



CE 134

Piezoelectric accelerometer

FEATURES

- » From the Vibro-Meter® product line
- » Integrally attached electronics
- » Long-distance signal transmission
- » Operation over a wide temperature range
- » Certified for use in potentially explosive atmospheres
- » Low-frequency and high-frequency versions
- » Integral case insulation
- » Sensitivity:
5 μ A/g
- » Frequency response:
5 to 10000 Hz
- » Temperature range:
-55 to 350 °C

APPLICATIONS

- » Vibration monitoring of turbines,
turbo compressors and other industrial machinery

DESCRIPTION

The CE 134 piezoelectric accelerometer has a centre-mounted symmetrical compression-mode measuring element using ceramic material. The transducer is connected to the attached electronics by an integral soft-line “low-noise” cable in a hermetically sealed link, protected by a flexible stainless-steel hose (leak-tight protection tube) that is

brazed to the transducer housing and to the attached electronics housing.

The integrally attached electronics provides the required signal processing and eliminates the need for connectors close to the machinery being monitored (temperature zones A and B).

**CE 134
accelerometer**



**CE 134 integrally
attached electronics**



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DESCRIPTION *(continued)*

The attached electronics (temperature zone C) performs charge-to-current conversion to provide a current-modulated output that is suitable for transmission over long distances in current (2-wire) signal transmission systems.

The transducer and attached electronics are insulated from their housings (integral case insulation). They are also fully protected against cooling fluids, lubricants, water, steam and other potential contaminants. This makes the CE 134 an extremely

reliable device that is suitable for the long-term monitoring of vibration in many industrial machines.

The CE 134 is available in low-frequency (LF) or high-frequency (HF) versions, with either a bayonet or a threaded connector fitted to the integrally attached electronics housing (see **Ordering information on page 7**).

For specific applications, contact your nearest Meggitt Sensing Systems representative.

SPECIFICATIONS

General

Input power requirements	: 15 to 28 V _{DC} , 5 to 8 mA (zero signal current)
Signal transmission	: 2-wire system with current-modulated output signal
Signal processing	: Galvanic separation unit

Operating

(at 23°C ±5°C, 73°F ±9°F)

Sensitivity (at 120 Hz)	: 5 µA/g ±5%
Dynamic measuring range (random)	: 0.001 to 400 g peak. The transducer resonance effect is corrected by a filter.
Overload capacity (spikes)	: Up to 1000 g peak (random vibration)
Linearity	: ≤1% over dynamic measuring range
Transverse sensitivity (measured with 5 g at 15 Hz)	: ≤5%
Resonant frequency (mounted)	: 23 kHz typ.
Frequency response	
• <i>Low-frequency (LF) version</i>	: -3 dB at 5 Hz. ±5% from 10 to 500 Hz (with typical deviations of -10% at 1000 Hz and -30% at 2000 Hz).
• <i>High-frequency (HF) version</i>	: -3 dB at 5 Hz. ±5% from 10 to 5000 Hz. ±10% from 5000 to 10000 Hz.

Environmental

Temperature range	
• <i>Transducer</i>	: -55 to 350°C (-67 to 662°F), temperature zone A
• <i>Cable/flexible stainless-steel hose (protection tube)</i>	: -55 to 260°C (-67 to 500°F), temperature zone B
• <i>Attached electronics (signal conditioner)</i>	: -40 to 125°C (-40 to 257°F) for continuous operation and -55 to 130°C (-67 to 266°F) for short-term survival, temperature zone C.
Temperature sensitivity error with respect to 23°C (73°F)	: ±5% from -55 to 350°C (-67 to 662°F) for the transducer only (with the cable/flexible stainless-steel hose and attached electronics at constant temperatures)

SPECIFICATIONS (continued)

Shock acceleration

- *Transducer* : ≤2000 g peak (half sine-wave, 1 ms duration)
- *Attached electronics (signal conditioner)* : ≤500 g peak (half sine-wave, 1 ms duration)

Corrosion, humidity

- *Transducer* : INCONEL® 600, hermetically welded
- *Cable/flexible stainless-steel hose (protection tube)* : Stainless steel (1.4541), hermetically welded
- *Attached electronics (signal conditioner)* : Stainless steel (1.4441), hermetically welded

