

# HS-422I/M Intrinsically Safe Accelerometer

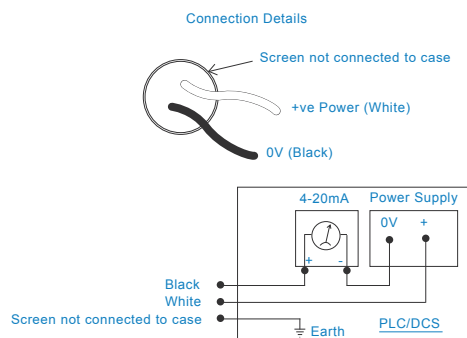
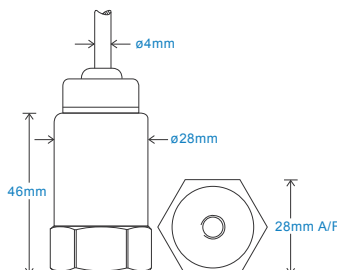
## 4-20mA acceleration output via Braided Cable

### 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	10kHz min
Acceleration Ranges	see: 'How To Order' table $\pm 10\%$ Nominal 80Hz at 22°C
Frequency Response	10Hz (600cpm) to 5kHz (300kcpm) $\pm 5\%$ - 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)
Maximum Cable Length	1000 metres
Standard Cable Length	5 metres
Screened Cable	Braided - length to be specified with order
Mounting Threads	see: 'How To Order' table

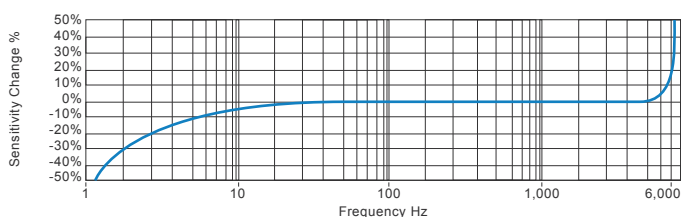
### Electrical

Current Output	4-20mA DC proportional to acceleration
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	IP65
Maximum Shock	5000g
EMC	EN61326-1:2013

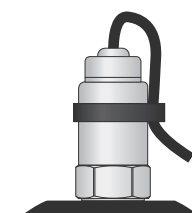
### Typical Frequency Response



### 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**

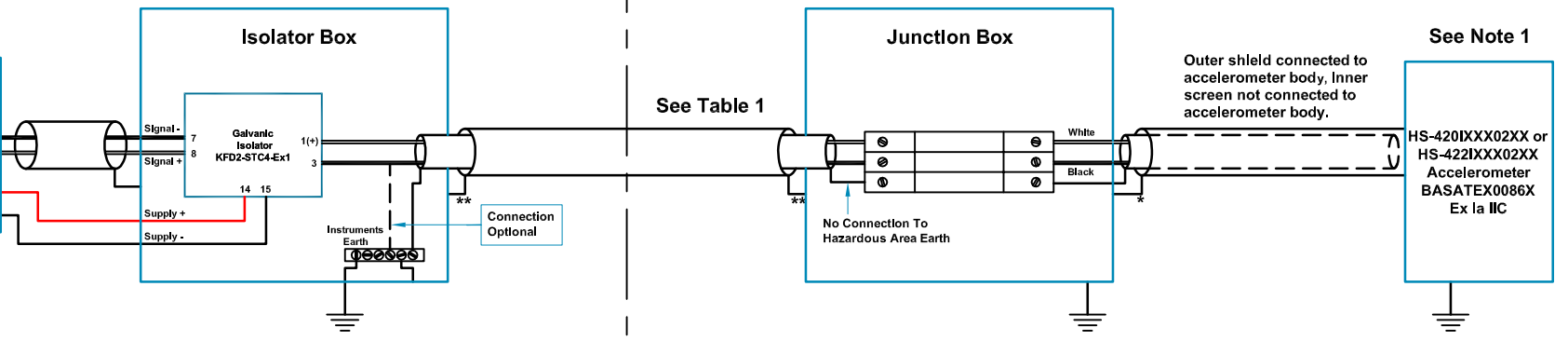


T: 150 210 98804  
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 汉施弗德传感器（上海）有限公司





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 DC. under normal conditions the potential at the connections to the galvanic isolator must not exceed 40 volts DC.



