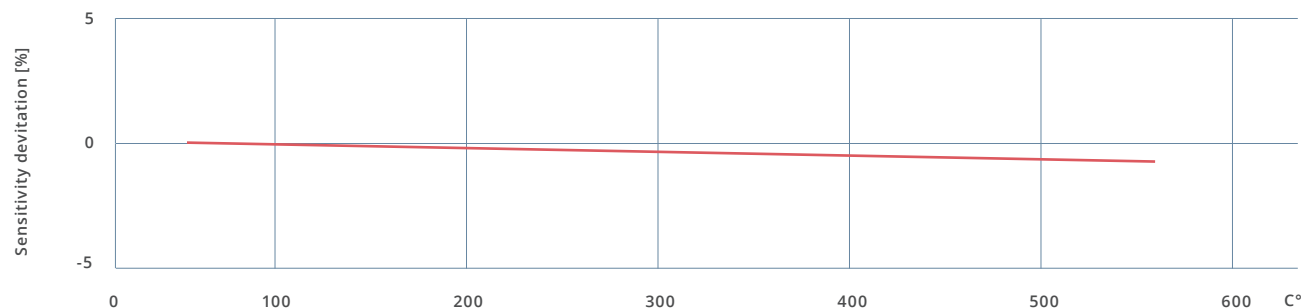
Name	CP5x1
Operating principle	Piezoelectric charge output
Sensing element	Industrially grown single-crystal GaPO ₄ (gallium phosphate)
Dynamic measuring range	0 ... 50 bar (0 ... 725 psi)
Overload pressure	> 100 bar (1450 psi)
Sensitivity (nominal)	20 pC/bar (1.3 pC/psi)
Linearity	≤ 0.5 % FSO (0 ... 50 bar, 0 ... 725 psi)
Operating temperature *	
Continuous	-55°C ... +500°C (-40°F ... +932°F)
Short term	-55°C ... +560°C (-40°F ... +1040°F)
Internal insulation resistance	> 10 ¹⁰ Ω (25°C, 77°F), >10 ⁶ Ω (500°C, 1040°F)
Acceleration sensitivity	axial ≤ 0.8 mbar/g (0.01 psi/g) radial ≤ 0.3 mbar/g (0.004 psi/g)
Frequency range	1 Hz to 50 kHz (resonant frequency > 120 kHz)
Capacitance (nominal, incl. 1m cable)	150 pF pole/ground
Mounting torque	2 Nm
Housing material	Nickel based super alloy, hermetically welded

* Temperature of sensor head and cable

Available dimensions	Type 1		Type 2
X	-		11 mm or 19.3 mm
Y	-		M5x0.8 or 10-32 UNF-2A
Cable	3,0 mm hard line cable (optional)		2 mm hard line cable
Bending radius	hard line cable: 16 mm (1 bend), 75 mm (up to 20 bends)		hard line cable: 16 mm (1 bend), 75 mm (up to 20 bends)
Connector	M4x0,35	LEMO	10-32 UNF-2A
Max. connector temperature	400°C (752°F)	165°C (329°F)	450°C (842°F)

