MEGGiTT
smart engineering for
extreme environments

# CP 235

# 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

**CP 235**

IECEx
NEPSI KGS

## 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)<br>(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 + 200pF/m for cable |
| • *Pole to casing* | : 10 pF for transducer + 300 pF/m for cable |
| Internal insulation resistance | : Min. $10^9$ Ω ($5x10^4$ Ω at 520 °C) |
| Mounting torque | : Nominally 5.5 N•m (corresponding to qualification of product).<br>Maximum value of 10 N•m.<br>Note: A hole (Ø1) 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

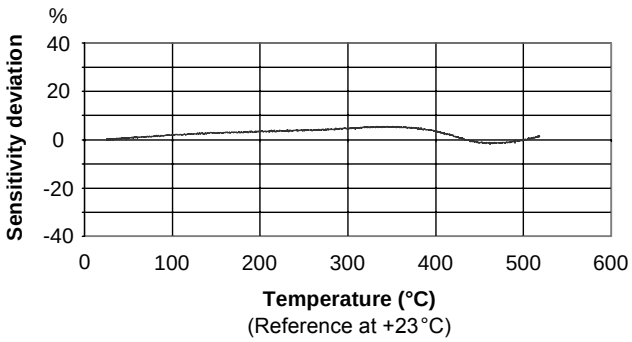
| Type of protection Ex i: intrinsic safety | | |
|---|---|---|
| Europe | EC type examination certificate | LCIE 02 ATEX 6105 X<br>II 2 G (Zones 1, 2)<br>Ex ib IIC T6 …560°C Gb |
| North America | cCSAus certificate of compliance | cCSAus 1636189<br>Class I, Division 1, Groups A, B, C, D<br>Ex ia T6 to T1 |
| International* | IECEx certificate of conformity | IECEx LCI 06.0007X<br>Ex ib IIC T6 …560°C Gb |
| China* | NEPSI certificate of conformity | GYJ12.1449X<br>Ex ib IIC T6 to T560°C Gb |
| Korea* | KGS certificate of conformity | 12-GA4BO-0397X<br>Ex ib IIC T6 to T560°C |

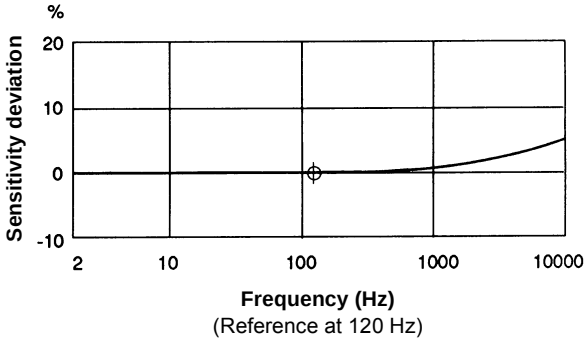
| Type of protection Ex nA: non-sparking apparatus | | |
|---|---|---|
| Europe | Voluntary type examination certificate | LCIE 09 ATEX 1039 X<br>II 3G (Zone 2)<br>Ex nA IIC T6 …560°C Gc |
| North America* | cCSAus certificate of compliance | cCSAus 1636189<br>Class I, Division 2, Groups A, B, C, D<br>Ex nA IIC T6 to T1 Gc<br>Class I, Zone 2<br>AEx nA IIC T6 to T1 Gc |
| International* | IECEx certificate of conformity | IECEx LCI 10.0013X<br>Ex nA IIC T6 …560°C Gc |

*Not engraved on the product marking.

