

# HS-420IT Intrinsically Safe Accelerometer

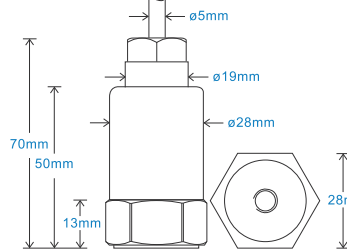
## 4-20mA velocity and temperature output via PUR Cable

### Key Features

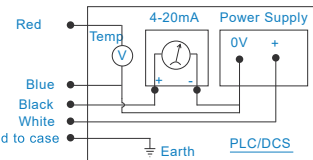
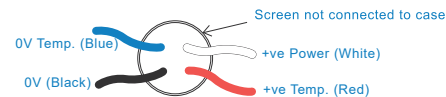
- Intrinsically Safe with European, USA, South African, and Indian approvals
- Approved SIL 2 and SIL 3
- For use with PLC/DCS systems
- Temperature output

### Industries

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



### Connection Details



### Technical Performance

Mounted Base Resonance	5kHz min
Velocity Ranges	see: 'How To Order' table $\pm 10\%$ Nominal 80Hz at 22°C
Frequency Response	10Hz (600cpm) to 1kHz (60kcpm) $\pm 5\%$ - ISO10816
Isolation	Base isolated
Range	50g peak
Temperature Output	10mV/°C - 0-1V proportional to 0-100°C (to convert this to 4-20mA use the HS-540 module)
Transverse Sensitivity	Less than 5%

### Mechanical

Case Material	Stainless Steel
Sensing Element/Construction	PZT/Compression
Mounting Torque	8Nm
Weight	150gms (nominal)
Maximum Cable Length	1000 metres
Standard Cable Length	5 metres
Screened Cable	PUR - length to be specified with order
Mounting Threads	see: 'How To Order' table
Submersible Depth	100 metres max (10 bar)

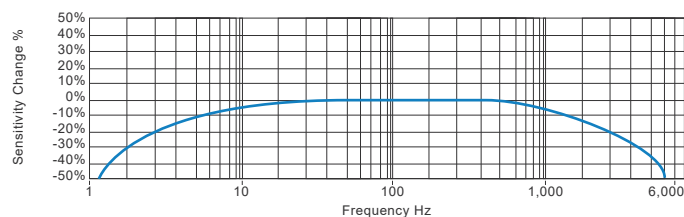
### Electrical

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	$>10^8$ Ohms at 500 Volts

### Environmental

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

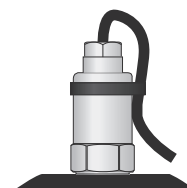
### Typical Frequency Response



### 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  
TS1113.9



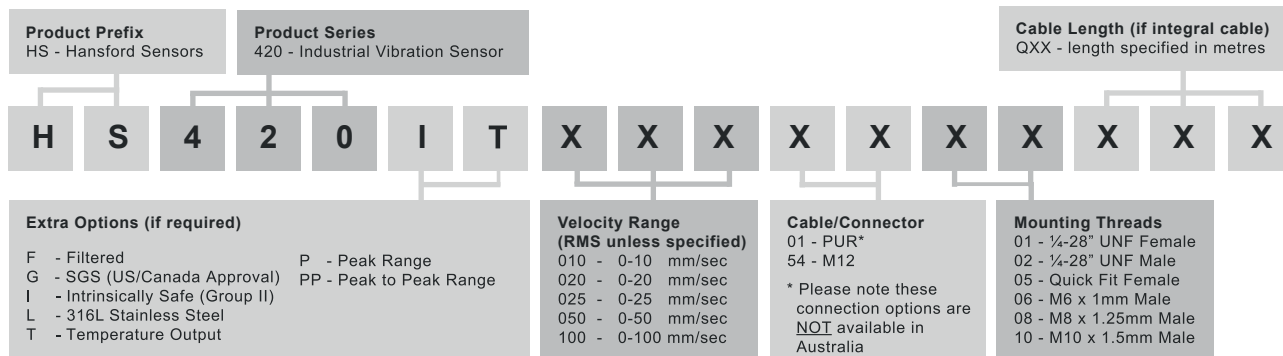
# HS-420IT Intrinsically Safe Accelerometer

