

Vibro Meter Vibro Meter Series Service Manual

143-103-000-931

1. Description

143-103-000-931

3. Product Information

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Vibro Meter Piezoelectric pressure

transducer

FEATURES

- » From the Vibro-Meter® product line
- » Extreme temperature capability -196 to $+700^{\circ}\text{C}$
- » 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 to 10000 Hz Sensitivity: 232 pC/bar

DESCRIPTION

The CP 103 dynamic pressure transducer uses a VC2 type single crystal material in compression mode and has been specially designed to minimise sensitivity to acceleration.

This produces an extremely stable measuring instrument that is suitable for long-term monitoring or development testing.

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

General

Input power requirements : None

Signal transmission : 2-pole system insulated from casing, charge output

Signal processing : Charge converter

Operating

At $+23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ($+73^{\circ}\text{F} \pm 41^{\circ}\text{F}$)

Sensitivity (at 2 Hz) : 232 pC/bar (16 pC/psi) $\pm 5\%$ typical

Dynamic measuring range (random) : 0.00004 to 20 bar nominal

Overload capacity (spikes) : Up to 250 bar

Linearity : $\pm 1\%$ over dynamic measuring range

Acceleration sensitivity : ≤ 0.05 pC/g (≤ 0.00021 bar/g)

Resonant frequency : > 50 kHz

Frequency response : 2 to 10000 Hz $\pm 5\%$ (the lower cut-off frequency is determined by the electronics used)

Internal insulation resistance : Min. 109 Ω .

107 Ω at 300°C ($+572^{\circ}\text{F}$)

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

Environmental

Temperature range

Continuous operation : -54 to $+650^{\circ}\text{C}$ (-65 to $+1202^{\circ}\text{F}$)

Extreme operation : -196 to $+700^{\circ}\text{C}$ (-321 to $+1292^{\circ}\text{F}$)

Shock acceleration : < 2000 g peak (half sine 1 ms) along sensitive axis

Corrosion, humidity : INCONEL® alloy 600, hermetically welded

Radiation

Gamma flux : 1011 erg/g no effect

Neutron flux : 1018 n/cm² no effect

Mechanical

Weight

Pressure transducer (nominal) : 120 g

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MI cable : 50 g/m

MI cable with overbraid : 140 g/m

Mounting

Flange : Ø27.5/21 mm x 3 mm

Calibration

Dynamic calibration at factory at 1 bar peak and 2 Hz (+23°C (+73°F)). No subsequent calibration necessary

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