HS-420IT Intrinsically Safe Accelerometer

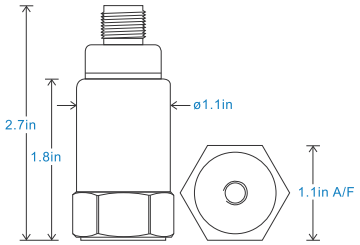
4-20mA velocity and temperature output via M12 Connector

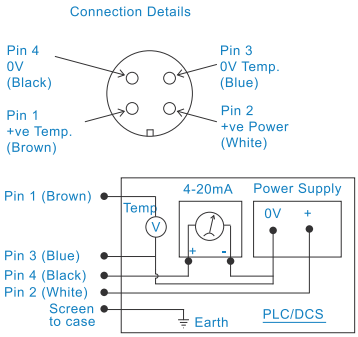
Key Features

- 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





Technical Performance

Mounted Base Resonance	5kHz min
Velocity Ranges	see: 'How To Order' table ±10%
	Nominal 80Hz at 72°F
Frequency Response	600cpm (10Hz) to 60kcpm (1kHz) ± 5% - ISO10816
Isolation	Base isolated
Range	50g peak
Temperature Output	10mV/°C - 0-1V proportional to 32-212°F (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	5.9ft. lbs
Weight	5.2 oz. (nominal)
Sheilded Cable Assembly	HS-AC010 - straight
	HS-AC011 - right angle
Mounting Threads	see: 'How To Order' table

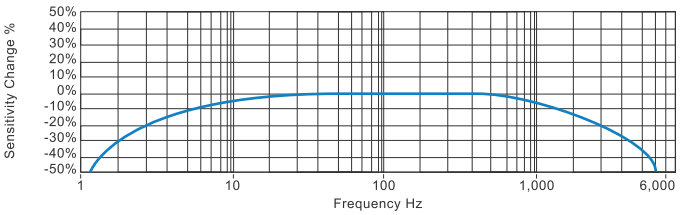
Electrical

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	>10^8 Ohms at 500 Volts

Environmental

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

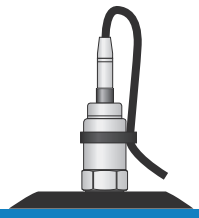
Typical Frequency Response



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

710318

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

Hansford Sensors
Excellence in Vibration Monitoring

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HS-420IT Intrinsically Safe Accelerometer

4-20mA velocity and temperature output via M12 Connector

Intrinsically Safe Requirements

Maximum Cable Length	See website: www.hansfordsensors.com see attached system drawings
Certificate details: Group II	IECEx BAS08.0034X Baseefa08ATEX0086X Ⓔx II 1GD Ex ia IIC T6 Ga Ex ia IIIC T80°C IP65 Da (-40°C ≤ Ta ≤ +60°C) Ⓔx II 1GD Ex ia IIC T4 Ga Ex ia IIIC T130°C IP65 Da (-40°C ≤ Ta ≤ +110°C)
Accelerometer System Certificate	Baseefa08Y0087 Ex ia IIC T6 (-40°C ≤ Ta ≤ +60°C) *On request - consult Sales Office
Terminal Parameters	Ui = 44V, Ii = 117mA, Pi = 0.722W Group II
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)
South African Approval	Certificate No. MASC MS/16-0229X Group I and II (As Baseefa/ATEX)

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
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
System Connections for Zener Barrier	see attached system drawings
System Connections for Galvanic Isolator	see attached system drawings
Terminal Parameters	Ui = Vmax = 28V Ii = Imax = 115mA Pi = 0.65W
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.

