Hansford Sensors

Excellence in Vibration Monitoring

Product Series Guide



HS-100 AC Accelerometer

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Foreword

Thank you for using our HS-100 Series accelerometer. Hansford Sensors applies strict quality control and inspections to ensure the high reliability of its products in line with ISO9001. This instruction manual contains descriptive information, installation, maintenance and safety specifications.

Please study the contents of this manual and related technical documentation thoroughly before installing or operating the equipment.

(This manual applies to model HS-100 Series)



CAUTION

1. Do not drop the transducer and otherwise mishandle.
2. Be sure to install the transducer at environmental (case) temperature as stated on the appropriate technical data sheet.
3. Field wiring should be performed correctly by reading this manual.
4. Install the transducer at the place where is most sensitive for vibration. The mounting surface must be clean, smooth, flat and large enough to accommodate the entire base of the transducer.
5. Use the specified connector and cable. Keep cabling away from power and control lines.
6. Do not remodel this without permission; otherwise the guarantee cannot be made.
7. Do not disassemble the sensor whilst in a hazardous area or use a sensor that has a damaged housing in the hazardous area.

When the unit is received, inspect it for damage suffered in transport and check whether it is the item you ordered. In the unlikely event that it was damaged in transport or does not function according to specifications, please contact Hansford Sensors.

Store the unit under the ambient conditions given in the specification.

Avoid places where it is exposed to high humidity or corrosive gases.

Application

Vibration condition monitoring on motors, pumps, gearboxes, compressors, generators, rotating machinery and vibrating structures, detection of low frequency structural oscillations or excessive vibration at shaft rotation frequencies and high frequencies, as generated by deteriorating bearings and resonant structures.

A vibration sensor may be used in the opposite mode where it detects the absence of vibration on a machine that should normally be vibrating, thus denoting the failure of a drive motor, a severed coupling or a power failure. Vibrating screens and material conveyancing ducts or processing machines are typical examples.

Installation



CAUTION

1. Do not use this sensor within a hazardous area
2. Protect the vibration sensor from excessive shock during handling and installation as this may cause permanent damage to the internal piezo crystal assembly.
3. If possible, mount the sensor in a position where it is protected from direct impact and blows.
4. If used in an outdoor environment, drip-proof type connector cable shall be used.
5. Be aware to not apply excessive force to the connector
6. The unit must be connected by a qualified electrician. The national and international regulations for the installation of electrical equipment must be adhered to.

Mounting

The accuracy of your high frequency response is directly affected by the mounting technique selected. Maximum output with be generated when vibration is acting along the centre axis of the vibration sensor (this is particularly important when monitoring bearings and ventilation fans). The vibration sensor is equally effective at detecting vibration in housing and casings. It is important to identify points of vibration where the maximum output signals can be obtained.

It is important to prepare an accurate mounting point for the vibration sensor and if possible, choose a relatively flat area where a spot face of about 32mm can be created.

1. Select a mounting position, in any plane, as close as possible to the vibration source.
2. Prepare a flat, smooth, unpainted surface larger than the base of the accelerometer.
3. Drill a hole with a suitable diameter in the centre of the flat area, to a depth of 10mm
4. Using a suitable sized tap, for the mounting option on your transducer, tap the hole ensuring that there is at least 7mm of full thread.
5. De-burr the prepared hole and thoroughly clean the surface and the base of the stud with solvent.
6. Apply Loctite Screwlock to the thread on the accelerometer and smear grease on the mating surface to ensure good coupling to the accelerometer.
7. Screw the accelerometer into the threaded hole and tighten to 8Nm torque.
8. Loop the cable and cleat to the accelerometer body, then cleat the cable to a surface to minimise movement.

Cabling

The cable length between transducer and vibration monitor shall not exceed 300 meters. Excessive length may limit the systems frequency response.

Keep cable away from power and control lines to prevent noise interference.

Cable should be securely fixed. Prevent cable from bending sharply, twisting, kinking, knotting and straining. The recommended minimum bend radius is 80mm. Hansford Sensors recommends that the cable should be routed through conduit to prevent physical damage and noise interference.

Maintenance

To ensure that your vibration sensor is kept in the best possible condition and to minimise faults or downtime, Hansford Sensors strongly recommends that you carry out regular planned preventative maintenance and keep records of this maintenance activity.

The following checked should be regularly made,

1. Check the exterior of the vibration sensor for cracks, penetration or any other signs of damage.
2. Check that the sensor body is properly mounted and secured.
3. Check there is no contact fault and water entered at the connector.
4. Check the cable connector is connected securely to monitoring device.
5. Check the cable is in good condition with no kinks or sharp bends.

If storing of the vibration sensor is required temporarily, please keep the units in the original packaging. Do not store in locations with extreme temperatures, high moisture or humidity, near magnetic fields or high levels of shock or vibration.

Under normal circumstances, the calibration of the vibration sensor will not change significantly. The accuracy of your device can be checked by comparing your monitor display reading with a reference value of frequency. Alternatively the vibration sensor can be removed and returned to Hansford Sensors for checking and calibration across the full operating spectrum. Please contact sales@hansfordsensors.com

Disposal

Hansford Sensors support and encourage sustainable design. The accelerometer contains materials that can be recovered, recycled and reused. At the end of its useful life ensure that the vibration sensor is recycled in accordance with local laws and bylaws for the geographical area where it is located. The end of its useful life is determined by the owner/operator and not Hansford Sensors. Ensure that the sensor is recycled by licensed waste contractors with the appropriate licenses for handling metallic waste in the geographic area where the sensor is located.

Warranty

We've a wealth of experience in the manufacture and supply of accelerometers and vibration monitoring systems. We use this knowledge to engineer every one of our products to ensure optimum performance and reliability in even the toughest of applications. In particular, we guarantee each product against defects in material and workmanship, subject to specific exclusions. In the event of failure, we will promptly repair or replace the defective components without charge.

Specific exceptions rendering the warranty void are: if repair is attempted by unauthorised persons or agents, or if the product has been used for purposes for which it was not intended and or subjected to abuse or wilful neglect. No liability can be accepted for loss of items and or component parts. It is expected that the user will take sufficient precautions to safeguard all guaranteed items.

Our 'No Quibble' guarantee means we will replace a defective product immediately without waiting for it to be returned to us for assessment. That way we ensure that your production operation keeps running.

If you have any questions related to our warranty statement, please send us an email at sales@hansfordsensors.com

Technical Data

Please refer to the Technical Data Sheet for all technical specifications. Accelerometers can vary greatly depending on choice of sensitivity, range, cable and mounting options.

All Technical Data Sheets are available at www.hansfordsensors.com

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Declaration of Conformity

We
Hansford Sensors Limited
High Wycombe, England

Declare under our sole responsibility that the products listed below:

HS-100 Series

Conform to the standards as specified in Directive

EMC Directive 2014/30/EU
EN61326-1:2013
UL Report No.: ULEMC-RP10730131JD01A



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Date: 23/06/2016

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