

HS-422I/M Intrinsically Safe Accelerometer

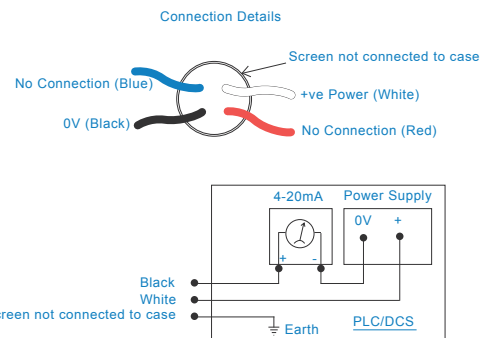
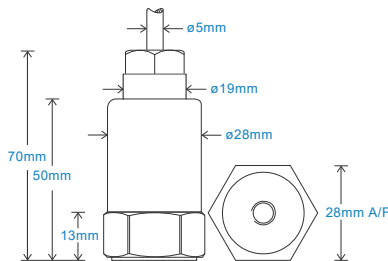
4-20mA acceleration output via PUR Cable

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
- Waterproof and resistant to oil

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	see: 'How To Order' table
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)

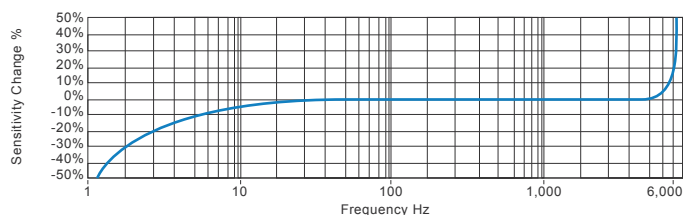
Electrical

Current Output	4-20mA DC proportional to 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	IP68
Maximum Shock	5000g
EMC	EN61326-1:2013

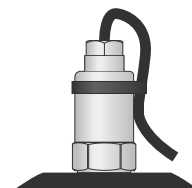
Typical Frequency Response



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



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We reserve the right to alter the specification of this product without prior notice
 TS435.13

