

®ICP Accelerometer Model 107 Economy, Side connector

Main Characteristics

- Economy model
- -55°C to 120 °C (-67°F to 248°F)
- ®ICP transmission mode
- Compression mode
- Dual case isolation with Faraday shield
- Reverse wiring and ESD protection
- Complies with API 670 requirements (A=2 only)



Model 107.01-A-2 with Overmolded M12 cable assembly

T0 : 10 mV/°C. (+2° to +120°C)

Not available with Mil-C-5015 2-pin connector

Special Agency Approval

none

Accessories (Machine thread):

M6 : M6x1 Bolt, captive, hex socket

M7 : 1/4" 28 UNF 2A Bolt, captive, hex socket

Special Engraving :

Add ZXX at the end of the part number.

XX is a number supplied by VibraSens

Ordering example :

107.01-6-2-M6 Accelerometer, piezoelectric, 100mV/g

Most popular model :

107.01-6-2

Version History

107.01-2 has been replaced by 107.01-6

Competitive advantage

- Price
- Exceptional bias voltage stability at elevated temperatures
- Low cost IP67 overmolded M12 cable assembly
- M12 cable assembly is available through local electronic distributor
- M12 offers compatibility with sensors used in automation.

Description

The hermetic sealed industrial piezoelectric accelerometer model 107 is design to monitor the vibration in harsh industrial environment. It uses the industry standard ®ICP 2-wire voltage transmission technique with a 4 mA standard constant current supply. Signal ground is isolated from the mounting surface and outer case to prevent ground loops. Faraday shielding will limit sensitivity to ESD to a minimum. Low noise electronic and a temperature compensated design will give you accurate result over the complete temperature range.

Economy compression mode accelerometers should not be used whenever thermal transient, high transverse vibrations or high base strain are present. Compression accelerometers are also not recommended for low frequency (<1Hz) measurements. In such environment model 103.02 (shear mode) is preferred

Typical applications

Vibrations measurement in the rugged environments of industrial machinery monitoring. High frequency version will monitor the vibration on roller bearing, pumps cavitation, Medium frequency version will monitor overall vibration on pumps, motors, fans, ...

Ordering information

To order, specify model number, options and suffix :

107.01- A - B (CC-DD) - T (Accessories)

A : Sensitivity

3 : 10 mV/g ±10%

6 : 100 mV/g ±10%

Available suffix for A : N, negative polarity

B : Connector

1 : MIL-C-5015, glass seal

2 : M12 glass seal

5 : Integral cable

7 : Integral cable with stainless steel overbraid protection

8 : Integral cable with stainless steel protection conduit

Option 5, 7, 8 needs additional information :(CC-DD)

Options 5, 7, 8 are not stocked. Leadtime : 2 to4 weeks.

CC : Cable Type

01 : Polyurethane cable (90°C)

02 : Teflon FEP Cable (200°C)

03 : Radox cable (120°C, halogen free)

12 : Teflon FEP twisted triple Cable (200°C). For T0 option.

13 : Radox twisted triple (120°C, halogen free). For T0 option

31 : *Polyurethane 4 conductors cable (90°C). For T0 option

DD : length in metre (only integral cable B=5, 7, 8)

Options :

Temperature output

Specifications

Dynamic

| | |
|---|-------------------------------|
| Sensitivity | |
| A=3..... | 10 mV/g ±10% |
| A=6..... | 100 mV/g ±10% |
| Frequency response..... | (See fig.4 & 5) |
| A=3, 6..... | ±10 % : 2 to 9000 Hz |
| | ±3 dB : 1 to 12000 Hz |
| Mounted Resonant frequency | |
| A=3, 6..... | 30 kHz Nom |
| Dynamic range (broad band) (-50°C to 120°C) | |
| A=3..... | 500 g pk |
| A=6..... | 80 g pk |
| Transverse response sensitivity (20Hz, 5g)..... | <5% max |
| Temperature response..... | (See fig3) |
| Polarity..... | (see fig. 1) Suffix dependant |
| Linearity (up to 80 g peak)..... | ±1% Max |
| Warm up time..... | < 1Sec |
| Option T0 | |
| Output (between - and Temp)..... | $V_{out}=10mV/°C * T(°C)t$ |
| | 0VDC at 0°C |
| Range..... | +2° to 120°C |

Electrical

| | |
|---|-----------------------------------|
| Electrical Grounding..... | Isolated from machine ground |
| | Internal shielding (see fig. 1) |
| Isolation (Case to shield) -55°C to +120°C..... | 100 MΩ Min |
| Capacitance to ground..... | 70 pF Nom |
| Output impedance..... | 50 ΩNom |
| DC output bias, 4mA supply..... | 12 VDC (See Fig 2) |
| Full scale output voltage..... | ± 8 V Peak |
| Residual noise (24°C) A=2 : | |
| 1 Hz to 25 kHz..... | 300 ug rms |
| 1 Hz at 24°C..... | 30 ug |
| Residual noise (24°C) A=3 : | |
| 1 Hz to 25 kHz..... | 300 ug rms |
| 1 Hz at 24°C..... | 30 ug |
| Power requirements..... | Constant current : +2 to +10mA DC |
| | Voltage : +22 to +28 VDC |
| Protection : Overvoltage..... | Yes |
| Protection : Reverse polarity..... | Yes |

