

Vibro Meter Vibro Meter Series Service Manual

144-202-000-203

1. Description

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3. Product Information

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144-202-000-203

Vibro Meter vibro-meter

CA202 piezoelectric accelerometer

KEY FEATURES AND BENEFITS

From the vibro-meter® product line

High sensitivity: 100 pC/g

Frequency response: 0.5 to 6000 Hz

Temperature range: -55 to 260°C

Available in standard versions and

Ex versions certified for use in potentially

explosive atmospheres

Symmetrical sensor with internal case

insulation and differential output

Hermetically welded

austenitic stainless-steel case and

heat-resistant stainless-steel protection hose

Integral cable

APPLICATIONS

Industrial vibration monitoring

Hazardous areas (potentially explosive

atmospheres) and/or harsh industrial

environments

DESCRIPTION

The CA202 is a piezoelectric accelerometer from

Meggitt's vibro-meter® product line.

The CA202 sensor features a symmetrical shearmode polycrystalline measuring element with

internal case insulation in an austenitic stainlesssteel case (housing).

The CA202 is fitted with an integral low-noise

cable that is protected by a flexible stainless-steel

protection hose (leaktight) which is hermetically

welded to the sensor to produce a sealed

leaktight assembly.

The CA202 piezoelectric accelerometer is

available in different versions for different

industrial environments: Ex versions for installation

in potentially explosive atmospheres (hazardous

areas) and standard versions for use in nonhazardous areas.

The CA202 piezoelectric accelerometer is

designed for heavy-duty industrial vibration

monitoring and measurement.

For specific applications, contact your local

Meggitt representative.

SPECIFICATIONS

General

Input power requirements : None

Signal transmission : 2-pin system, insulated from case, charge output

Signal processing : Charge converter (IPC70x signal conditioner)

Operating

(At 23°C ±5°C, 73°F ±9°F)

Sensitivity (at 120 Hz with 5 g,

see Calibration on page 4)

: 100 pC/g ±5%

Dynamic measurement range : 0.01 to 400 g peak

Overload capacity (spikes) : Up to 500 g peak

Linearity

0.01 to 20 g (peak) : ±1%

20 to 400 g (peak) : ±2%

Transverse sensitivity : ≤3%

Resonant frequency : >22 kHz nominal

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Frequency response

0.5 to 6000 Hz : $\pm 5\%$

(lower cutoff frequency is determined by the signal conditioner)

Typical deviation at 8 kHz : $+10\%$

Internal insulation resistance : 109 Ω minimum

Capacitance (nominal)

Sensor : 5000 pF pin to pin.

10 pF pin to case (ground).

Cable

(per metre of cable)

: 105 pF/m pin to pin.

210 pF/m pin to case (ground).

Environmental

Temperature range

Continuous operation : -55 to $+260^{\circ}\text{C}$ (-67 to $+500^{\circ}\text{F}$) for sensor.

-55 to $+200^{\circ}\text{C}$ (-67 to $+392^{\circ}\text{F}$) for integral cable.

Short-term survival : -70 to $+280^{\circ}\text{C}$ (-94 to $+536^{\circ}\text{F}$) for sensor.

-62 to $+250^{\circ}\text{C}$ (-80 to $+482^{\circ}\text{F}$) for integral cable.

Temperature sensitivity error (with respect to 23°C , 73°F)

-55 to $+23^{\circ}\text{C}$

(-67 to $+73^{\circ}\text{F}$)

: $0.25\%/^{\circ}\text{C}$

$+23$ to 260°C

(-73 to $+500^{\circ}\text{F}$)

: $0.1\%/^{\circ}\text{C}$

Corrosion, humidity

Sensor : Austenitic stainless-steel (1.4441), hermetically welded

Protection hose : Heat-resistant stainless-steel (1.4541), hermetically welded

Note: The sensor and the flexible protection hose are hermetically welded to one another to create a sealed

leaktight assembly that is impervious to 100% relative humidity (RH), water, steam, oil, and sea-salt atmospheres, in addition to other potential contaminants such as dust, fungus and sand.

Base-strain sensitivity : $0.15 \times 10^{-3} \text{ g}/\mu\epsilon$ at $250 \mu\epsilon$ peak-peak

Shock acceleration : $\leq 1000 \text{ g}$ peak (half sine, 1 ms duration)

Physical

Case (housing) material : Austenitic stainless steel

Dimensions : See Mechanical drawings on page 5

Weight

Sensor : 250 g (0.55 lb) approx.

Cable : 135 g/m (0.30 lb/m) approx.

Mounting : Four M6 $\times$ 35 Allen screws and four M4 spring-lock washers with a nominal tightening torque of 15 Nm (11.1 lb-ft).

Connector : Terminated with flying leads