See Table 1

See Note 1

\*\*Outer shield only connected to chassis via Ex approved cable gland

\*Outer shield connected to chassis via Ex approved cable gland

**Table 1: Cable Parameters For Additional Cable Lengths**

Accelerometer With Integral Cable Length ≤ 10m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.096	72
IIB	0.767	277
IIA	2.597	585
Accelerometer With Integral Cable Length ≤ 50m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.084	72
IIB	0.755	277
IIA	2.585	585
Accelerometer With Integral Cable Length ≤ 100m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.070	72
IIB	0.741	277
IIA	2.571	585

**Hansford Sensors Ltd**  
 HS-420I & HS-422I  
 Accelerometer System  
 Ex ia IIC T6 (-40°C ≤ Ta ≤ +60°C)

**Notes:**

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

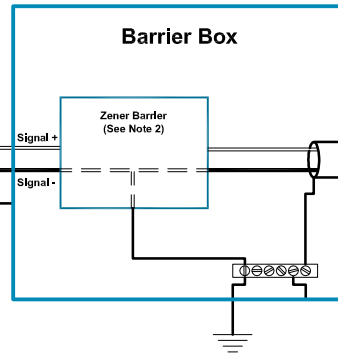
Rev No	DRF No	Date Drg	Drg By	Appd By	Material: N/A
A	Release	17/06/10	MJS	CMH	
					Tolerances Unless Stated
					0 or 0.0 ±0.5
					0.00 ±0.15
					Angle ±5°
					1.6/√ Finish All Over
					Threads g6 H6

**Hansford Sensors**  
 Excellence in Vibration Monitoring  
 Hansford Sensors Ltd  
 Saunderton Business Park  
 Haw Lane  
 Saunderton  
 Bucks HP14 4JE

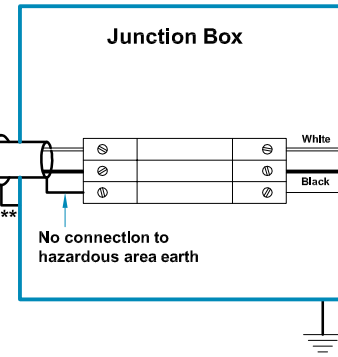
Do Not Scale  
 All Dimensions In mm Unless Otherwise Stated  
**If In Doubt - Ask!**

Description: System Connections For HS-420I & HS-422I Group II Accelerometers With Armoured Cable F.U.W. Galvanic Isolation  
 Drawing No: M06-031-A  
 Scale: NTS  
 Sheet: 1 of 2  
 Form Number: QF024 Issue 1

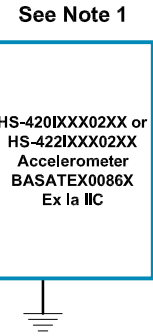
Non-hazardous area apparatus which is unspecified except that it must not be supplied from nor contain under normal or abnormal conditions, a source of potential with respect to earth in excess of 250 volts rms or 250 volts dc. under normal conditions the potential at the connections to the zener barrier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



See Table 1



Outer shield connected to accelerometer body, Inner screen not connected to accelerometer body.



baseefa 08 Y 0 0 8 7

Baseefa Certification Schedule Drawing



*D.S. V. V. V.*

Hansford Sensors Ltd

HS-420I & HS-422I Accelerometer System  
Baseefa08Y0087  
Ex ia IIC T6 (-40°C ≤ Ta ≤ +60°C)

Table 1: Cable Parameters For Additional Cable Lengths

Accelerometer With Integral Cable Length ≤ 10m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.080	56
IIB	0.246	168
IIA	0.661	448
Accelerometer With Integral Cable Length ≤ 50m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.068	56
IIB	0.234	168
IIA	0.649	448
Accelerometer With Integral Cable Length ≤ 100m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.054	56
IIB	0.220	168
IIA	0.635	448

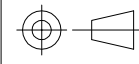
Notes:

- The capacitance and inductance, or inductance - to - resistance ratio (L/R) of hazardous area cable, must not exceed the values shown in Table 1.
- Any shunt zener diode safety barrier certified by an EC approved body to [EEx ia] IIC having the following output parameters: U<sub>o</sub> = 28V dc, I<sub>o</sub> = 93mA dc, P<sub>o</sub> = 0.65W. e.g. MTL7787+ to BAS01ATEX7217 or Pepperl + Fuchs Z787 to BAS01ATEX7005
- 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
A	Release	10/03/08	MJS	CMH	

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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Haw Lane  
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Do Not Scale

All Dimensions In mm Unless Otherwise Stated

If In Doubt - Ask!

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

Drawing No: M06-011-A

Scale: NTS  
Sheet: 2 of 2

Form Number: QF024 Issue 1