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

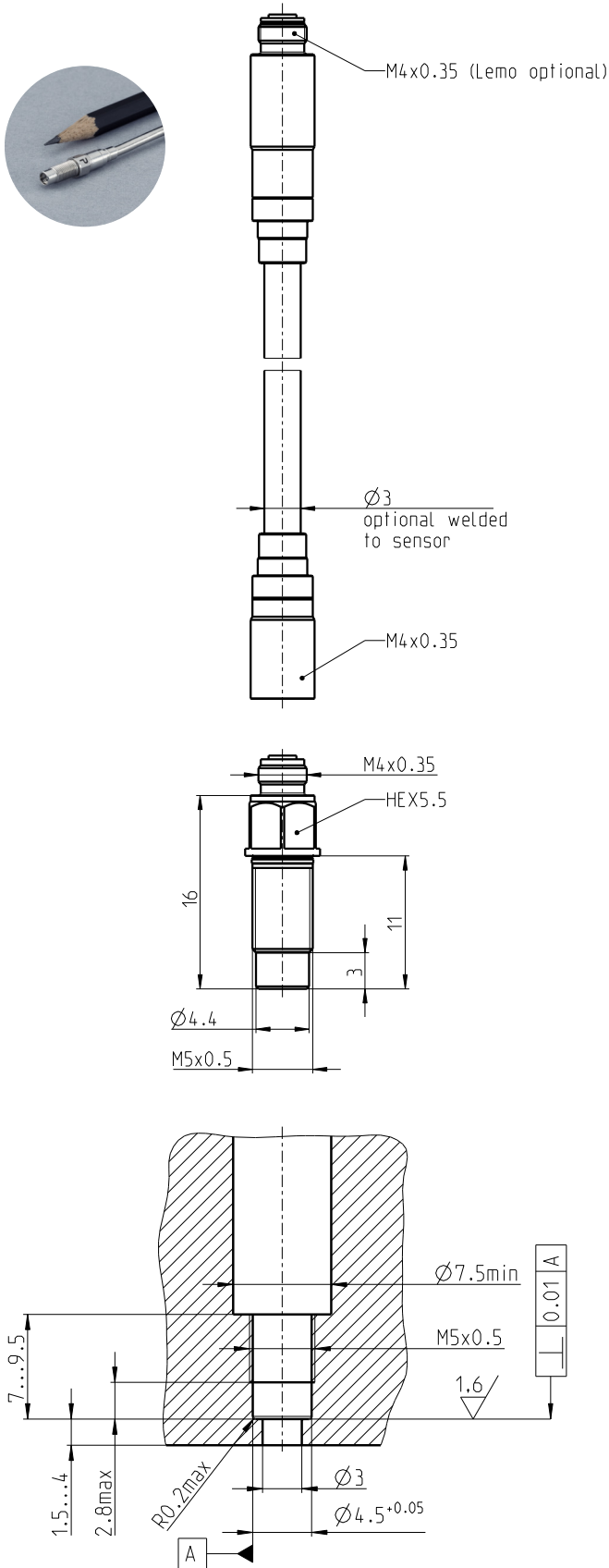
Calibration and Thermal Sensitivity



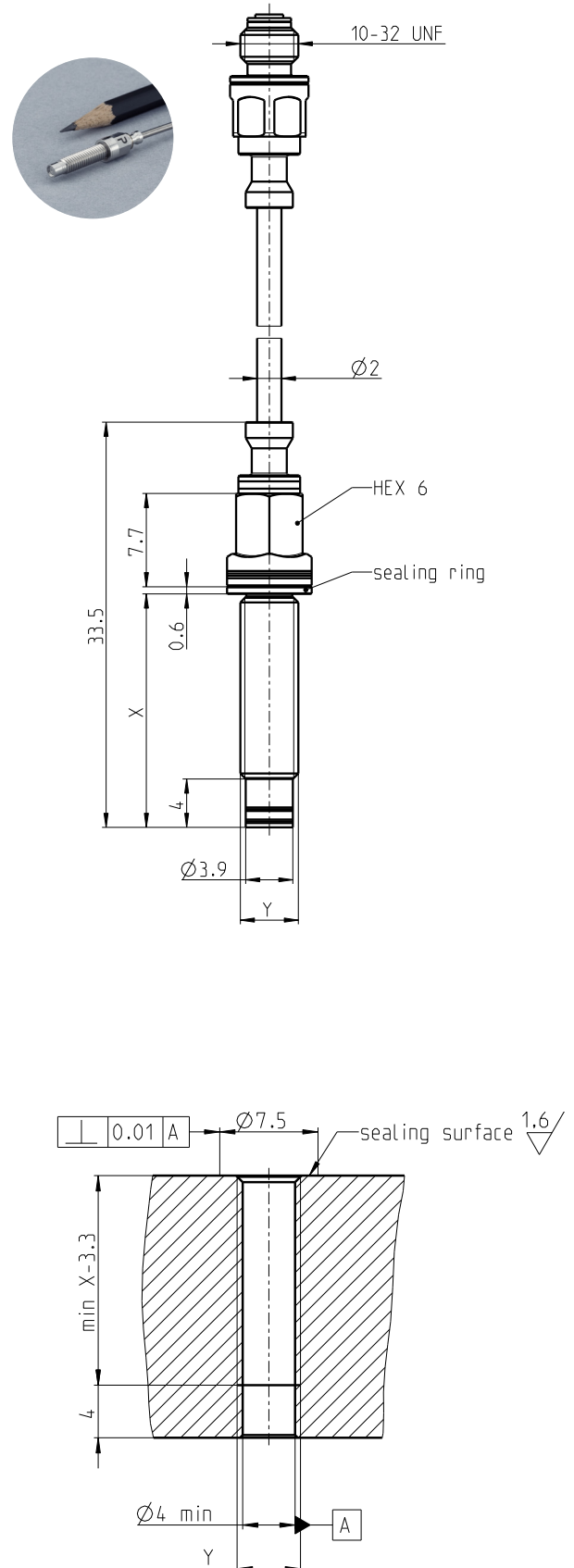
ISO 9001 certified calibration at +20°C with dead weight tester (3, 6, 8, 10, 12, 20, 30, 50 bar).
Sensitivity and linearity are determined according to DIN16086

Sensor & Mount Dimensions

Type 1



Type 2



All dimensions are in mm.

ATEX Certification

The CP5x1 series is Ex approved and therefore suitable for hazardous environments.

Europe	LCIE 17 ATEX 3027 X
International	IECEX LCIE 17.0024X

Scope of Supply

Name	Type 1	Type 2
Sensor	CP5x1 - Type 1	CP5x1 - Type 2
Extension cable	1m Teflon™ M4x0.35 to UNF cable	1m Teflon™ UNF to UNF cable
Coupling	UNF to BNC coupling	UNF to BNC coupling
Calibration sheet	✓	✓

Accessoires

Name	Type 1	Type 2
MI Hardline Cable	3.2mm Hardline Cable M4x0.35 welded to Sensor	2mm Hardline Extension cable 10-32 UNF
Extension Cable	1 ... 10m Softline Extension cable	
Mounting Tool	✓	✓
Machining Tool for Mount	✓	-

See the additional accessories sheet for more details.

Customer support

We are reachable
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to you as soon as we can.
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