

HS-420I/M Intrinsically Safe Accelerometer

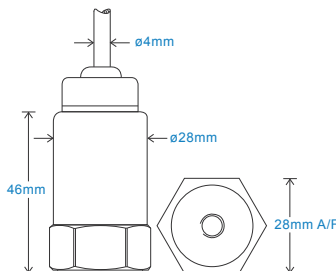
4-20mA velocity output via Braided Cable

Key Features

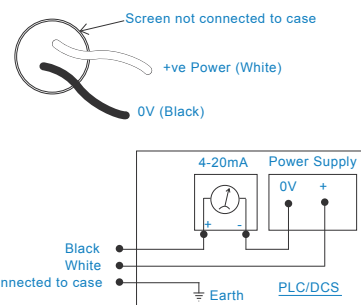
- Intrinsically Safe with European, USA, Australian, South African, and Indian approvals
- Approved SIL 2 and SIL 3
- For use with PLC/DCS systems
- Customisable features

Industries

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



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
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

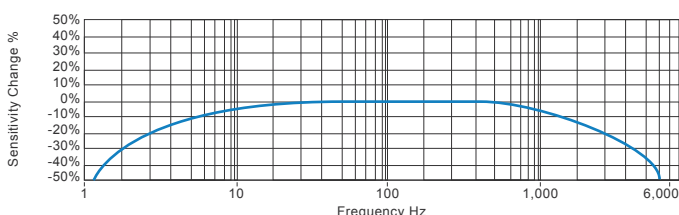
Electrical

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

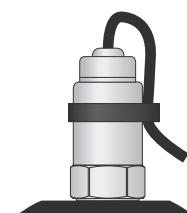
Typical Frequency Response



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



**Distributor
in Egypt**

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We reserve the right to alter the
specification of this product without prior
notice TS061.22

