

# HS-173IR Premium ATEX Triaxial Accelerometer

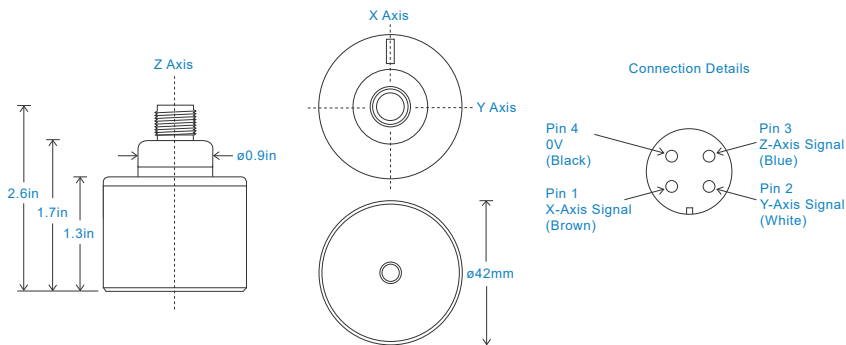
Three AC outputs via M12 Connector

## Key Features

- Intrinsically Safe with European, USA and Australian approvals
- Output via three axes
- For use with data collector
- Customisable features

## Industries

Building services, Pulp and Paper, Mining, Metals, Utilities, Automotive, Water, Pharmaceutical



## Technical Performance

|                        |                                                                                                                                               |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Mounted Base Resonance | see 'How To Order' table (nominal)                                                                                                            |
| Sensitivity            | see: 'How To Order' table $\pm 10\%$<br>Nominal 80Hz at 72°F per axes                                                                         |
| Frequency Response     | 120cpm (2Hz) to 600kcpm (10kHz) $\pm 5\%$<br>90cpm (1.5Hz) to 720kcpm (12kHz) $\pm 10\%$<br>48cpm (0.8Hz) to 900kcpm (15kHz) $\pm 3\text{dB}$ |
| Isolation              | Base isolated                                                                                                                                 |
| Range                  | see: 'How To Order' table                                                                                                                     |
| Transverse Sensitivity | Less than 5%                                                                                                                                  |

## Mechanical

|                              |                                |
|------------------------------|--------------------------------|
| Case Material                | Stainless Steel                |
| Sensing Element/Construction | PZT/Shear                      |
| Mounting Torque              | 5.9ft. lbs                     |
| Weight                       | 6.8 oz. (nominal)              |
| Screened Cable Assembly      | HS-AC010 - straight            |
| Mounting Threads             | see: 'How To Order' table      |
| Mounting Stud                | HS-AS226, HS-AS221 or HS-AS222 |

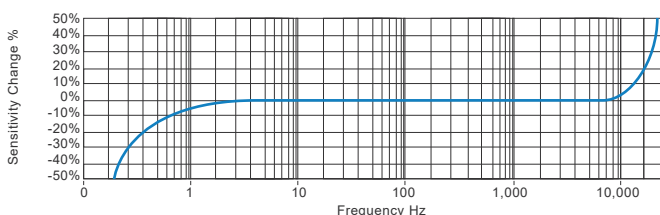
## Electrical

|                  |                           |
|------------------|---------------------------|
| Electrical Noise | 0.1mg max                 |
| Current Range    | 0.5mA to 8mA              |
| Bias Voltage     | 10 - 12 Volts DC          |
| Settling Time    | 1 second                  |
| Output Impedance | 200 Ohms max.             |
| Case Isolation   | $>10^8$ Ohms at 500 Volts |

## Environmental

|                             |                                     |
|-----------------------------|-------------------------------------|
| Operating Temperature Range | see: attached certification details |
| Sealing                     | IP67                                |
| Maximum Shock               | 5000g                               |
| EMC                         | EN61326-1:2013                      |

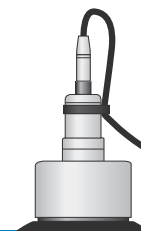
## Typical Frequency Response (at 100mV/g)



## Applications

Fans, Motors, Pumps, Compressors, Centrifuges, Conveyors, Air Handlers, Gearboxes, Rolls, Dryers, Presses, Cooling, VAC, Spindles, Machine Tooling, Process Equipment

Vibration sensor should be firmly fixed to a flat surface (spot face surface may be needed to be produced and cable anchored to sensor body.)



## Certificates



This product is certified in accordance with  
**UL 60079-0, 6th Ed. Rev. July 26, 2013**  
**UL 60079-11, 6th Ed. Rev. September 6, 2013**  
**CAN/CSA C22.2 No. 60079-0:15 Rev. October 2015**  
**CAN/CSA C22.2 No. 60079-11:14**  
**UL 913, 8th Ed. Rev. October 16, 2015**



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TS922U.10



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Three AC outputs via M12 Connector