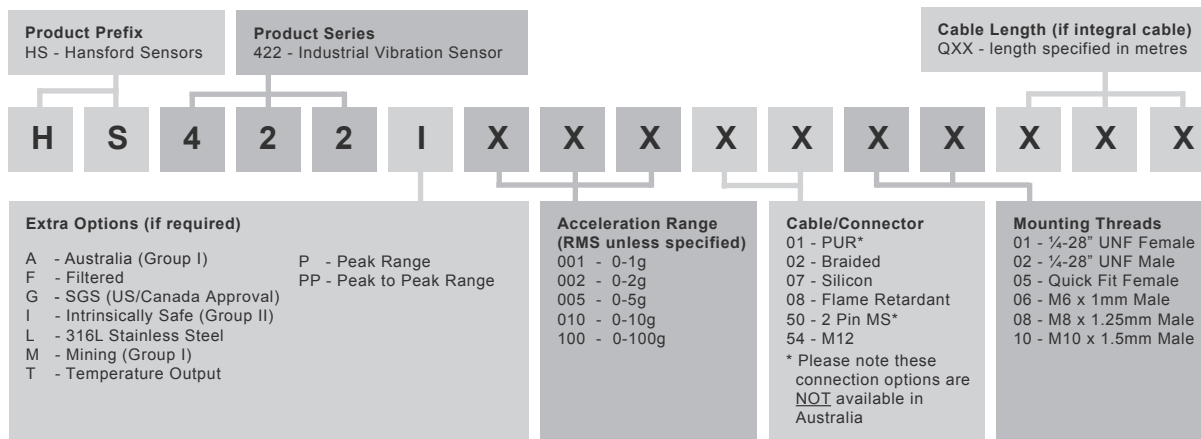


4-20mA acceleration output via PUR Cable

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



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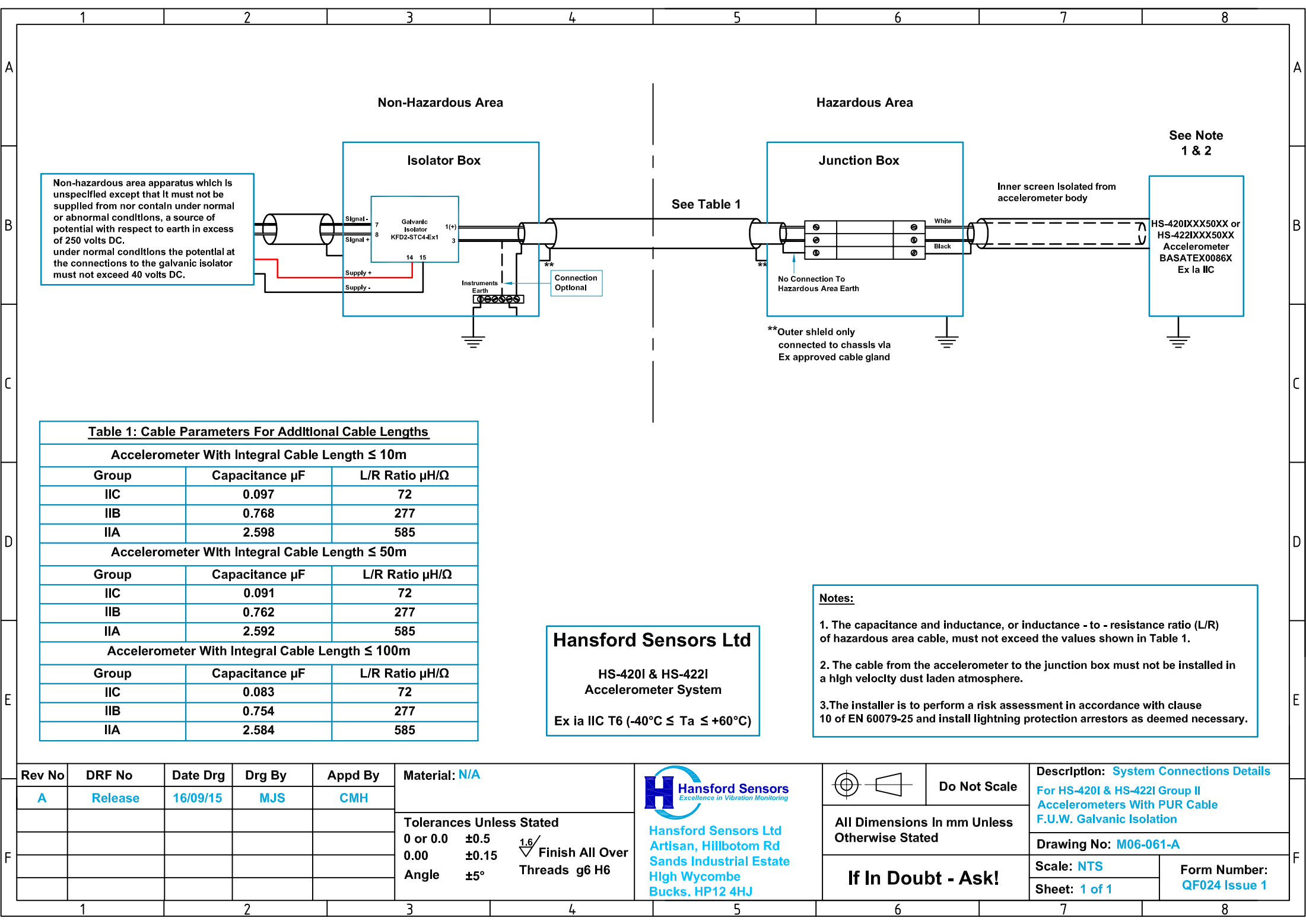


Table 1: Cable Parameters For Additional Cable Lengths

Accelerometer With Integral Cable Length ≤ 10m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.097	72
IIB	0.768	277
IIA	2.598	585
Accelerometer With Integral Cable Length ≤ 50m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.091	72
IIB	0.762	277
IIA	2.592	585
Accelerometer With Integral Cable Length ≤ 100m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.083	72
IIB	0.754	277
IIA	2.584	585

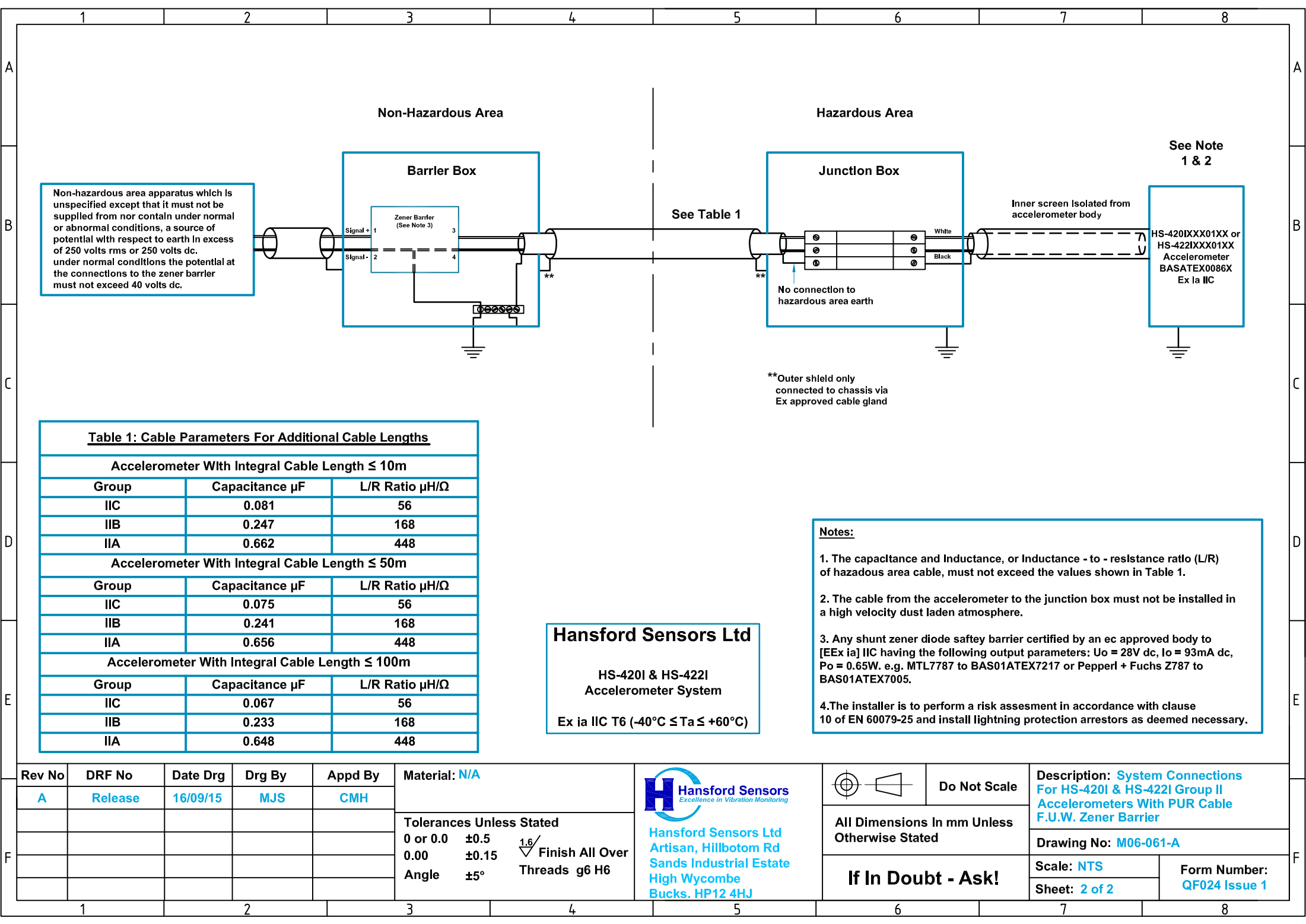
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HS-4201 & HS-4221
Accelerometer System