## 4-20mA velocity and temperature output via PUR Cable

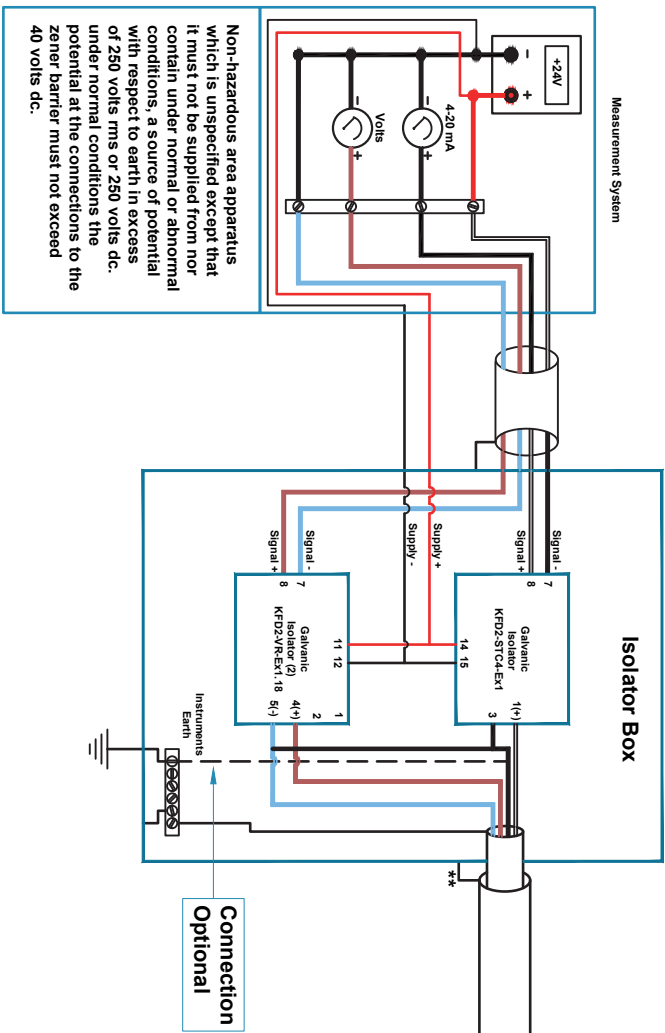
### Intrinsically Safe Requirements

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 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	IECEx BAS08.0034X Baseefa08ATEX0086X ⓂII 1GD Ex ia IIC T6 Ga Ex ia IIIC T80°C IP65 Da (-40°C ≤ Ta ≤ +60°C) ⓂII 1GD Ex ia IIC T4 Ga Ex ia IIIC T130°C IP65 Da (-40°C ≤ Ta ≤ +110°C)	Barrier	1 x Pepperl + Fuchs Galvanic Isolator KFD2-VR-Ex1.18 (BAS01ATEX7262) see attached system drawings  1 x MTL Zener Barrier MTL7764+ac (BAS01ATEX7217) or Pepperl + Fuchs Zener Barrier Z764 (BAS01ATEX7005) or any other barrier that conforms to system drawings attached
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
		System Connections for Galvanic Isolator	see attached system drawings
Terminal Parameters	Ui = 44V, Ii = 117mA, Pi = 0.722W Group II	Terminal Parameters	Ui = Vmax = 28V Ii = Imax = 115mA Pi = 0.65W
500V Isolation	Units Will Pass A 500V Isolation Test		
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)	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.
South African Approval	Certificate No. MASC MS/16-0229X Group I and II (As Baseefa/ATEX)		