Environmental

| | |
|---|--|
| Temperature : Operating continous and storage | |
| B=1, 2..... | -55 to 120 °C (-65 to 250 °F) |
| Humidity..... | Not affected |
| Enclosure | |
| B=1, 2..... | > IP 68,(Hermetic sealed) 1E-8torr.l/s |
| Acceleration limit : Shock..... | 5 000g peak |
| Acceleration limit : Continuous vibration..... | 500g peak |
| Base strain sensitivity..... | 0.002 g pk/u strain |
| Temp. transient sens. (3Hz, LLF, 20dB/dec)..... | TBD mg/°C |
| Acoustic sensitivity (164 dBSP)..... | 0.5 mg |
| Electromagnetic sens. (50Hz, 0.03 T)..... | 0.2 g |
| Mean time between failure (MTBF)..... | 10 Years Nom |
| ESD Protection..... | > 40 V |
| Safety..... | EN 61010-1 and IEC 1010-1 |
| EMC emission..... | EN 50081-1, EN 50081-2 |
| EMC immunity (1)..... | EN 50082-1, EN 50082-2 |

Physical

| | |
|-------------------------------|--|
| Dimensions | |
| B=1..... | See Fig. 1a |
| B=2..... | See Fig. 1b |
| Design..... | Ceramic, compression |
| Weight, A=3, 6..... | 160 gr Nom (5.65 Oz) |
| Connector | |
| B=1..... | MIL-C-5015 glass seal, Type MS3143 10SL-4P |
| B=2..... | M12 glass seal, IEC 60947-5-2 |
| Material..... | AISI 316L, DIN 1.4435 (Stainless steel) |
| Mounting torque (M6, M7)..... | 2.4N.m (21 in-lbs) |

Accessories, supplied

Calibration supplied

| | |
|-------|--------------------------|
| | Sensitivity (5g, 160 Hz) |
| | No frequency response |

Accessories, not supplied

| | |
|--|-------------------------|
| MIL connector (B=1), Polyurethane cable..... | 10.01-B01-A01-01-Length |
| MIL connector (B=1), FEP Teflon cable..... | 10.01-B01-A01-02-Length |
| M12 connector B=2, 3 Polyurethane cable..... | 10.01-E01-A01-31-Length |

PU or FEP Armored cables are also available. See Model 10.01.

Mounting Screw

| | |
|----------------|-------------|
| M6..... | 193.01-06-1 |
| 1/4"28UNF..... | 193.01-16-1 |

Standard Wiring color

With Mil-C-5015 cable assembly: + = Red // - = White
 With M12 cable harness: : + = Black // - = Blue // Temperature=White

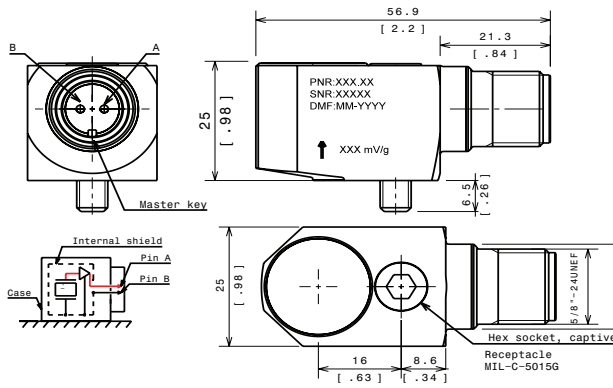
Repair

Consult factory for replacement of connector in case of broken or bended pins. Repair of electronic is not possible

Version History

107.01-2 has been replaced by 107.01-6

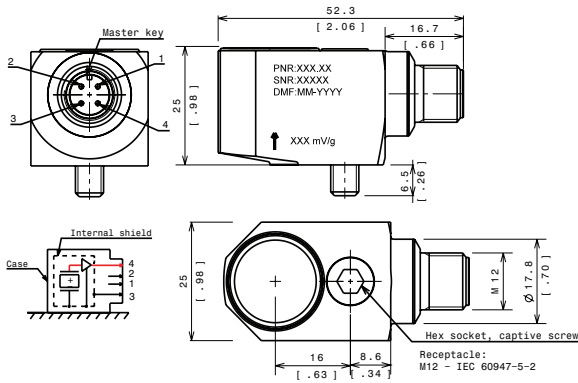
Drawings



| Model Number | Pin A | Pin B |
|---------------------|-------|-------|
| Standard, no option | (+) | (-) |
| T0 Option (10mV/°C) | N/A | N/A |