Base strain sensitivity : ≤10⁻⁴ g/με


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 6089 X II 1 G (Zones 0, 1, 2) Ex ia IIC T6...T1 Ga
North America	cCSAus certificate of compliance	cCSAus 70034691 Class I, Division 1, Groups A, B, C, D Ex ia IIC T6...T1 Ga Class I, Zone 0 AEx ia IIC T6...T1 Ga
International	IECEX certificate of conformity	IECEX LCIE 14.0058X Ex ia IIC T6...T1 Ga
Russian Federation	TR CU certificate/declaration of conformity	TC RU C-CH.MШ06.B.00134 0Ex ia IIC T6...T1 Ga

Type of protection Ex nA: non-sparking apparatus		
Europe	Voluntary type examination certificate	LCIE 09 ATEX 1038 X II 3 G (Zone 2) Ex nA IIC T6...T1 Gc
North America	cCSAus certificate of compliance	cCSAus 70034691 Class I, Division 2, Groups A, B, C, D Ex nA IIC T6...T1 Gc Class I, Zone 2 AEx nA IIC T6...T1 Gc
International	IECEX certificate of conformity	IECEX LCI 10.0002X Ex nA IIC T6...T1 Gc
Russian Federation	TR CU certificate/declaration of conformity	TC RU C-CH.MШ06.B.00134 2Ex nA IIC T6...T1 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)* that is available from Meggitt SA.

SPECIFICATIONS *(continued)*

Approvals

Conformity	: CE marking, European Union (EU) declaration of conformity. EAC marking, Eurasian Customs Union (EACU) certificate/declaration of conformity.
Electromagnetic compatibility	: IEC/EN 61000-6-2:2005. IEC/EN 61000-6-4:2007 + A1:2011.
Electrical safety	: IEC/EN 61010-1:2010
Environmental management	: RoHS and WEEE compliant
Hazardous areas	: Ex (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.

Mechanical

Connection

- *Bayonet* : Three-contact, circular, stainless-steel connector with bayonet coupling (based on MS3112 / MIL-C-26482)
- *Threaded* : Three-contact, circular, stainless-steel connector with threaded coupling (based on EN2997 / MIL-C-83723)

Dimensions

: See **Mechanical drawings on page 5**

Weight

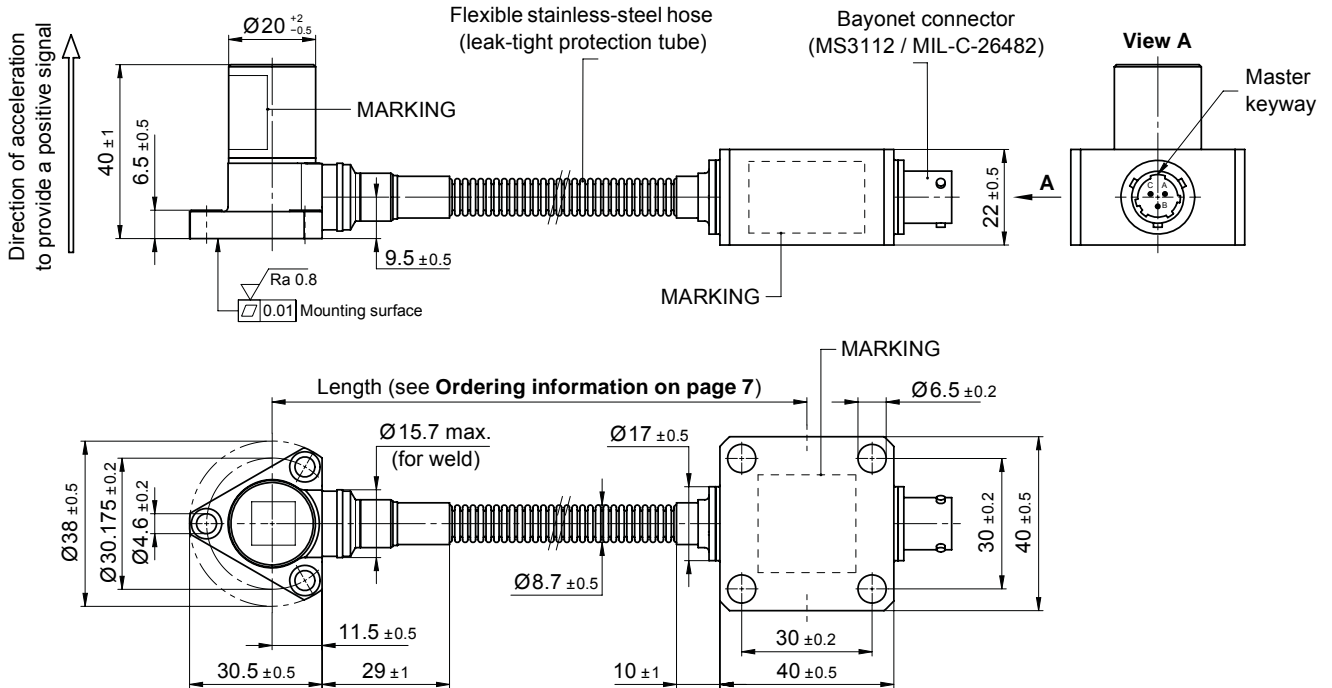
- *Transducer* : 110 g (3.9 oz) approx.
- *Cable/flexible stainless-steel hose (protection tube)* : 135 g/m (1.5 oz/ft) approx.
- *Attached electronics (signal conditioner)* : 200 g (7.1 oz) approx.

