Piezoelectric pressure transducer

FEATURES

» From the Vibro-Meter® product line
» Acceleration compensated
» Designed for use in gas turbines
» Certified for use in potentially explosive atmospheres
» High reliability
» Wide temperature range: −55 to 520°C
» Frequency response: 2 to 10000 Hz
» High sensitivity: Min. 750 pC/bar
» Weight:
  Transducer head: 50 g
  Integral MI cable: 140g/m

DESCRIPTION

The use of man-made piezoelectric material in the CP 235 dynamic pressure transducer makes it an extremely stable and reliable device.

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 (MI) cable with twin conductors that is terminated with a Vibro-Meter high-temperature connector.
## SPECIFICATIONS

### General

- **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)**: 750 pC/bar (52 pC/psi) min.
- **Static pressure (on sensing head)**: 0.1 to 20 bar
- **Dynamic measuring range (random)**: 0.00005 to 5 bar nom.
- **Overload capacity (spikes)**: Up to 100 bar (1450 psi) (static + dynamic components)
- **Linearity**: ≤±1% over dynamic measuring range
- **Acceleration sensitivity**
  - 10 Hz to 2.5 kHz: ≤0.15 pC/g (0.0002 bar/g, ≤0.0029 psi/g)
  - 2.5 kHz to 5 kHz: ≤0.375 pC/g (0.0005 bar/g, ≤0.0073 psi/g)
- **Resonant frequency**: >55 kHz (along sensitive axis)
- **Frequency response**: 2 to 10000 Hz ± 5% (lower cut-off frequency is determined by the charge converter used)

### Capacitance (nominal)

- **Pole to pole**: 700 pF for transducer + 200 pF/m for cable
- **Pole to casing**: 10 pF for transducer + 300 pF/m for cable

### Internal insulation resistance

Min. $10^9$ Ω (5×10⁴ Ω at 520°C)

### Mounting torque

Nominally 5.5 N•m (corresponding to qualification of product). Maximum value of 10 N•m.

**Note**: A hole (Ø 1) is provided for locking wire. See Mechanical drawings.

### Environmental

- **Temperature range**: −55 to +520°C (−67 to 968°F) continuous operation
- **Shock acceleration**: ≤1000 g peak (half sine-wave, 1 ms duration) along sensitive axis
- **Corrosion, humidity**: INCONEL® 600, hermetically welded
SPECIFICATIONS (continued)

Environmental – explosive atmospheres
Available in Ex approved versions for use in hazardous locations

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<td>Europe</td>
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<tr>
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*Not engraved on the product marking.

⚠️ For specific parameters of the mode of protection concerned and special conditions for safe use, please refer to the Ex certificates that are available from Meggitt SA on demand.

TYPICAL RESPONSE CURVES

![Graph 1: Sensitivity deviation vs Temperature (°C)](image1)
![Graph 2: Sensitivity deviation vs Frequency (Hz)](image2)
MECHANICAL DRAWINGS

MARKINGs:
Free angular position

2-pole MI cable (Ø3.2) with double braid.
Minimum bend radius: 50 mm

Ordering Information

To order please specify

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<th>Designation</th>
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<td>Piezoelectric pressure transducer</td>
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: 2 m cable length
: 5 m cable length

Refer to sales drawing
143-235-000D012.

Note: All dimensions are in mm unless otherwise stated.
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The Meggitt Sensing Systems facility in Fribourg, Switzerland was formerly known as Vibro-Meter SA, but is now Meggitt SA. This site produces a wide range of vibration and dynamic pressure sensors capable of operation in extreme environments, leading-edge microwave sensors, electronics monitoring systems and innovative software for aerospace and land-based turbo-machinery.

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