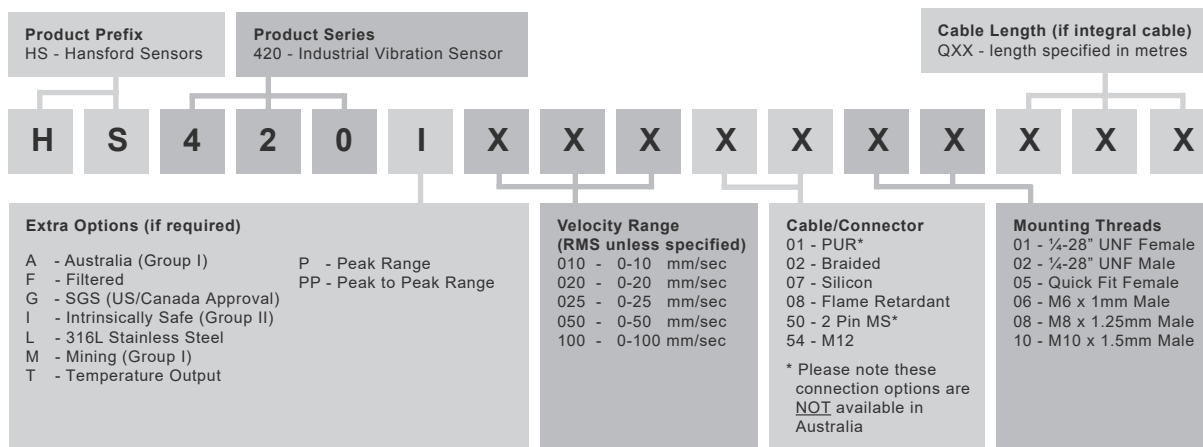


4-20mA velocity output via Braided Cable

Intrinsically Safe Requirements

Maximum Cable Length		nominal 100 metres	US/Canada Approvals	Certificate No. SGSNA/18/SUW/0000231
		see attached system drawings	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	
Certificate details: Group I + II		IECEX BAS08.0034X Baseefa08ATEX0086X	Zone 20, AEx, ia, IIIC, T130°C, IP65, Da, -40°C to +110°C	
		Ⓜ II 1GD	Barrier	1 x Pepperl + Fuchs Galvanic Isolator
		Ex ia IIC T6 Ga		KFD2-STC4-Ex1, which has superseded
		Ex ia IIIC T80°C IP65 Da		KFD2-CR-Ex1.30300 (BAS00ATEX7164)
		Ⓜ I M1		see attached system drawings
		Ex ia I Ma		
		(-40°C ≤ Ta ≤ +60°C)		1 x MTL Zener Barrier MTL7787+ (BAS01ATEX7217)
Certificate details: Group II		Ⓜ II 1GD		or Pepperl + Fuchs Zener Barrier
		Ex ia IIC T4 Ga		Z787 (BAS01ATEX7005) or any other barrier that
		Ex ia IIIC T130°C IP65 Da		conforms to system drawings attached
		(-40°C ≤ Ta ≤ +110°C)		
			System Connections for Zener Barrier	see attached system drawings
Accelerometer System Certificate		Baseefa08Y0087		
		Ex ia IIC T6 (-40°C ≤ Ta ≤ +60°C)	System Connections for Galvanic Isolator	see attached system drawings
		*On request - consult Sales Office		
			Terminal Parameters	Ui = Vmax = 28V
Terminal Parameters	Ui = 28V, Ii = 115mA, Pi = 0.65W	Group II		Ii = Imax = 115mA
		Ui = 16.5V Pi = 0.65W		Pi = 0.65W
	or Ui = 28V Ii = 115mA Pi = 0.65W	Group I		
			Notes:	Special conditions of safe use for Group II dust.
500V Isolation	Units Will Pass A 500V Isolation Test			The free end of the cable on the integral cable
				version of the apparatus must be terminated in
Certified Temperature Range	Ex ia IIC T6 Ga (-40°C ≤ Ta ≤ +60°C) (Gas)			an appropriately certified dust-proof enclosure.
	Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +110°C) (Gas)			The unit has no serviceable parts.
	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)			
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



**Distributor
in Egypt**



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We reserve the right to alter the specification of this product without prior notice TS061.22



