



Contract Number: 710318

**Certificate of Compliance: SGSNA/19/BAS/00005**

Certificate Project Number: BAS-CERT190400003

**Certified Product:** Accelerometers

**Trademarks (if any):** Hansford Sensors Ltd

**Model(s):** HS-104I, HS-150I, HS-170I and HS-173I Series

**Technical Data:** HS-104I - Ui = 12V, li = 160mA, Pi = 0.48W;  
HS-150I, HS-170I & HS-173I:  
Ui = 28V, li = 93mA, Pi = 0.65W  
(please refer to pages 3 to 6 for Hazardous Location Ratings)



**Name and Address of Certificate Holder:** Hansford Sensors Ltd  
Artisan Hillbottom Road, Sands Industrial Estate, HP12  
4HJ, High Wycombe, Buckinghamshire, Great Britain

**Name and Address of Manufacturer:** Hansford Sensors Ltd  
Artisan Hillbottom Road, Sands Industrial Estate, HP12  
4HJ, High Wycombe, Buckinghamshire, Great Britain

This certificate supercedes previous certificates issued with the same certificate number. Certification is valid when products are indicated on the SGS directory of certified products at [www.sgs.com](http://www.sgs.com). The product is certified according to ISO/IEC Guide 17067, *Conformity assessment - Fundamentals of product certification, System 3*, and in accordance with

UL 60079-0, 6th Ed. Rev. July 26, 2013

UL 60079-11, 6th Ed. Rev. September 6, 2013

CAN/CSA C22.2 No. 60079-0:15 Rev. October 2015

CAN/CSA C22.2 No. 60079-11:14

UL 913, 8th Ed. Rev. October 16, 2015

Authorized by

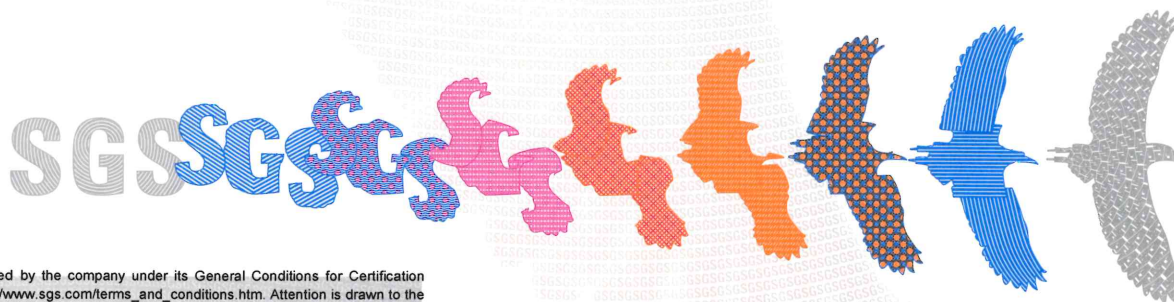
Effective date: 22 May 2019

David Brearley  
Certifier

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Page 1 of 7



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### Product Description:

The HS-104I Series Accelerometers are designed to measure acceleration or vibration by converting the signal generated by the compression of a Piezo electric crystal by a given seismic mass and outputting a broadband ac signal to the monitoring equipment.

The accelerometer comprises of a piezo electric crystal connected to a signal conditioning board, all contained within a fully welded steel enclosure. Electrical connections are made via a connector or integral cable.

The HS-150i and HS-170i Series Accelerometers are designed to measure acceleration or vibration by converting the signal generated by the compression of a Piezo electric crystal by a given seismic mass and outputting a broadband ac signal to the monitoring equipment.

The accelerometer comprises of a piezo electric crystal connected to a signal conditioning board, all contained within a fully welded steel enclosure.

HS-150xT versions include a temperature transmitter.

HS-173I is a tri-axial sensor comprising three individual circuits with common 0V line, sharing a single set of parameters.

Electrical connections are made via a connector or integral cable.

