

# HS-420I/M Intrinsically Safe Accelerometer

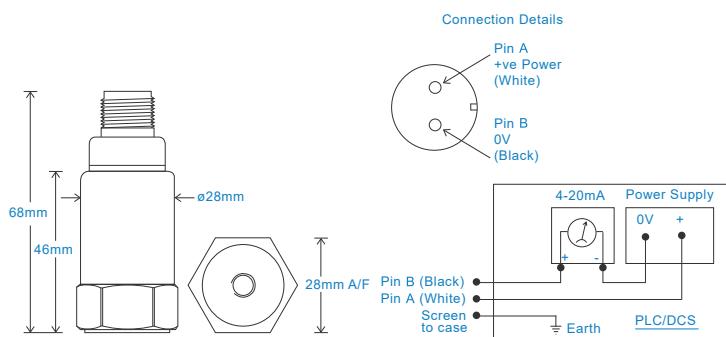
4-20mA velocity output via 2 Pin MS Connector

## Key Features

- Intrinsically Safe with European, USA, Australian, South African, and Indian approvals
- Approved SIL 2 and SIL 3
- For use with PLC/DCS systems
- Customisable features

## Industries

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



## Technical Performance

Mounted Base Resonance	5kHz min
Velocity Ranges	see: 'How To Order' table ±10%
	Nominal 80Hz at 22°C
Frequency Response	10Hz (600cpm) to 1kHz (60kcpm) ± 5% - ISO10816
Isolation	Base isolated
Range	50g peak
Transverse Sensitivity	Less than 5%

## Mechanical

Case Material	Stainless Steel
Sensing Element/Construction	PZT/Compression
Mounting Torque	8Nm
Weight	150gms (nominal)
Screened Cable Assembly	see: <a href="http://www.hansfordsensors.com">www.hansfordsensors.com</a> for options
Connector	HS-AA004 - non-booted
	HS-AA053 or HS-AA054 - booted
Mounting Threads	see: 'How To Order' table

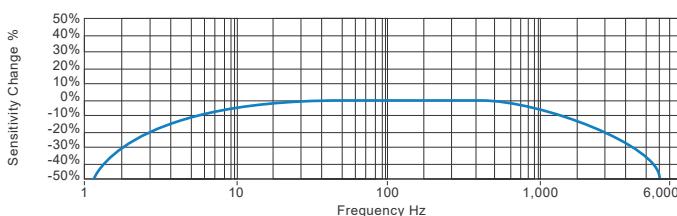
## Electrical

Current Output	4-20mA DC proportional to Velocity Range
Supply Voltage	15-30 Volts DC (for 4-20mA)
Settling Time	2 seconds
Output Impedance	Loop Resistance 600 Ohms max. at 24 Volts
Case Isolation	>10 <sup>8</sup> Ohms at 500 Volts

## Environmental

Operating Temperature Range	see: attached certification details
Sealing	IP68
Maximum Shock	5000g
EMC	EN61326-1:2013

## Typical Frequency Response



## 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.)



## Certifications



This product is certified in accordance with  
UL 913, 8th Ed. Rev. December 6, 2013  
CAN/CSA C22.2 No. 157-92 (R2012) +Upd1 +Upd2



[www.hansfordsensors.com](http://www.hansfordsensors.com)  
[sales@hansfordsensors.com](mailto:sales@hansfordsensors.com)

We reserve the right to alter the specification of this product without prior notice

TS416.19



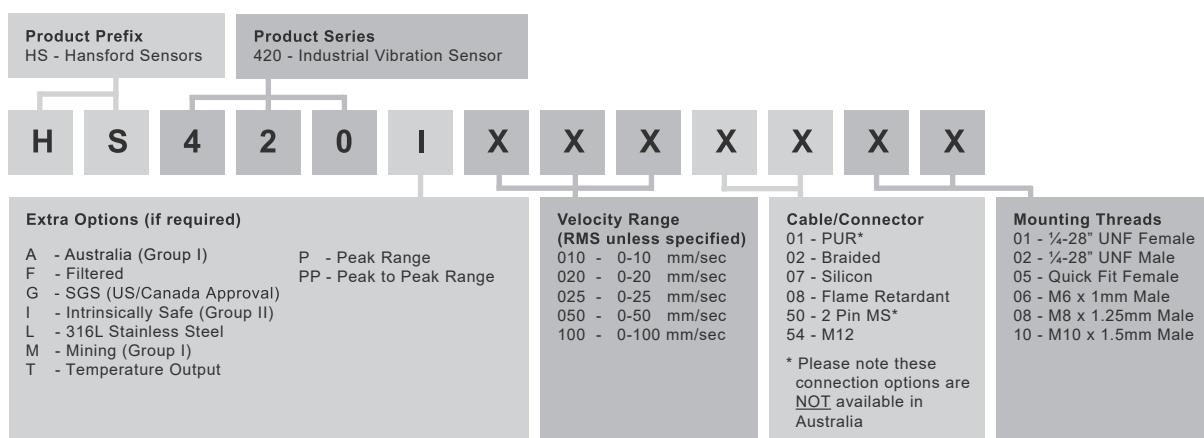
# HS-420I/M Intrinsically Safe Accelerometer

