



## CA 280

### Piezoelectric accelerometer

#### FEATURES

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- » From the Vibro-Meter® product line
- » Vibration monitoring for low amplitude and analytical applications
- » High sensitivity
- » Differential output
- » Hermetically welded
- » Internal case insulation
- » Certified for use in potentially explosive atmospheres
- » Frequency response:  
0.5 to 6000 Hz
- » Sensitivity:  
100 pC/g
- » Temperature range:  
-60 to +260°C



**CA 280  
(version 015)**



#### DESCRIPTION

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The CA 280 accelerometer has a symmetrical shear mode measuring element with internal case isolation (that is, the sensor is electrically floating with respect to the case).

The sensor is designed for vibration monitoring and measurement when high instrument sensitivity is required. It is hermetically welded and exhibits low base-strain sensitivity.



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## SPECIFICATIONS

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### General

Input power requirements	: None
Signal transmission	: 2-pole system insulated from casing, charge output
Signal processing	: Charge amplifier

### Operating

At +23°C ±5°C (+73°F ±9°F)

Sensitivity (at 120 Hz and 5 g)	: 100 pC/g ±5%
Dynamic measuring range	: 0.01 to 500 g peak
Overload capacity (spikes)	: Up to 1000 g peak
Linearity	
• 0.01 to 100 g (peak)	: ±1%
• 100 to 500 g (peak)	: ±2%
Transverse sensitivity (measured at 15 Hz and 5 g)	: ≤3%
Resonant frequency (mounted)	: 20 kHz nominal
Frequency response	
• 0.5 to 6000 Hz	: ±5% (the lower cutoff frequency is determined by the conditioner used)
• Typical deviation at 10 kHz	: +10%
Internal insulation resistance	: Min. 10 <sup>9</sup> Ω at 23°C (73°F)
Capacitance (nominal)	
• Sensor	: 7000 pF pole to pole. 15 pF pole to casing.
• Cable	: 105 pF pole to pole. 210 pF pole to casing.

### Environmental

Temperature range	
• Continuous operation	: -60 to +260°C (-76 to +500°F)
• Survival (15 minutes maximum)	: -70 to +290°C (-94 to +554°F)
Temperature sensitivity error (with respect to +23°C)	: ±10% at -60°C and +260°C (-76 to +500°F)
Shock acceleration	: <1000 g peak (half sine, 1 ms duration)
Corrosion, humidity	: AISI 316L stainless steel, hermetically welded
Base strain sensitivity	: 0.2 x 10 <sup>-3</sup> g/με at 250 με peak-peak

**SPECIFICATIONS** (continued)**Explosive atmospheres**

Available in Ex approved versions for use in hazardous locations

Type of protection Ex i: intrinsic safety		
Europe	EC type examination certificate	KEMA 04 ATEX 1055 II 1 G (Zones 0, 1, 2) Ex ia IIC T6 ... T2 Ga
North America	cCSAus certificate	cCSAus 1514310 Class I, Division 1, Groups A, B, C, D Ex ia T6 to T2

Type of protection Ex nA: non-sparking		
Europe	Voluntary type examination certificate	LCIE 09 ATEX 1047 X II 3 G (Zone 2) Ex nA IIC T6 ... T2 Gc
International	IECEX certificate of conformity*	IECEX LCI 10.0021X Ex nA IIC T6 ... T2 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.**

**Mechanical**

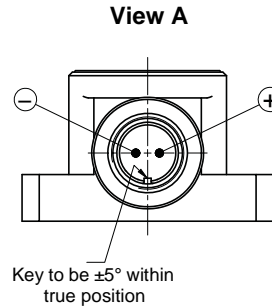
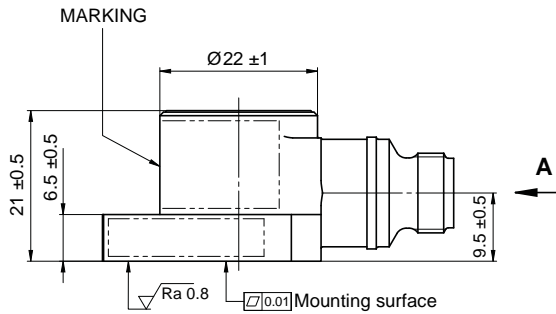
Dimensions	: See Mechanical drawings and ordering information on page 4
Weight	
• <i>Sensor</i>	: 75 g (0.17 lb) approx.
• <i>Cable</i>	: 135 g/m (0.17 lb/m) approx.
Mating connector (CA 280 version 015)	: Vibro-Meter CG 505 (7/16"-27UNS-2B)
Cable (CA 280 versions 115 and 125)	: 2-pole twisted and shielded
Mounting	: ARINC® No 554 fixation. Three M4 x 16 Allen screws and three M4 spring lock washers, with a fastening torque of 4.5 N•m. Electrical insulation of the mounting surface is not required.