How To Order

Product Prefix
HS - Hansford Sensors

Product Series
420 - Industrial Vibration Sensor

H	S	4	2	0	I	T	X	X	X	X	X	X	X

Extra Options (if required)

F	- Filtered	U	- Imperial Range
G	- SGS (US/Canada Approval)	UP	- Imperial Peak Range
I	- Intrinsically Safe (Group II)	UPP	- Imperial Peak to Peak Range
L	- 316L Stainless Steel		
T	- Temperature Output		

Velocity Range (RMS unless specified)
012 - ½ IPS
025 - 1 IPS
050 - 2 IPS
100 - 4 IPS

Cable/Connector
54 - M12

Mounting Threads
01 - ¼-28" UNF Female
02 - ¼-28" UNF Male
05 - Quick Fit Female
06 - M6 x 1mm Male
08 - M8 x 1.25mm Male
10 - M10 x 1.5mm Male

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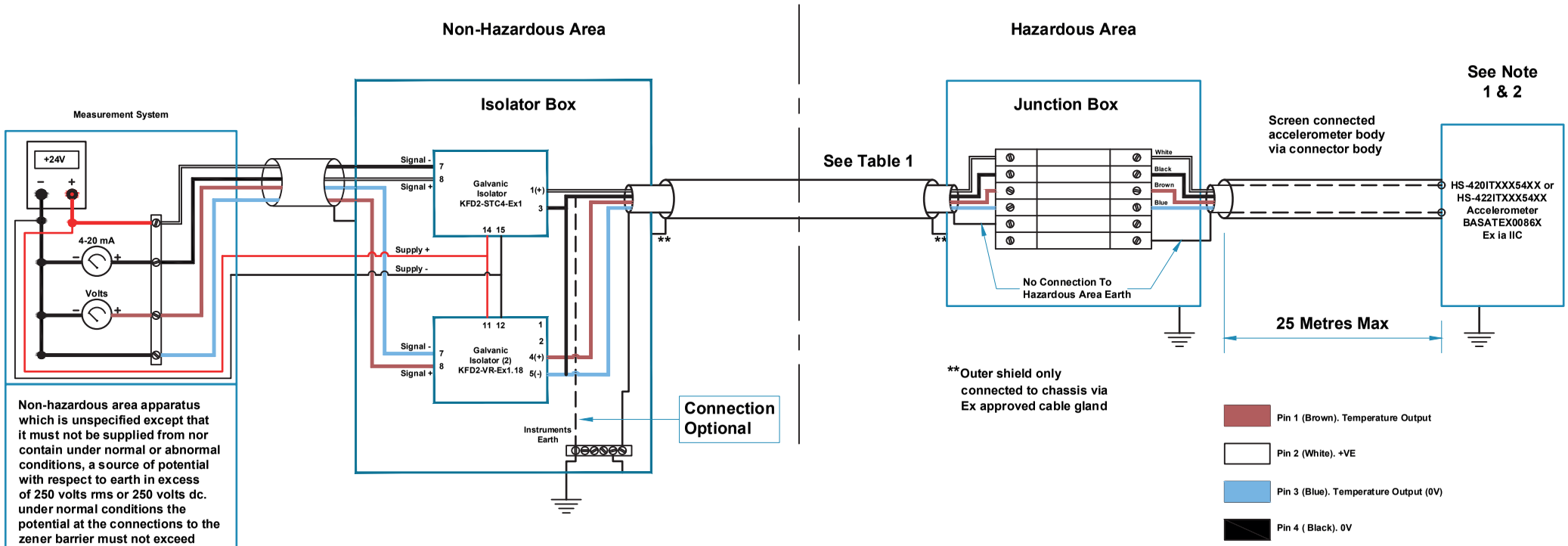

Table 1: Cable Connecting The Connector Version

Group	Capacitance µF	L/R Ratio µH/Ω
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
A	Release	17/06/10	MJS	CMH
B	DRF380	16/06/15	MJS	CMH

Material: N/A

Tolerances Unless Stated
0 or 0.0 ±0.5
0.00 ±0.15
Angle ±5°
1.6 Finish All Over
Threads g6 H6

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Do Not Scale

All Dimensions In mm Unless Otherwise Stated

If In Doubt - Ask!