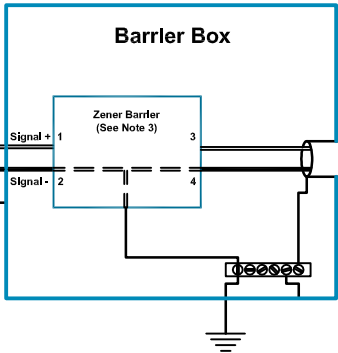
Ex ia IIC T6 (-40°C ≤ Ta ≤ +60°C)

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

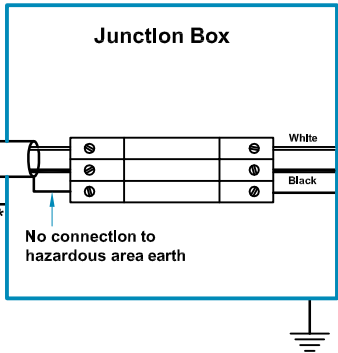
Rev No	DRF No	Date Drg	Drg By	Appd By	Material: N/A	 Hansford Sensors <i>Excellence in Vibration Monitoring</i> Hansford Sensors Ltd Artisan, Hillbottom Rd Sands Industrial Estate High Wycombe Bucks. HP12 4HJ		Do Not Scale	Description: System Connections Details For HS-420I & HS-422I Group II Accelerometers With PUR Cable F.U.W. Galvanic Isolation	
A	Release	16/09/15	MJS	CMH	Tolerances Unless Stated 0 or 0.0 ±0.5 0.00 ±0.15 Angle ±5°		All Dimensions In mm Unless Otherwise Stated	Drawing No: M06-061-A		
					1.6/ ▽ Finish All Over Threads g6 H6		If In Doubt - Ask!	Scale: NTS	Form Number:	
								Sheet: 1 of 1	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 only connected to chassis via Ex approved cable gland

See Note 1 & 2



Table 1: Cable Parameters For Additional Cable Lengths

Accelerometer With Integral Cable Length ≤ 10m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.081	56
IIB	0.247	168
IIA	0.662	448
Accelerometer With Integral Cable Length ≤ 50m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.075	56
IIB	0.241	168
IIA	0.656	448
Accelerometer With Integral Cable Length ≤ 100m		
Group	Capacitance µF	L/R Ratio µH/Ω
IIC	0.067	56
IIB	0.233	168
IIA	0.648	448

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 cable from the accelerometer to the junction box must not be installed in a high velocity dust laden atmosphere.
3. Any shunt zener diode safety barrier 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.
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.

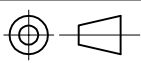
Rev No	DRF No	Date Drg	Drg By	Appd By
A	Release	16/09/15	MJS	CMH

Material: N/A	
Tolerances Unless Stated	
0 or 0.0	±0.5
0.00	±0.15
Angle	±5°
Finish All Over Threads g6 H6	



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Excellence in Vibration Monitoring

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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 PUR Cable
F.U.W. Zener Barrier

Drawing No: M06-061-A

Scale: NTS

Sheet: 2 of 2

Form Number:
QF024 Issue 1