(N/A) : Not available

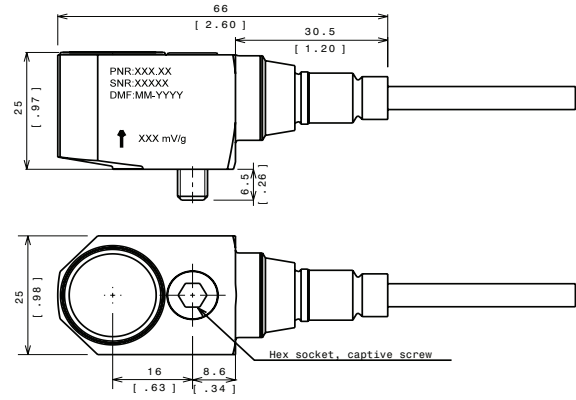
Fig 1a : Outline drawing & Electrical layout for MIL-C-5015 Connector (B=1)



| Model Number | Pin 1 | Pin 2 | Pin 3 | Pin 4 |
|---------------------|-------|--------|-------|-------|
| Standard, no option | NC | NC | (-) | (+) |
| T0 Option (10mV/°C) | NC | (Temp) | (-) | (+) |

(NC) : Not connected / (Temp) : Temperature

Fig 1b : Outline drawing & Electrical layout for M12 Glass seal Connector (B=2)



| | |
|------------------------|---|
| CC=01, 02 (PU, Teflon) | White (-) / Red (+) |
| CC=03 (Radox) | White N°1 (-) / White N°2 (+) |
| CC=12 (Teflon) | White (-) / Red (+) / Black (Temp.) |
| CC=13 (Radox) | White N°1 (-) / White N°2 (+) // White N°3 (Temp) |
| CC=31 (PU) | Blue (-) / Black (+) / White (Temp.) / Brown (NC) |

Fig 1d : Outline drawing & Electrical layout, B=5 (cable only)

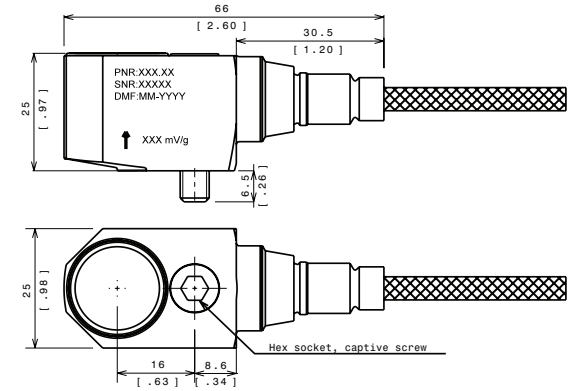


Fig 1e : Outline drawing B=7 (cable with overbraid)
electrical layout : See above B=5

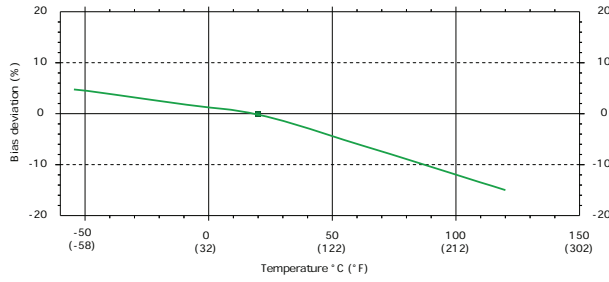


Fig 2 : DC (Bias) deviation versus temperature

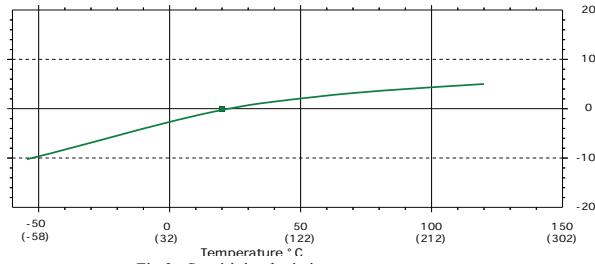


Fig 3 : Sensitivity deviation versus temperature

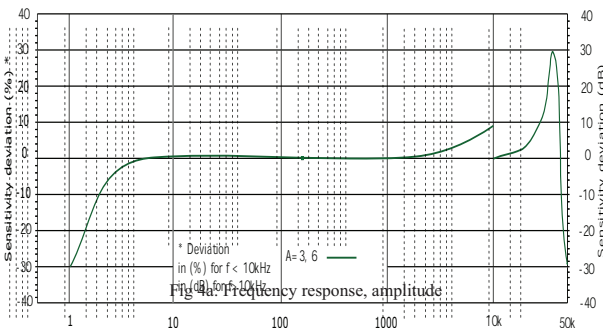


Fig 4a : Frequency response, amplitude

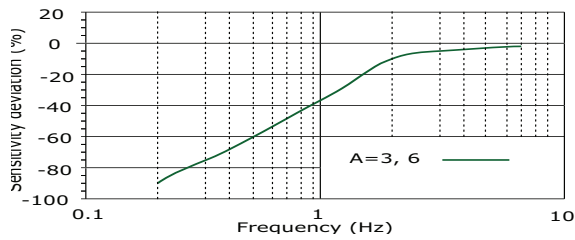


Fig 4b : Low Frequency response, amplitude