### Electrical Ratings:

#### HS-104I

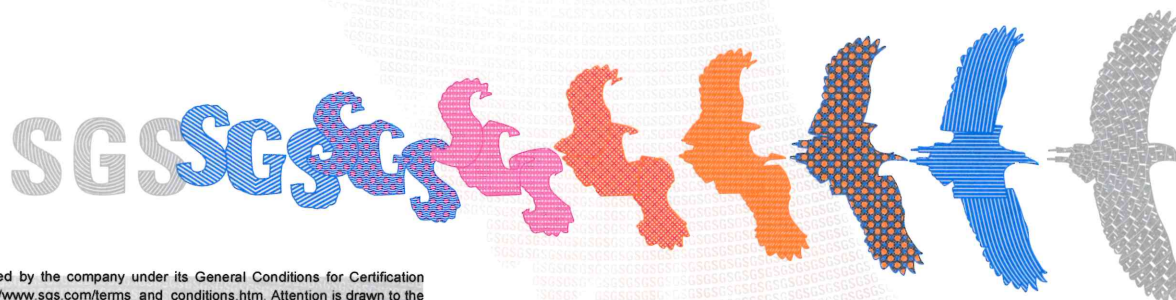
Connector Only			92m of cable		
Ui	=	12V	Ui	=	12V
Ii	=	160mA	Ii	=	160mA
Pi	=	0.48W	Pi	=	0.48W
Ci	=	494nF	Ci	=	529nF
Li	=	0	Li	=	66μH

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## Electrical Ratings:

### HS-150I and HS-170I (Uni-axial accelerometer)

Connector Only	
Ui	= 28V
Ii	= 93mA
Pi	= 0.65W
Ci	= 1.2nF
Li	= 0

10m of cable	
Ui	= 28V
Ii	= 93mA
Pi	= 0.65W
Ci	= 5nF
Li	= 7.2μH

92m of cable	
Ui	= 28V
Ii	= 93mA
Pi	= 0.65W
Ci	= 35.9nF
Li	= 66μH



### HS-173I Tri-axial accelerometer (Tri-axial accelerometer)

Connector Only	
Ui	= 28V
Ii	= 93mA
Pi	= 0.65W
Ci	= 3.6nF
Li	= 0

10m of cable	
Ui	= 28V
Ii	= 93mA
Pi	= 0.65W
Ci	= 7.4nF
Li	= 7.2μH

92m of cable	
Ui	= 28V
Ii	= 93mA
Pi	= 0.65W
Ci	= 38.3nF
Li	= 66μH

## Hazardous Location Ratings:

### HS104I Series Accelerometer

CI I, Div 1 Grp A – D T6  
CI I, Zn 0 AEx ia IIC T6 Ga  
Ex ia IIC T6 Ga  
(-55 °C to +66 °C)

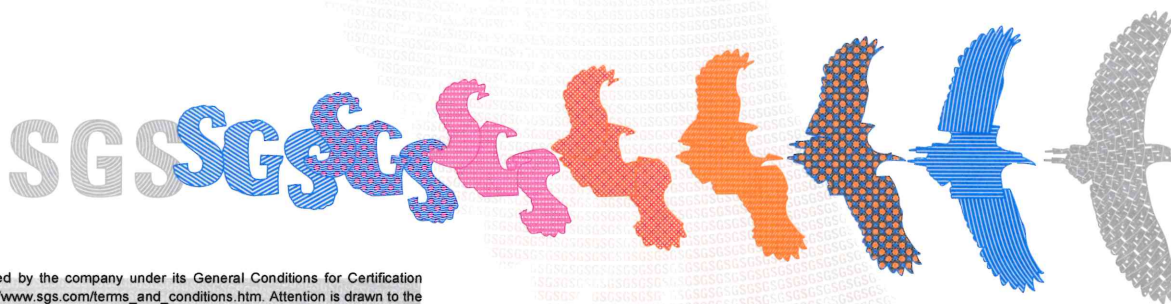
CI I, Div 1 Grp A – D T4  
CI I, Zn 0 AEx ia IIC T4 Ga  
Ex ia IIC T4 Ga  
(-55 °C to +116 °C)

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Page 3 of 7



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## Hazardous Location Ratings:

HS-150I and HS-170I Uni-axial accelerometers with integral cable

CI I, II, III Div 1, 2 Gr A – G T\*  
 CI I, Zn 0 AEx ia IIC T6...T4 Ga  
 CI II, Zn 20 AEx ia IIIC T110 °C...T145 °C Da  
 CI II, Zn 20 AEx ia IIIB T110 °C...T145 °C Da  
 Ex ia IIC T6...T4 Ga  
 Ex ia IIIC T110 °C...T145 °C Da