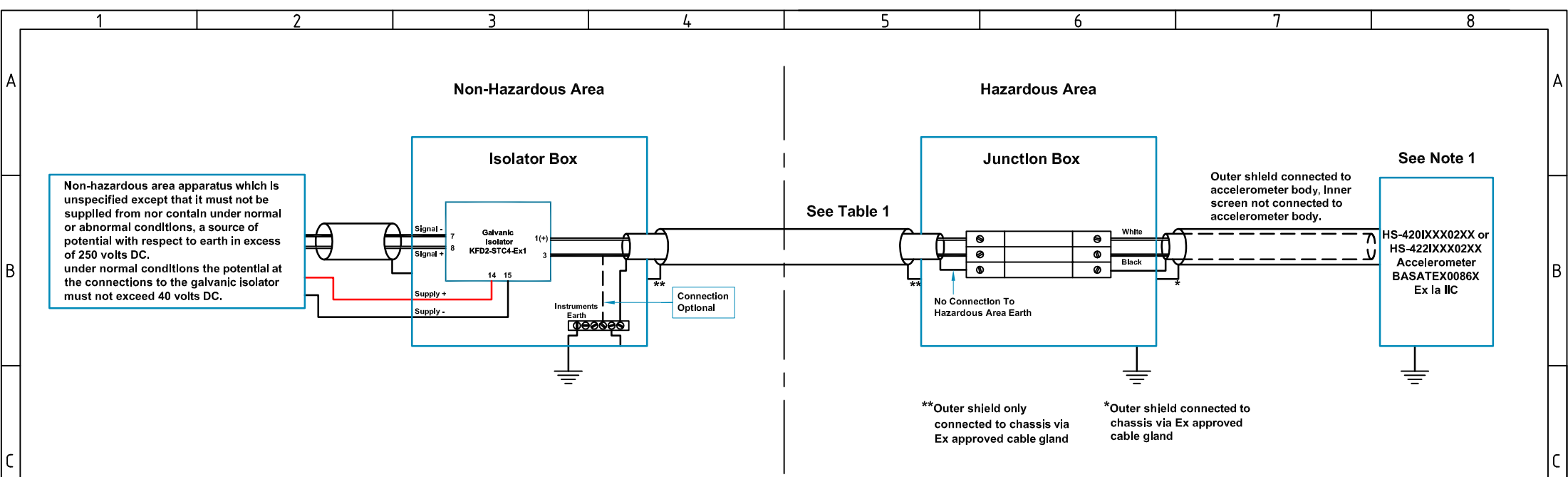


Table 1: Cable Parameters For Additional Cable Lengths

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)

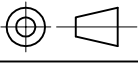
- Notes:**
1. The capacitance and inductance, or inductance - to - resistance ratio (L/R) of hazardous area cable, must not exceed the values shown in table 1.
 2. The installer is to perform a risk assesment in accordance with clause 10 of EN 60079-25 and install lightning protection arrestors as deemed necessary.

Rev No	DRF No	Date Drg	Drg By	Appd By
A	Release	17/06/10	MJS	CMH

Material: N/A	
Tolerances Unless Stated	
0 or 0.0	±0.5
0.00	±0.15
Angle	±5°
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	Form Number: QF024 Issue 1
Sheet: 1 of 2	

Non-Hazardous Area

Hazardous Area

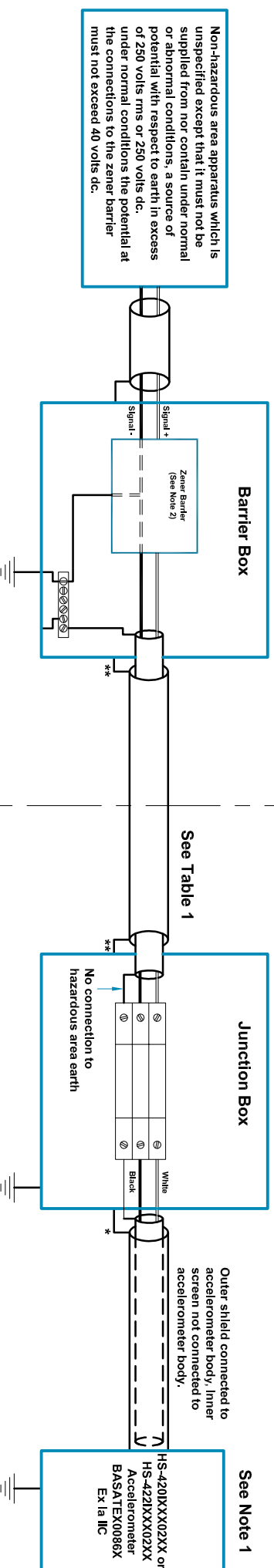


Table 1: Cable Parameters For Additional Cable Lengths

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



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Hansford Sensors Ltd

HS-4201 & HS-4221
Accelerometer System
Baseefa08Y0087
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. Any shunt zener diode safety barrier certified by an ec approved body to [IEEx Ia] IIC having the following output parameters: $U_o = 28V$ dc, $I_o = 93mA$ dc, $P_o = 0.65W$, e.g. MTL7787+ to BAS01ATEX7217 or Pepperl + Fuchs Z787 to BAS01ATEX7005
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 Tolerances Unless Stated 0 or 0.0 ±0.5 0.00 ±0.15 Angle ±5° 1/6" Finish All Over Threads g6 H6
A	Release	10/03/08	MJS	CMH	
					
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-4201 & HS-4221 Group II Accelerometers With Armoured Cable F.U.W. Zener Barrier			Drawing No: M06-011-A		
Scale: NTS		Form Number: QF024 Issue 1			
Sheet: 2 of 2					