4-20mA velocity output via 2 Pin MS Connector

## Intrinsically Safe Requirements

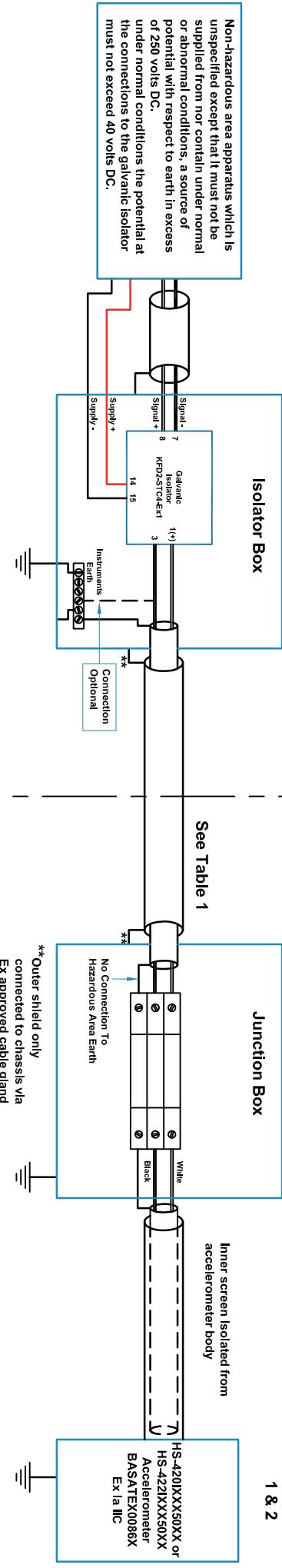
Maximum Cable Length	See website: <a href="http://www.hansfordsensors.com">www.hansfordsensors.com</a> see attached system drawings	US/Canada Approvals	Certificate No. SGSNA/18/SUW/0000231
Certificate details: Group I + II	IECEx BAS08.0034X Baseefa08ATEX0086X  Ex ia IGD Ex ia IIC T6 Ga Ex ia IIIC T80°C IP65 Da Ex ia I Ma (-40°C ≤ Ta ≤ +60°C)	Class I, II, III, Division 1, 2, Groups A - G, T4, -40°C to +110°C, Class I, Zone 0, AEx, ia, IIC, T4, Ga, -40°C to +110°C Zone 20, AEx, ia, IIIC, T130°C, IP65, Da, -40°C to +110°C	
Certificate details: Group II	Ex ia IIC T4 Ga Ex ia IIIC T130°C IP65 Da (-40°C ≤ Ta ≤ +110°C)	Ex ia IGD Ex ia I Ma (-40°C ≤ Ta ≤ +60°C)	Barrier 1 x Pepperl + Fuchs Galvanic Isolator KFD2-STC4-Ex1, which has superseded KFD2-CR-Ex1.30300 (BAS00ATEX7164) see attached system drawings
Accelerometer System Certificate	Baseefa08Y0087 Ex ia IIC T6 (-40°C ≤ Ta ≤ +60°C) *On request - consult Sales Office	System Connections for Zener Barrier	see attached system drawings
Terminal Parameters	Ui = 28V, Ii = 115mA, Pi = 0.65W Group II Ui = 16.5V Pi = 0.65W or Ui = 28V Ii = 115mA Pi = 0.65W Group I	System Connections for Galvanic Isolator	see attached system drawings
500V Isolation	Units Will Pass A 500V Isolation Test	Terminal Parameters	Ui = Vmax = 28V Ii = Imax = 115mA Pi = 0.65W
Certified Temperature Range	Ex ia IIC T6 Ga (-40°C ≤ Ta ≤ +60°C) (Gas) Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +110°C) (Gas) Ex ia IIIC T80°C IP65 Da (-40°C ≤ Ta ≤ +60°C) (Dust) Ex ia IIIC T130°C IP65 Da (-40°C ≤ Ta ≤ +110°C) (Dust) Ex ia I Ma (-40°C ≤ Ta ≤ +60°C) (Mining)	Notes:	Special conditions of safe use for Group II dust. The free end of the cable on the integral cable version of the apparatus must be terminated in an appropriately certified dust-proof enclosure. The unit has no serviceable parts.
Australia Approval Group 1	IECEx ITA 10.0003X Ex ia I Ma (-40°C ≤ Ta ≤ +60°C)		
South African Approval	Certificate No. MASC MS/16-0229X Group I and II (As Baseefa/ATEX)		

## How To Order



## Non-Hazardous Area

## Hazardous Area



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Table 1: Cable Parameters For Additional Cable Lengths		
Accelerometer With Integral Cable Length $\leq 10\text{m}$		
Group	Capacitance $\mu\text{F}$	L/R Ratio $\mu\text{H}/\Omega$
IIC	0.097	72
IIB	0.768	277
IIA	2.598	585
Accelerometer With Integral Cable Length $\leq 50\text{m}$		
Group	Capacitance $\mu\text{F}$	L/R Ratio $\mu\text{H}/\Omega$
IIC	0.091	72
IIB	0.762	277
IIA	2.592	585
Accelerometer With Integral Cable Length $\leq 100\text{m}$		
Group	Capacitance $\mu\text{F}$	L/R Ratio $\mu\text{H}/\Omega$
IIC	0.083	72
IIB	0.754	277
IIA	2.584	585

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1. The capacitance and inductance, or inductance - to - resistance ratio ( $L/R$ ) of hazardous area cable, must not exceed the values shown in Table 1.

Ex ia IIC T6 (-40°C ≤ Ta ≤ +60°C)

3. The installer is to perform a risk assessment in accordance with clause 10 of EN 60079-25 and install lightning protection arrestors as deemed necessary in a high velocity dust laden atmosphere.