## Ambient Temperature Ranges

(-55 °C to +57 °C) – T6 Temperature Classification  
 (-55 °C to +103 °C) – T4 Temperature Classification  
 (-55 °C to +57 °C) – T110 °C Temperature Classification  
 (-55 °C to +70 °C) – T135 °C Temperature Classification  
 (-55 °C to +92 °C) – T145 °C Temperature Classification

HS-150I and HS-170I Uniaxial Accelerometer with connectors

CI I, II, III Div 1, 2 Gr A – G T\*  
 CI I, Zn 0 AEx ia IIC T6...T4 Ga  
 CI II, Zn 20 AEx ia IIIC T135 °C Da  
 Ex ia IIC T6...T4 Ga  
 Ex ia IIIC T135 °C Da

## Ambient Temperature Ranges

(-55 °C to +57 °C) – T6 Temperature Classification  
 (-55 °C to +103 °C) – T4 Temperature Classification  
 (-55 °C to +70 °C) – T135 °C Temperature Classification

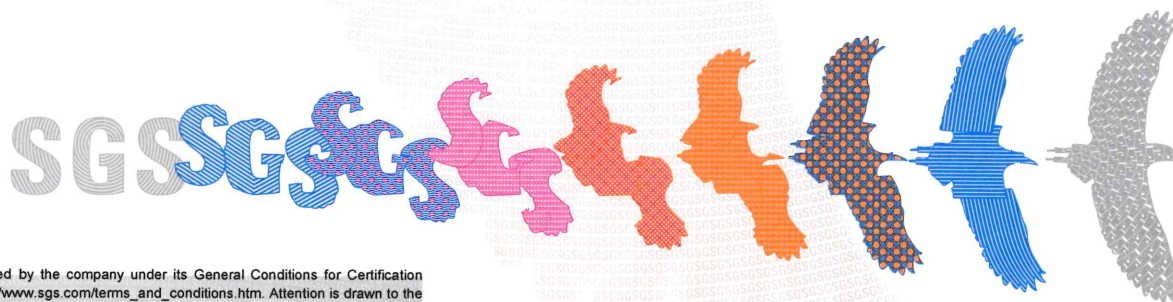
Or

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Page 4 of 7



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**Hazardous Location Ratings:**

CI I, II, III Div 1, 2 Gr A – D, G and F T\*  
 CI I, Zn 0 AEx ia IIC T6...T4 Ga  
 CI II, Zn 20 AEx ia IIIB T110 °C...T145 °C Da  
 Ex ia IIC T6...T4 Ga  
 Ex ia IIIC T110 °C...T145 °C Da



**Ambient Temperature Ranges**  
 (-55 °C to +57 °C) – T6 Temperature Classification  
 (-55 °C to +103 °C) – T4 Temperature Classification  
 (-55 °C to +57 °C) – T110 °C Temperature Classification  
 (-55 °C to +70 °C) – T135 °C Temperature Classification  
 (-55 °C to +92 °C) – T145 °C Temperature Classification

HS-173I Tri-axial Accelerometers with integral cable and no temperature sensor.

CI I, II, III Div 1, 2 Gr A – G T\*  
 CI I, Zn 0 AEx ia IIC T6...T4 Ga  
 CI II, Zn 20 AEx ia IIIC T102 °C...T131 °C Da  
 Ex ia IIC T6...T4 Ga  
 Ex ia IIIC T102 °C...T131 °C Da

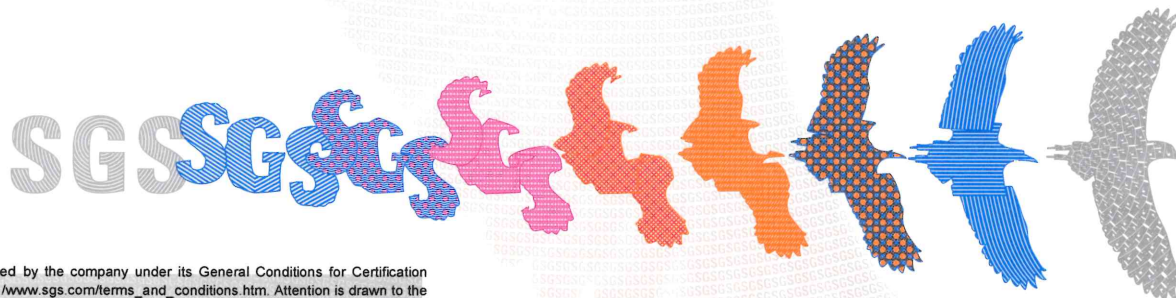
**Ambient Temperature Ranges**  
 (-55 °C to +69 °C) – T6 Temperature Classification  
 (-55 °C to +104 °C) – T4 Temperature Classification  
 (-55 °C to +69 °C) – T102 °C Temperature Classification  
 (-55 °C to +98 °C) – T131 °C Temperature Classification

