DATA SHEET

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 shear-mode polycrystalline measuring element with internal case insulation in an austenitic stainless-steel 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 non-hazardous areas.

The CA202 piezoelectric accelerometer is designed for heavy-duty industrial vibration monitoring and measurement.

For specific applications, contact your local Meggitt representative.

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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 3**)	: 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
Frequency response	
• 0.5 to 6000 Hz	: ±5% (lower cutoff frequency is determined by the signal conditioner)
• Typical deviation at 8 kHz	: +10%
Internal insulation resistance	: 10^9 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°C (−67 to +500°F) for sensor. −55 to +200°C (−67 to +392°F) for integral cable.
• Short-term survival	: −70 to +280°C (−94 to +536°F) for sensor. −62 to +250°C (−80 to +482°F) for integral cable.
Temperature sensitivity error (with respect to 23°C, 73°F)	
• −55 to +23°C (−67 to +73°F)	: 0.25%/°C
• +23 to 260°C (−73 to +500°F)	: 0.1%/°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 x 10^{-3} g/με at 250 με peak-peak
Shock acceleration	: ≤1000 g peak (half sine, 1 ms duration)

SPECIFICATIONS *(continued)*

Potentially explosive atmospheres

Available in Ex approved versions for use in hazardous areas

Type of protection Ex i: intrinsic safety		
Europe	EC type examination certificate	LCIE 02 ATEX 6179 X II 1G (Zones 0, 1, 2) Ex ia IIC T6…T2 Ga
Korea	KGS certificate of conformity	KGS 21-GA4BO-0276X Ex ia IIC T6…T2
Russian Federation	EAЭC RU certificate of conformity	EAЭC RU C-CH.AД07.B.03042/21 0Ex ia IIC T6…T2 Ga X

Type of protection Ex nA: non-sparking		
Europe	Voluntary type examination certificate	LCIE 09 ATEX 1044 X II 3G (Zone 2) Ex nA II T6…T2 Gc
International	IECEx certificate of conformity	IECEx LCI 10.0018X Ex nA IIC T6…T2 Gc
North America	cCSAus certificate	cCSAus 70004630 Class I, Division 2, Groups A, B, C, D Ex nA IIC T6 to T2 Gc Class I, Zone 2 AEx nA IIC T6 to T2 Gc
Russian Federation	EAЭC RU certificate of conformity	EAЭC RU C-CH.AД07.B.03042/21 2Ex nA IIC T6…T2 Gc

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

⚠ **For the most recent information on the Ex certifications that are applicable to this product, refer to the *Ex product register* (*PL-1511*) document that is available from Meggitt SA.**

Approvals

Conformity	: CE marking, European Union (EU) declaration of conformity. EAC marking, Eurasian Customs Union (EACU) certificate/ declaration of conformity.
Electromagnetic compatibility	: EN 61000-6-2:2005. EN 61000-6-4:2007 + A1:2011. TR CU 020/2011.
Electrical safety	: EN 61010-1:2010
Environmental management	: RoHS compliant (2011/65/EU)
Hazardous areas	: Ex approved versions (see **Potentially explosive atmospheres on page 3**)
Russian federal agency for technical regulation and metrology (Rosstandart)	: Pattern approval certificate CH.C.28.004.A N° 59463