### How To Order



Non-Hazardous Area



Hazardous Area

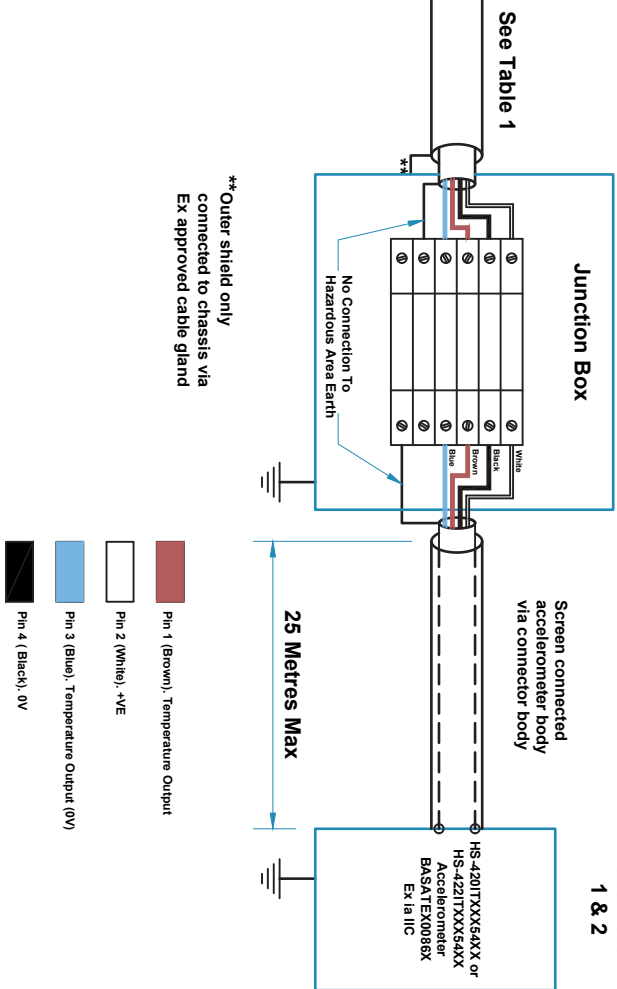


Table 1: Cable Connecting The Connector Version

Group	Capacitance $\mu\text{F}$	L/R Ratio $\mu\text{H}/\Omega$
IIC	0.024	47
IIB	0.247	71
IIA	0.767	429

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HS-420IT & HS-422IT  
Accelerometer System

Ex ia IIC T6 (-40°C ≤ Ta ≤ +60°C)

Notes:

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.
2. The cable from the accelerometer to the junction box must not be installed in a high velocity dust laden atmosphere.
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.

Rev No	DRF No	Date Drg	Drg By	Appd By	Material: N/A
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A	Release	17/06/10	MJS	CMH	
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B	DRF380	16/06/15	MJS	CMH	
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1		2		3	
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Hansford Sensors Ltd  
Saunderton Business Park  
Haw Lane  
Saunderton  
Bucks HP14 4JF



Do Not Scale

All Dimensions in mm Unless  
Otherwise Stated

If In Doubt - Ask!

See Note  
1 & 2

Description: System Connections  
For HS-420IT & HS-422IT Group II  
Accelerometers With Connectors  
F.U.W. Galvanic Isolation