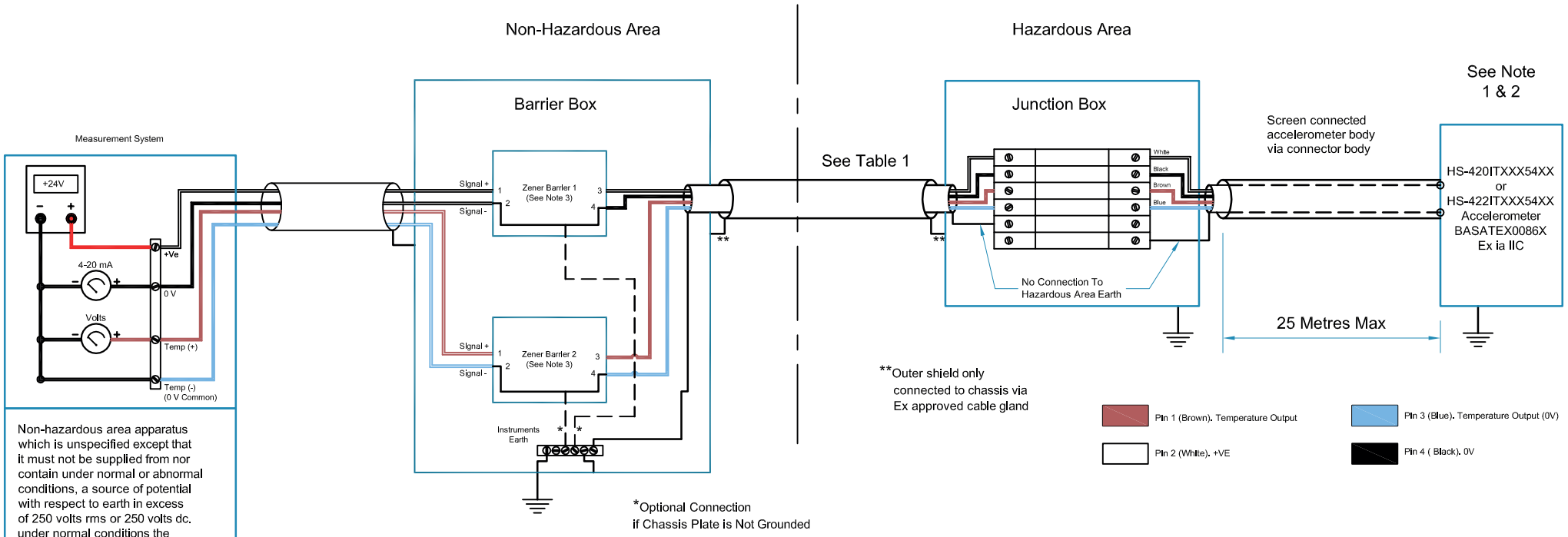
Description: System Connections For HS-420IT & HS-422IT Group II Accelerometers With Connectors F.U.W. Galvanic Isolation

Drawing No: M06-035-A

Scale: NTS

Sheet: 1 of 1

Form Number: QF024 Issue 1



Non-hazardous area apparatus which is unspecified except that it must not be supplied from nor contain under normal or abnormal conditions, a source of potential with respect to earth in excess of 250 volts rms or 250 volts dc. under normal conditions the potential at the connections to the zener barrier must not exceed 40 volts dc.

Table 1: Cable Connecting The Connector Version

Group	Capacitance µF	L/R Ratio µH/Ω
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 hazadous 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 saftey barrier (1) certified by an ec approved body to [EEx 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
Zener diode saftey barrier (2) certified by an ec approved body to [EEx ia] IIC having the following output parameters: Uo = 12V dc, Io = 12mA dc, Po = 0.036W. MTL7764+ac to BAS01ATEX7217 or Pepperl + Fuchs Z764 to BAS01ATEX7005.

4.The installer is to perform a risk assesment 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
A	Release	16/04/15	MJS	CMH

Material: N/A

Tolerances Unless Stated
0 or 0.0 ±0.5
0.00 ±0.15
Angle ±5°
1.6 Finish All Over
Threads g6 H6

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Do Not Scale

All Dimensions In mm Unless Otherwise Stated

If In Doubt - Ask!

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

Drawing No: M06-051-A

Scale: NTS

Sheet: 1 of 1

Form Number: QF024 Issue 1