Calibration

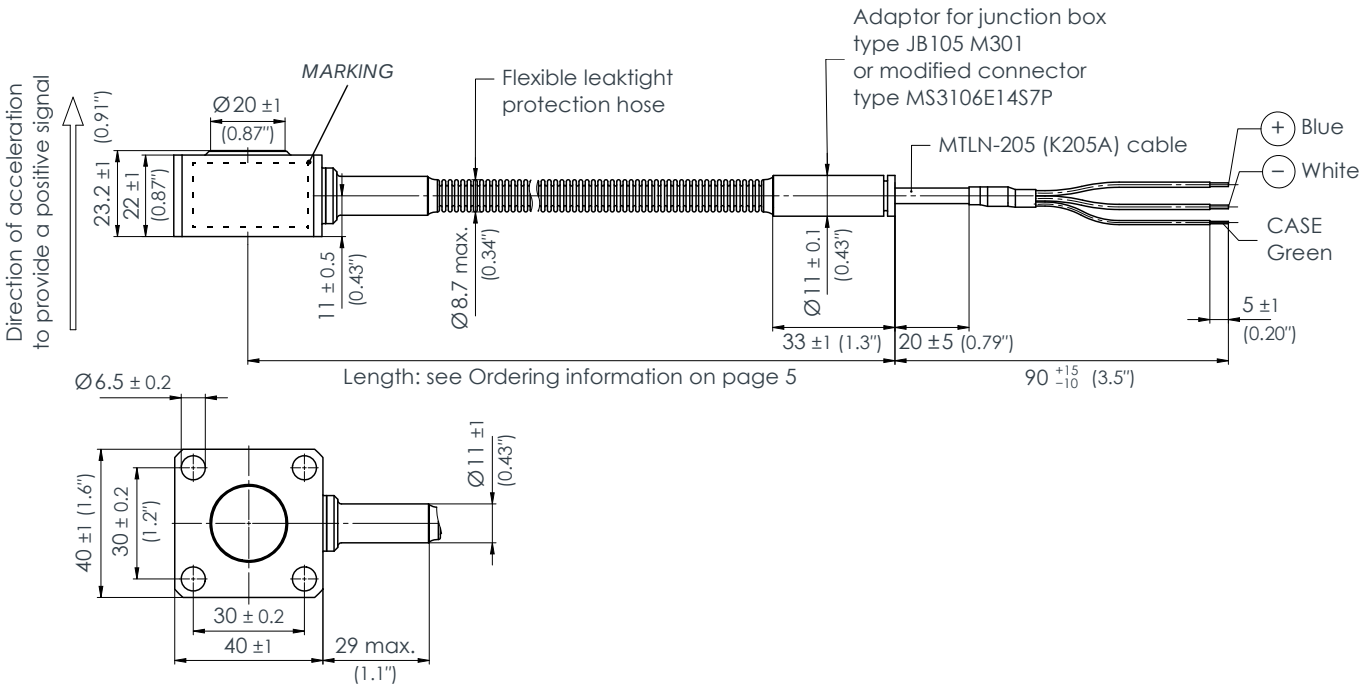
Dynamic calibration at factory at 5 g peak and 120 Hz (23°C, 73°F). No subsequent calibration necessary.

SPECIFICATIONS *(continued)*

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 × 35 Allen screws and four M4 spring-lock washers with a nominal tightening torque of 15 N•m (11.1 lb-ft). Note: Electrical insulation of the mounting surface is not required. See Mounting adaptors in **Accessories on page 6**. Refer also to the *Vibration measurement chains using CAxxx piezoelectric accelerometers installation manual*.
Connector	: Terminated with flying leads

MECHANICAL DRAWINGS



Note: All dimensions are in mm (in) unless otherwise stated.

ORDERING INFORMATION

To order please specify

Type	Designation	Part number (PNR)
CA202	Different versions of the piezoelectric accelerometer:	
	Ex version with 3 m integral cable	144-202-000-106
	Ex version with 6 m integral cable	144-202-000-116
	Ex version with 11 m integral cable	144-202-000-126
	Ex version with 20 m integral cable	144-202-000-136
	Standard version with 3 m integral cable	144-202-000-206
	Standard version with 6 m integral cable	144-202-000-216
	Standard version with 11 m integral cable	144-202-000-226
	Standard version with 20 m integral cable	144-202-000-236

ACCESSORIES

Item	Type	Part number (PNR)
Mounting adaptors	MA133 Mounting adapter kit for CA20x and CE31x, with Micaver® (mica-glass) thermally isolating base. Refer to product drawing 809-133-000V011.	809-133-000-011

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The Energy & Equipment division includes the Energy Sensing and Controls product group that specialises in sensing and monitoring solutions for a broad range of energy infrastructure, and control valves for industrial gas turbines, primarily for the Power Generation, Oil & Gas and Services markets. Energy & Equipment is headquartered in Switzerland (Meggitt SA) and incorporates the vibro-meter® product line, which has over 65 years of sensor and systems expertise and is trusted by original equipment manufacturers (OEMs) globally.

Sales offices

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

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