Drawing No: M06-035-A

Scale: NTS

Sheet: 1 of 1

Form Number:  
QF024 Issue 1

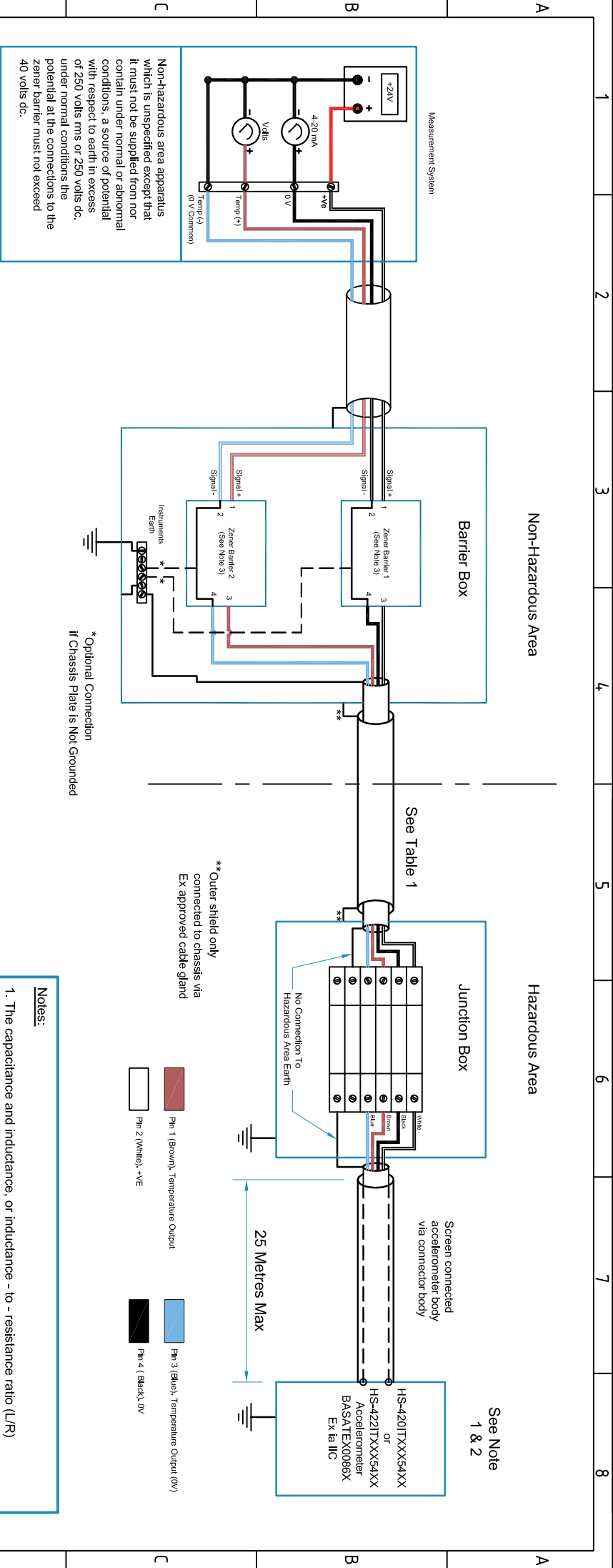


Table 1: Cable Connecting The Connector Version



Group	Capacitance $\mu\text{F}$	L/R Ratio $\mu\text{H}/\Omega$
IIC	0.080	17.9
IIB	0.246	60
IIA	0.661	161

**Hansford Sensors Ltd**

HS-420IT & HS-422IT  
Accelerometer System

Ex ia IIC T6 (-40°C ≤ Ta ≤ +60°C)

- Notes:**
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.
  2. The cable from the accelerometer to the junction box must not be installed in a high velocity dust laden atmosphere
  3. Zener diode safety barrier (1) certified by an ec approved body to [IEEx ia] IIC having the following output parameters: Uo = 28V dc, Io = 93mA dc, Po = 0.65W, e.g. MTL7787+ to BAS01ATEX7217 or Pepperl + Fuchs Z787 to BAS01ATEX7005
  4. 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.

F												
Rev No	DRF No	Date Drg	Drg By	Appd By	Material: N/A							
A	Release	16/04/15	MJS	CMH	Tolerances Unless Stated 0 or 0.0 ±0.5 0.00 ±0.15 Angle ±5° <div>1/6 Finish All Over Threads g6 H6</div>							
1	2		3		4		5					
<div><b>Hanstorm Sensors</b> <i>Excellence in Vibration Monitoring</i></div> <div>Hanstorm Sensors Ltd Artisan, Hillbottom Rd Sands Industrial Estate High Wycombe Bucks HP12 4HJ</div>							Do Not Scale					
										All Dimensions in mm Unless Otherwise Stated		
Description: System Connections For HS-4201T & HS-4221T Group II Accelerometers With Connectors F.U.W., Zener Barrier					Drawing No: M06-051-A							
								Scale: NTS			Form Number: Qf024 Issue 1	
Sheet: 1 of 1												
8					F							