## Intrinsically Safe Requirements

|                                       |                                                                                                                             |                             |                                                                                                                                                                                                                                                                                                  |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Certificate details: Group II and III | IECEx 18.0082X<br>Baseefa18ATEX0130X<br>ⒺII 1GD<br>Ex ia II T6..T4<br>Ex ia IIIC T135°C Da<br>Ex ia IIIB T102°C...T131°C Da | Certified Temperature Range | Ex ia IIC T6 Ga (-55°C ≤ Ta ≤ +69°C) (Gas)<br>Ex ia IIC T4 Ga (-55°C ≤ Ta ≤ +104°C) (Gas)<br>Ex ia IIIB T102°C Da (-55°C ≤ Ta ≤ +69°C) (Dust)<br>Ex ia IIIB T131°C Da (-55°C ≤ Ta ≤ +98°C) (Dust)<br>Ex ia IIIC T135°C Da (-55°C ≤ Ta ≤ +70°C) (Dust)<br>Ex ia I Ma (-55°C ≤ Ta ≤ +104°C) (Dust) |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                              |                                                                                              |                            |                                                            |
|------------------------------|----------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------|
| Certificate details: Group I | IECEx 18.0082X<br>Baseefa18ATEX0130X<br>ⒺI M 1<br>Ex ia I Ma<br>Ex ia IIIC T110°C..T145°C Da | Australia Approval Group I | IECEx ExTC 18.0032X<br>Ex ia I Ma<br>(-55°C ≤ Ta ≤ +104°C) |
|------------------------------|----------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------|

|                               |                                                         |                     |                                                                                                                                                                                                 |
|-------------------------------|---------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Terminal Parameters Connector | Ui = 28V, Ii = 93mA, Pi = 0.65W<br>Ci = 3.6nF<br>Li = 0 | US/Canada Approvals | Certificate No. SGSNA/19/BAS/00005<br>CI I, II, III, Div 1, 2 Gr A-G T*<br>CI I Zn 0 AEx ia IIC T6...T4 Ga<br>CI II Zn 20 AEx ia IIIC T135°C Da<br>Ex ia IIC T6...T4 Ga<br>Ex ia IIIC T135°C Da |
|-------------------------------|---------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                |                                       |    |
|----------------|---------------------------------------|----|
| 500V Isolation | Units Will Pass A 500V Isolation Test | Or |
|----------------|---------------------------------------|----|

|                              |                                                                                                      |                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards Applied to Product | EN IEC 60079-0:2018<br>EN 60079-11:2012<br>IEC 60079-0 Edition 7 2017<br>IEC 60079-11 Edition 6 2011 | CI I, II, III, Div 1, 2 Gr A-D G and F T*<br>CI I Zn 0 AEx ia IIC T6...T4 Ga<br>CI II Zn 20 AEx ia IIIC T135°C Da<br>CI II Zn 20 AEx ia IIIB T102°C...T131°C Da<br>Ex ia IIC T6...T4 Ga<br>Ex ia IIIC T135°C Da<br>Ex ia IIIB T102°C...T131°C Da |
|------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|         |                                                                                                                                                                                                                                                           |                 |           |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------|
| Barrier | 1 x Pepperl + Fuchs Galvanic Isolator<br>KFD2-VR4-Ex1.26 (BAS02ATEX7206)<br>1 x MTL Zener Barrier MTL7728+ (BAS01ATEX7217)<br>or Pepperl + Fuchs Zener Barrier<br>Z728 (BAS01ATEX7005) or any other barrier that<br>conforms with the terminal parameters | Control Drawing | M06-088-A |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------|

Special conditions of use: When a sensor is supplied with integral cable, this must be terminated in an enclosure providing at least degree of protection IP20.

Note: If the equipment is to be used in unusual environments or aggressive substances are likely to be encountered, contact the manufacturer to discuss suitability.

## How To Order

| Product Prefix                    |   | Product Series                                                         |   |       |   |                    |   |                 |   |                       |   |   |   |
|-----------------------------------|---|------------------------------------------------------------------------|---|-------|---|--------------------|---|-----------------|---|-----------------------|---|---|---|
| HS - Hansford Sensors             |   | 173I - Premium Intrinsically Safe Triaxial Industrial Vibration Sensor |   |       |   |                    |   |                 |   |                       |   |   |   |
| H                                 | S | 1                                                                      | 7 | 3     | I | R                  | X | X               | X | X                     | X | X | X |
| Extra Options (if required)       |   | Sensitivity                                                            |   | Range |   | Resonant Frequency |   | Cable/Connector |   | Mounting Threads      |   |   |   |
| A - Australia (Group I)           |   | 010 - 10mV/g                                                           |   | ±800g |   | 1,200kcpm (20kHz)  |   | 54 - M12        |   | 02 - ¼-28" UNF Male   |   |   |   |
| G - SGS (US/Canada Approval)      |   | 030 - 30mV/g                                                           |   | ±250g |   | 1,140kcpm (19kHz)  |   |                 |   | 06 - M6 x 1mm Male    |   |   |   |
| R - Round Design                  |   | 050 - 50mV/g                                                           |   | ±160g |   | 1,080kcpm (18kHz)  |   |                 |   | 08 - M8 x 1.25mm Male |   |   |   |
| I - Intrinsically Safe (Group II) |   | 100 - 100mV/g                                                          |   | ±80g  |   | 1,020kcpm (17kHz)  |   |                 |   |                       |   |   |   |
| L - 316L Stainless Steel          |   | 250 - 250mV/g                                                          |   | ±32g  |   | 960kcpm (16kHz)    |   |                 |   |                       |   |   |   |
| M - Mining (Group I)              |   | 500 - 500mV/g                                                          |   | ±16g  |   | 900kcpm (15kHz)    |   |                 |   |                       |   |   |   |
| Y - 5% tolerance on sensitivity   |   |                                                                        |   |       |   |                    |   |                 |   |                       |   |   |   |



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