

Vibro Meter Vibro Meter Series Service Manual

144-134-000-612

1. Description

144-134-000-612

3. Product Information

www.oilautotech.com

144-134-000-612

vibro-meter

CA134 piezoelectric accelerometer

KEY FEATURES AND BENEFITS

From the vibro-meter ® product line

Sensitivity: 10 pC/g

Frequency response: 0.5 to 6 000 Hz

Temperature range:

–54 to 500 °C

–253 °C (20 K) to 500 °C for cryogenic version

Ex certified for use in hazardous areas

(potentially explosive atmospheres)

Symmetrical sensor with internal case insulation

and differential output

Hermetically welded

high-temperature nickel alloy case

Available as a sensor only or with an

integral cable

APPLICATIONS

Vibration monitoring over a wide temperature

range, including cryogenic temperatures

Hazardous areas (potentially explosive

atmospheres) and/or harsh industrial

environments

DESCRIPTION

The CA134 is a high-temperature piezoelectric

accelerometer from Parker Meggitt's vibro-meter ®

product line.

The CA134 sensor features a compression-mode

measuring element with internal case insulation in a high-temperature nickel alloy case (housing).

The CA134 is available as a sensor only or fitted with

an integral mineral-insulated (MI) cable that is

protected by a double braid and terminated with a

vibro-meter ® high-temperature connector. The

sensor and cable are hermetically welded to produce

a sealed leaktight assembly. The sensor only version

allows different cable assemblies to be used

depending on the environmental/temperature

requirements of the application.

All versions of the CA134 are Ex certified for

installation in potentially explosive atmospheres

(hazardous areas).

The piezoelectric material used and the design of the

CA134 ensures an extremely stable and reliable

device that is suitable for the long-term monitoring

and measurement of vibration over wide temperature

ranges in severe environments, such as gas turbines

or cryogenic applications.

For specific applications, contact your local

Parker 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,

www.oilautotech.com

see Calibration on page 4)

: 10 pC/g $\pm 5\%$

Dynamic measurement range : 0.001 to 500 g peak

Overload capacity (spikes) : Up to 1000 g peak

Linearity : $\pm 1\%$ over dynamic measurement range

Transverse sensitivity : $< 5\%$

Resonant frequency : > 14 kHz nominal

Frequency response

0.5 to 3500 Hz : $\pm 5\%$

(lower cutoff frequency is determined by the signal conditioner)

3500 to 6000 Hz : $< 10\%$

Internal insulation resistance : 108 Ω minimum at 23°C (73°F).

105 Ω minimum at 500°C (932°F).

Capacitance

Sensor head : 20 pF nominal between pin (+ or –) and case (ground).

450 pF nominal between pins (+ and –).

MI cable

(integral cable version only)

: 350 pF/m nominal between pin (+ or –) and case (ground).

220 pF/m nominal between pins (+ and –).

Environmental

Temperature range

Continuous operation : -54 to 500°C (-65 to 932°F).

Note: Cryogenic version has a minimum operating temperature of -253°C (20 K).

Short-term survival : -70 to 520°C (-94 to 968°F).

Note: Cryogenic version has a minimum survival temperature of -253°C (20 K).

Maximum temperature error (with respect to 23°C, 73°F)

-253°C (20 K) : -5%

500°C : $+10\%$

Corrosion, humidity : Special high-temperature nickel alloy, stainless steel,

hermetically welded

Shock acceleration : < 2000 g peak (half sine, 1 ms duration) along sensitive axis

Base strain sensitivity : $\leq 5 \times 10^{-3}$ g/ $\mu\epsilon$

Physical

Case (housing) material : Special high-temperature nickel alloy and stainless steel

Dimensions : See Mechanical drawings starting on page 6

Weight

Sensor head : 120 g (0.26 lb) approx.

MI cable

(integral cable version only)

: 140 g/m (0.094 lb/ft) approx.

Mounting : Three M4 $\times$ 16 Allen screws and three M4 spring-lock washers with a nominal tightening torque of 4 Nm (3 lb-ft).

Connector

Sensor only version : High-temperature, rugged circular, threaded coupling, 2-pin connector with keyway (vibro-meter® 7/16"-27UNS-2A / CG505).

Mates with connectors used by the recommended cable assemblies

(vibro-meter® 7/16"-27UNS-2B or CG505).

Integral cable version : vibro-meter® high-temperature connector (Hex. 7/16").

Mates with connectors used by the recommended extension cable

assemblies (vibro-meter® 7/16"-27UNS-2B or CG505).

www.oilautotech.com