Mounting

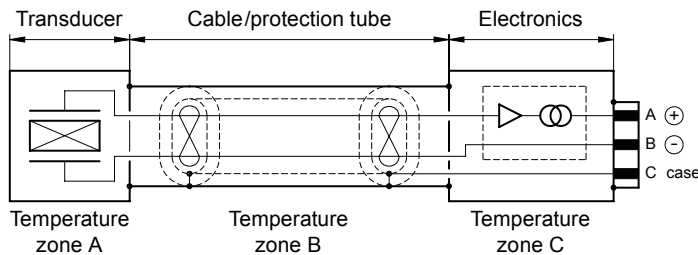
- *Transducer* : Three M4 x 16 Allen screws with 3x M4 spring lock washers.
Fastening torque of 4.5 N•m.
Refer also to the *CE xxx and PV xxx vibration sensors* installation manual.
- *Attached electronics (signal conditioner)* : Four M6 x 35 Allen screws with 4x M6 spring lock washers.
Fastening torque of 15 N•m.
Refer also to the *CE xxx and PV xxx vibration sensors* installation manual.

MECHANICAL DRAWINGS

CE 134 with bayonet connector



CE 134 wiring diagram



Temperature zones

- Zone A: -55 to 350 °C (-67 to 662 °F)
- Zone B: -55 to 260 °C (-67 to 500 °F)
- Zone C: -40 to 125 °C (-40 to 257 °F)

Notes

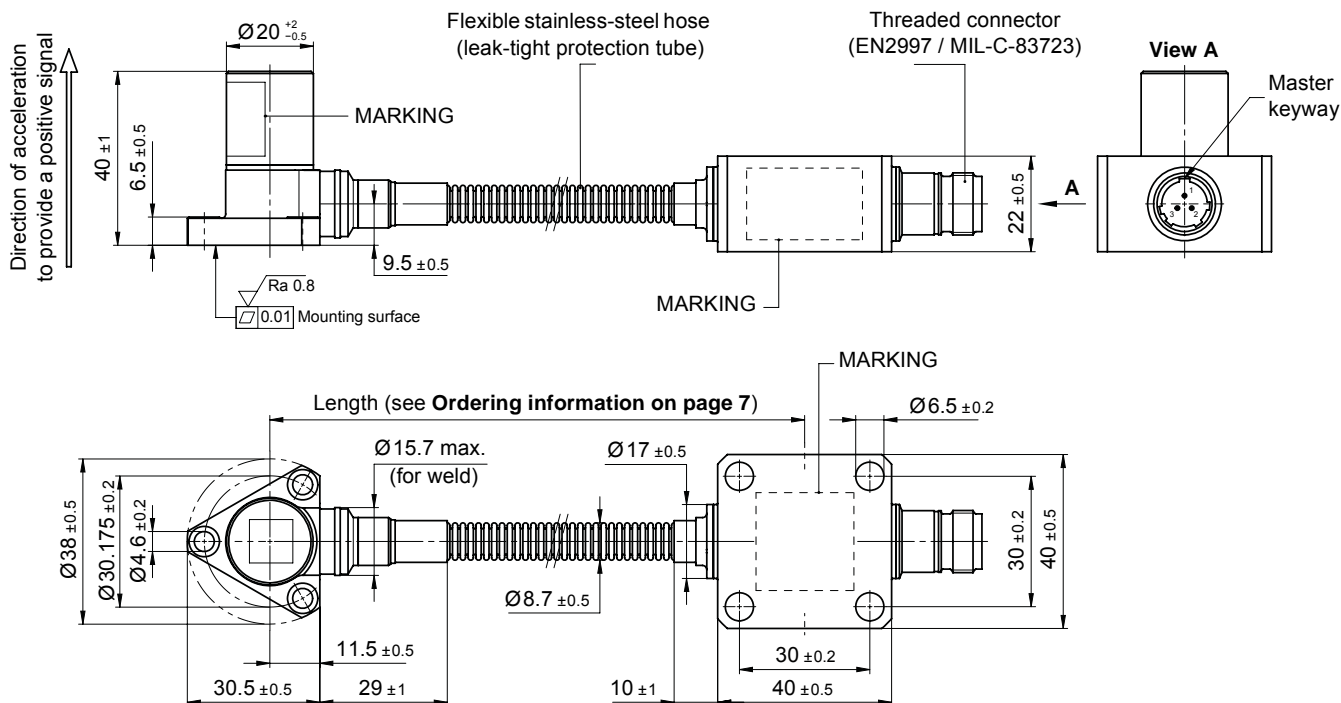
All dimensions in mm unless otherwise stated.

