

Piezoelectric Pressure Transducer

FEATURES

- Extreme temperature capability -196°C to +700°C
- High-pressure capability up to 250 bar
- For use in gas turbines
- Operational in primary circuit of PWR, APWR, BWR, ABWR, FBR and HTGR
- Proven reliability
- Meets NRC guide 1.20, IEEE 323-1974
- Certified for use in potentially explosive atmospheres
- Internal case insulation
- VC2 type crystal element
- Frequency response: 2 Hz to 10 000 Hz
- Sensitivity: 232 pC/bar (16 pC/psi)
- Weight: pressure probe 120 g, MI cable 50 g/m, MI cable with overbraid 140 g/m



DESCRIPTION

The CP 103 compression mode dynamic pressure transducer uses a VC2 type crystal element to give an extremely stable instrument.

The transducer is applicable to either long-term monitoring or development testing. It has been specially designed to

minimise sensitivity to acceleration.

It is fitted with an integral mineral insulated cable (twin conductors) which is terminated with either a Lemo or a high-temperature connector from Vibro-Meter.



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SPECIFICATIONS

Input power requirements	: None
Signal transmission	: 2-pole system insulated from casing, charge output
Signal processing	: Charge converter

OPERATING (at +23°C ±5°C)

Sensitivity (at 2 Hz)	: 232 pC/bar ± 5% typical
Dynamic measuring range (random)	: 0.000 04 bar to 20 bar nom.
Overload capacity (spikes)	: Up to 250 bar
Linearity	: ±1% over dynamic measuring range
Acceler. sensitivity	: ≤ 0.05 pC/g (≤ 0.000 21 bar/g)
Resonant frequency	: > 50 kHz
Frequency response	: 2 to 10 000 Hz ±5% (lower cut-off freq. is determined by electronics used)
Capacitance (nominal)	
• Pole to pole	: 135 pF for transducer + 200 pF/m of cable
• Pole to casing	: 18 pF for transducer + 300 pF/m of cable
Internal insulation resistance	: Min. 10 ⁹ Ω (10 ⁷ Ω at 300°C)

ENVIRONMENTAL

Temperature range	
• Continuous operation	: -54°C to +650°C
• Extreme operation	: -196°C to +700°C
Shock acceleration	: < 2000 g peak (half sine 1 ms) along sensitive axis
Explosive atmosphere	: Available in Ex version. EC type examination certificate : LCIE 02 ATEX 6107 X II 2 G (Zones 1, 2) Ex ib IIC T6 to T710

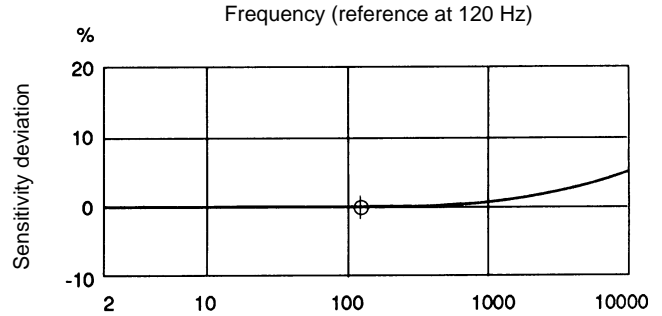
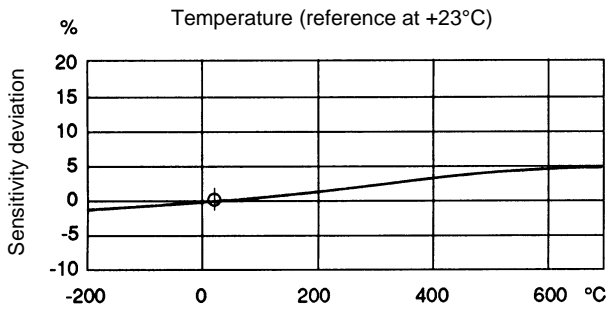
 For specific parameters of the mode of protection concerned and special conditions for safe use, please refer to the “EC type examination certificate” that is available from Vibro-Meter SA on demand.