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Page 5 of 7



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## Hazardous Location Ratings:

HS-173I Triaxial accelerometers with connectors and no temperature sensor.

CI I, II, III Div 1, 2 Gr A – G T\*  
 CI I, Zn 0 AEx ia IIC T6...T4 Ga  
 CI II, Zn 20 AEx ia IIIC T135 °C Da  
 Ex ia IIC T6...T4 Ga  
 Ex ia IIIC T135 °C Da

## Ambient Temperature Ranges:

(-55 °C to +69 °C) – T6 Temperature Classification  
 (-55 °C to +104 °C) – T4 Temperature Classification  
 (-55 °C to +70 °C) – T135 °C Temperature Classification

Or

CI I, II, III Div 1, 2 Gr A – D, G and F T\*  
 CI I, Zn 0 AEx ia IIC T6...T4 Ga  
 CI II, Zn 20 AEx ia IIIC T135 °C Da  
 CI II, Zn 20 AEx ia IIIB T102 °C...T131 °C Da  
 Ex ia IIC T6...T4 Ga  
 Ex ia IIIC T135 °C Da  
 Ex ia IIIB T102 °C...T131 °C Da

## Ambient Temperature Ranges:

(-55 °C to +69 °C) – T6 Temperature Classification  
 (-55 °C to +104 °C) – T4 Temperature Classification  
 (-55 °C to +69 °C) – T102 °C Temperature Classification  
 (-55 °C to +98 °C) – T131 °C Temperature Classification  
 (-55 °C to +70 °C) – T135 °C Temperature Classification

## Conditions of Acceptability:

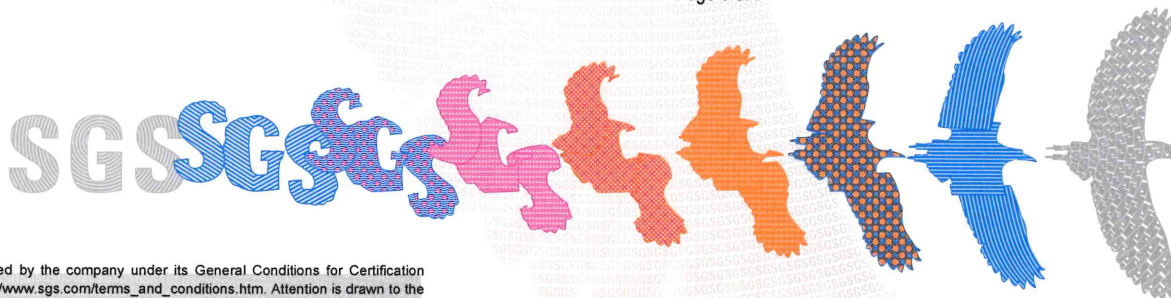
1. When fitted with an integral cable, the flying lead terminations must be afforded a degree of protection of at least IP20.
2. The equipment is marked with reduced certification marking. Refer to certificate schedule for full certification markings and applicable temperature classification including associated ambient temperature ranges.

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Page 6 of 7



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Certificate Project Number: BAS-CERT190400003

**Certified Product:**

**Accelerometers**

**Trademarks (if any):**

**Hansford Sensors Ltd**

**Model(s):**

**HS-104I, HS-150I, HS-170I and HS-173I**

**Series**

**Name of Certificate Holder:**

**Hansford Sensors Ltd**

**Name and Address of Factory:**

**Hansford Sensors Ltd**

**Artisan Hillbottom Road, Sands Industrial Estate, HP12  
4HJ, High Wycombe, Buckinghamshire, Great Britain**

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