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.

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
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 ia: intrinsic safety		
Europe	EC type examination certificate	Ⓔx II 1G (Zones 0, 1, 2) Ex ia IIC T6…T2 Ga LCIE 02 ATEX 6179 X
Korea	KGS certificate of conformity*	Ex ia IIC T6…T2 KGS 21-GA4BO-0276X
United Kingdom	UK type examination certificate**	Ⓔx II 1G Ex ia IIC T6…T2 Ga CML 22 UKEX 2746 X
Russian Federation	ЕАЭС RU certificate of conformity*	0Ex ia IIC T6…T2 Ga X ЕАЭС RU C-CH.АД07.B.03042/21

Type of protection Ex nA: non-sparking		
Europe	Voluntary type examination certificate	Ⓔx II 3G (Zone 2) Ex nA IIC T6…T2 Gc LCIE 09 ATEX 1044 X
International	IECEx certificate of conformity*	Ex nA IIC T6…T2 Gc IECEx LCI 10.0018X
North America	cCSAus certificate*	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 cCSAus 70004630
United Kingdom	UK type examination certificate**	Ⓔx II 3G Ex nA IIC T6…T2 Gc CML 22 UKEX 4745 X
Russian Federation	ЕАЭС RU certificate of conformity*	2Ex nA IIC T6…T2 Gc ЕАЭС RU C-CH.АД07.B.03042/21

* Marking not engraved/marked on the products, except for 144-202-000-1xx/3x6/5x6.
** UKCA marking is not engraved/marked on the products.

⚠ **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.**

SPECIFICATIONS *(continued)*

Approvals

Conformity	: European Union (EU) declaration of conformity (CE marking). EAC marking, Eurasian Customs Union (EACU) certificate/ declaration of conformity.
Electromagnetic compatibility	: EN 61000-6-2:2005. EN 61000-6-4:2007 + A1:2011.
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**)

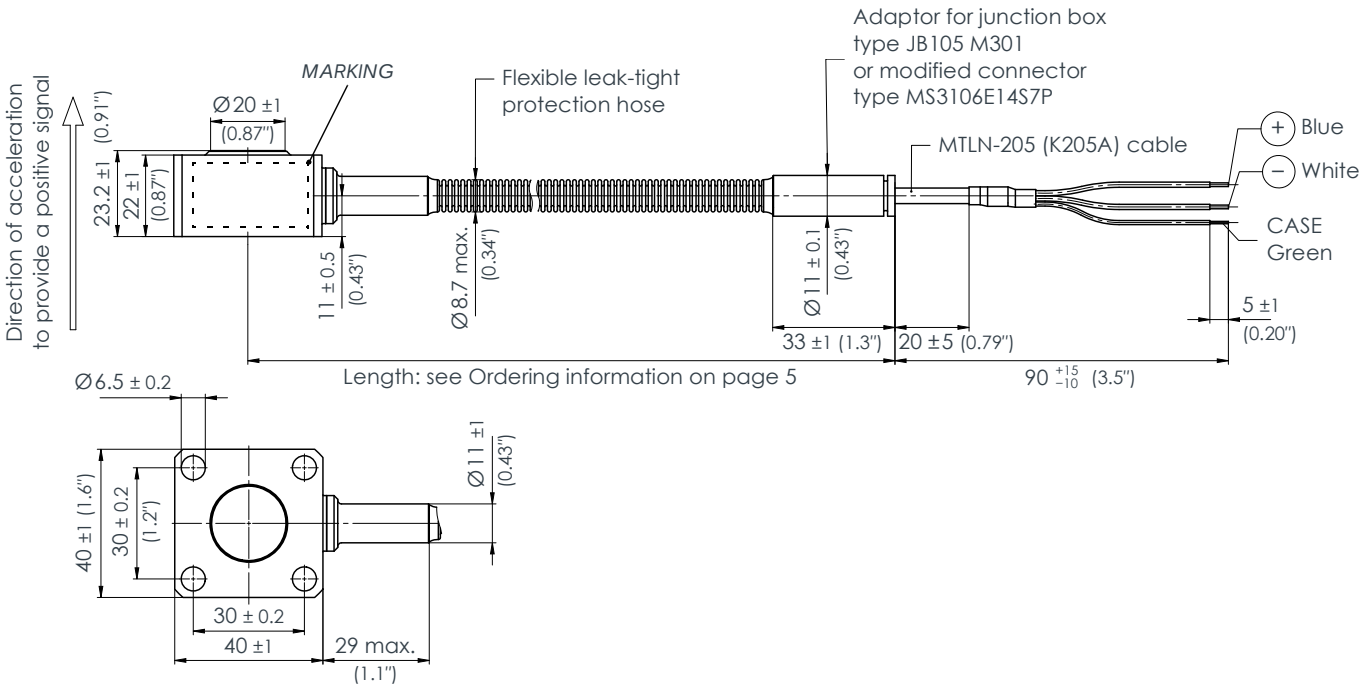
Calibration

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

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