Corrosion, humidity	: Inconel 600, hermetically welded
Radiation	
• Gamma flux	: 10 ¹¹ erg/g no effect
• Neutron flux	: 10 ¹⁸ n/cm ² no effect
Mounting	
• Flange	: Ø 27.5/21 mm x 3 mm

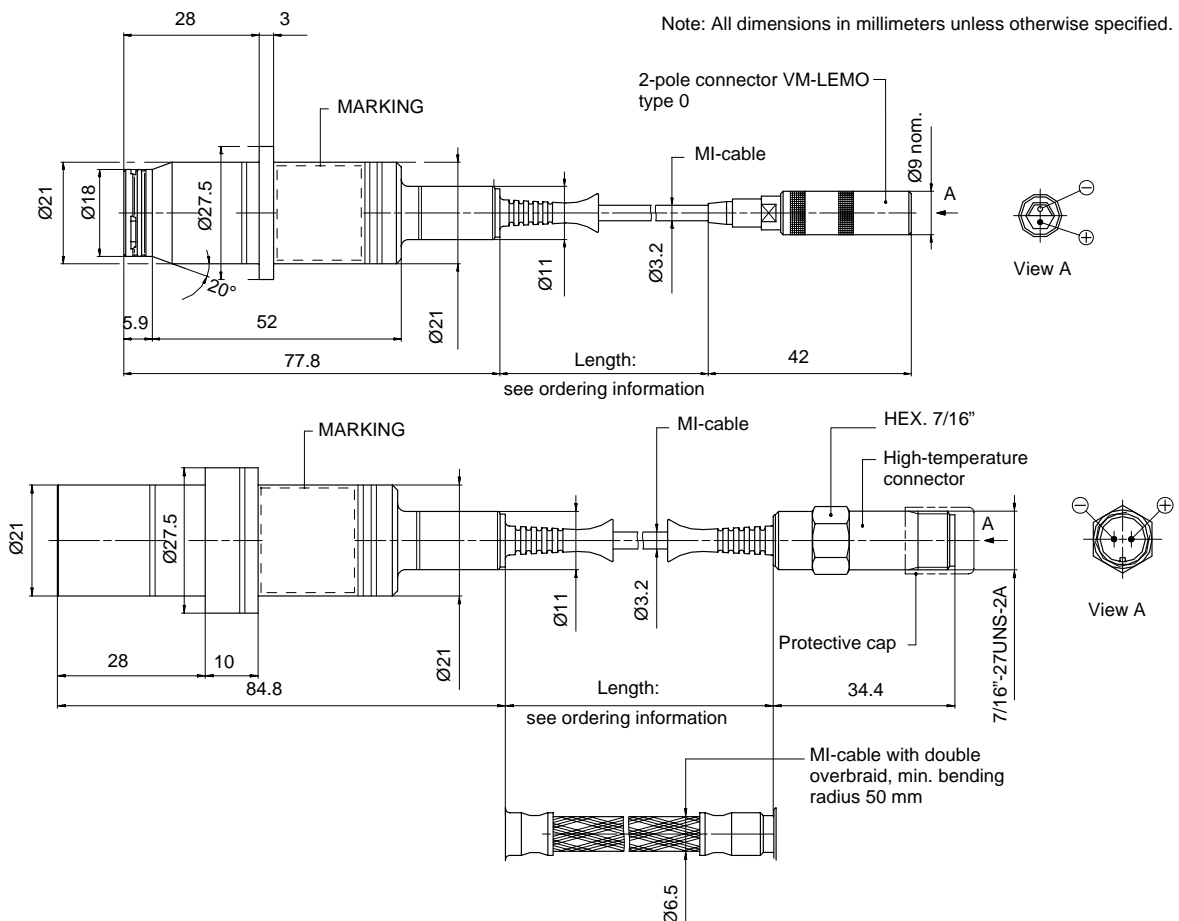
CALIBRATION

Dynamic calibration at factory at 1 bar peak and 2 Hz (+23°C). No subsequent calibration necessary.

TYPICAL RESPONSE



MECHANICAL DIAGRAM



ORDERING INFORMATION

To order please specify :

Type CP 103 **Designation** Piezoelectric Pressure Transducer

Mineral insulated cable		Protection grid	Connector		Corresponding drawing
No protection	Double braid		Lemo	High-temperature	
X			X		143-103-000D502
X				X	143-103-000D602
X		X		X	143-103-000D702
	X			X	143-103-000D901

Note : Please refer to the corresponding drawing to find the part number that matches the required cable length.



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In this publication, a dot (.) is used as the decimal separator and thousands are separated by spaces. Example : 12 345.678 90.

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