**Calibration**

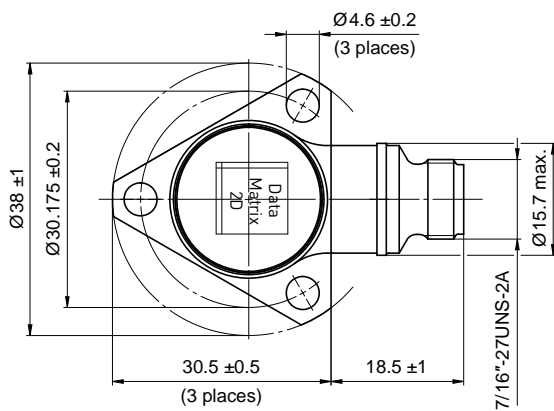
Dynamic calibration at factory at 5 g peak and 120 Hz (+23°C). No subsequent calibration necessary.

MECHANICAL DRAWINGS AND ORDERING INFORMATION

CA 280 version 015



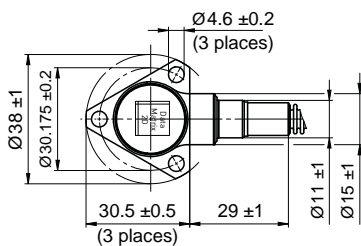
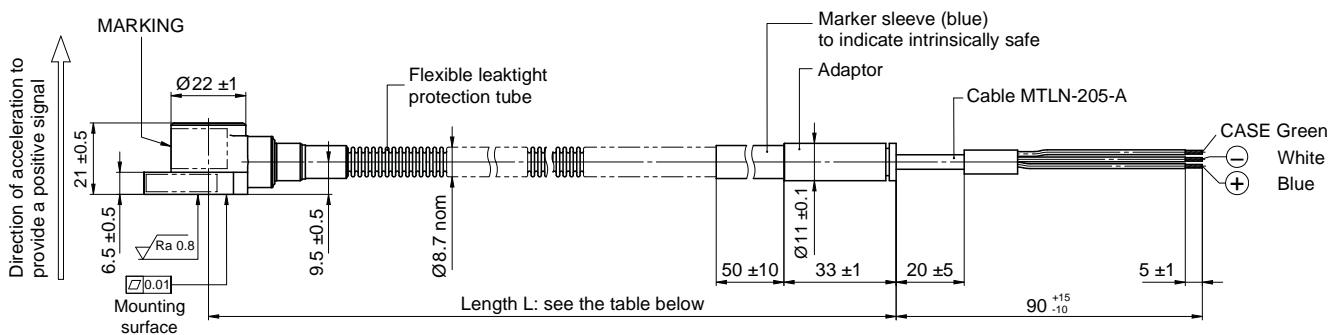
Direction of acceleration to provide a positive signal



<b>Part number</b>
144-280-000-015

Note: all dimensions in mm unless otherwise stated.

CA 280 versions 115 and 125



Part number	Length L in mm
144-280-000-115	3000 ±100
144-280-000-125	6000 ±200

Note: all dimensions in mm unless otherwise stated.

**MOUNTING ACCESSORIES**

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TA 104	Mounting adaptor	See drawing 144-136-301-101
TA 105	Mounting adaptor	See drawing 144-136-302-101

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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.



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

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FS 584089

**Your local agent****Head office**

Meggitt SA  
Route de Moncor 4  
PO Box 1616  
CH - 1701 Fribourg  
Switzerland

Tel: +41 26 407 11 11  
Fax: +41 26 407 13 01

[www.meggittsensingystems.com](http://www.meggittsensingystems.com)  
[www.vibro-meter.com](http://www.vibro-meter.com)