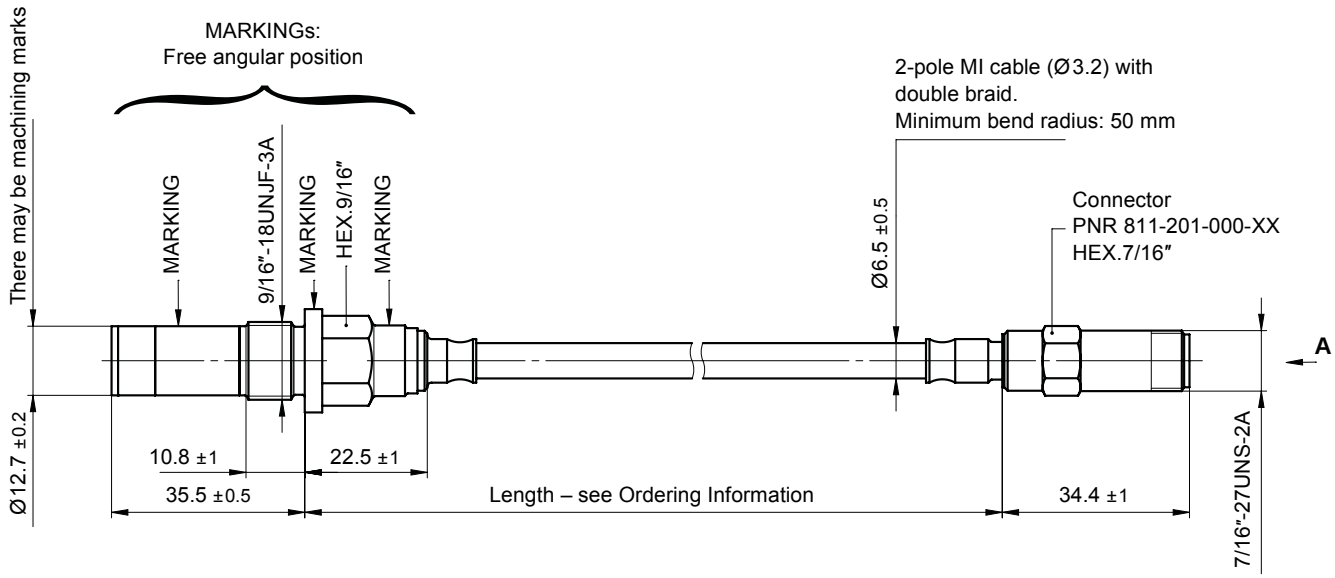
⚠ **For specific parameters of the mode of protection concerned and special conditions for safe use, please refer to the Ex certificates that are available from Meggitt SA on demand.**

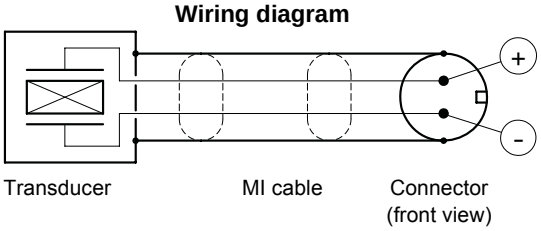
## TYPICAL RESPONSE CURVES

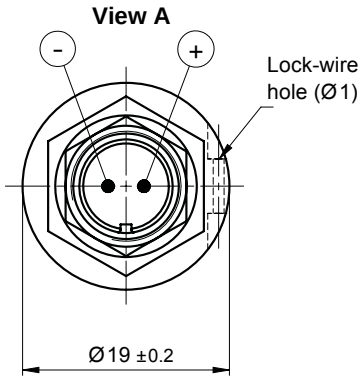


## MECHANICAL DRAWINGS




Note: All dimensions are in mm unless otherwise stated.

## ORDERING INFORMATION

To order please specify

| Type | Designation | Ordering number |
|---|---|---|
| CP 235 | Piezoelectric pressure transducer | 143-235-000-0XX |

12 : 2 m cable length
22 : 5 m cable length
Refer to sales drawing
143-235-000D012.

Headquartered in the UK, Meggitt PLC is a global engineering group specializing in extreme environment components and smart sub-systems for aerospace, defence and energy markets.

Meggitt Sensing Systems is the operating division of Meggitt specializing in sensing and monitoring systems, which has operated through its antecedents since 1927 under the names of ECET, Endevco, Ferroperm Piezoceramics, Lodge Ignition, Sensorex, Vibro-Meter and Wilcoxon Research. Today, these operations are integrated under one strategic business unit called Meggitt Sensing Systems, headquartered in Switzerland and providing complete systems, using these renowned brands, from a single supply base.

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.



In this publication, a dot (.) is used as the decimal separator and thousands are separated by thin spaces. Example: 12345.67890.

**Sales offices**

**Meggitt Sensing Systems has offices in more than 30 countries. For a complete list, please visit our website.**

*ISO 9001*
*FS 584089*

ISO 14001
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Certification

**Your local agent**

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