A CE 134 with the bayonet connector and a CE 134 with the threaded connector are identical except for the connector fitted to the integrally attached electronics housing.

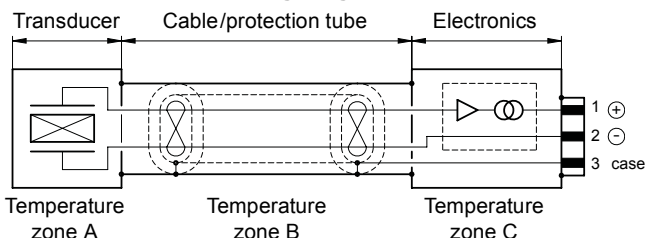
Pins B and C of the bayonet connector must be connected together externally.

MECHANICAL DRAWINGS (continued)

CE 134 with threaded connector



CE 134 wiring diagram



Temperature zones

- Zone A: -55 to 350 °C (-67 to 662 °F)
- Zone B: -55 to 260 °C (-67 to 500 °F)
- Zone C: -40 to 125 °C (-40 to 257 °F)

Notes

All dimensions in mm unless otherwise stated.

A CE 134 with the threaded connector and a CE 134 with the bayonet connector are identical except for the connector fitted to the integrally attached electronics housing.

Pins 2 and 3 of the threaded connector must be connected together externally.

ORDERING INFORMATION

To order please specify

Type	Designation	Cable length	Ordering number
CE 134	Low-frequency (LF) piezoelectric accelerometer with bayonet connector	3 m	444-134-000-405
	High-frequency (HF) piezoelectric accelerometer with bayonet connector	3 m	444-134-000-605
	High-frequency (HF) piezoelectric accelerometer with threaded connector	3 m	444-134-000-705
	High-frequency (HF) piezoelectric accelerometer with threaded connector	6 m	444-134-000-715

ACCESSORIES

Cable assemblies

EC 175	Cable assemblies with bayonet or threaded connector and flying leads. Refer to the 922-175-000Vxxx sales drawings and to the corresponding cable data sheet.
EE 139	Cable assemblies with bayonet connector and flying leads. Refer to the 924-139-000Vxxx sales drawings and to the corresponding cable data sheet.
EE 143	Cable assemblies with threaded connector and flying leads. Refer to the 924-143-000Vxxx sales drawings and to the corresponding cable data sheet.

Junction boxes

JB 105	Refer to the data sheet
JB 116	Refer to the data sheet

Transmission cables

K 2xx	Refer to the data sheets
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Galvanic separation units

GSI 12x	Refer to the data sheets
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Headquartered in the UK, Meggitt PLC is a global engineering group specializing in extreme environment components and smart sub-systems for aerospace, defence and energy markets.

Meggitt Sensing Systems is the operating division of Meggitt specializing in sensing and monitoring systems, which has operated through its antecedents since 1927 under the names of ECET, Endevo, Ferroperm Piezoceramics, Lodge Ignition, Sensorex, Vibro-Meter and Wilcoxon Research. Today, these operations are integrated under one strategic business unit called Meggitt Sensing Systems, headquartered in Switzerland and providing complete systems, using these renowned brands, from a single supply base.

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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Sales offices

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



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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
www.vibro-meter.com