IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	**IECEx BAS 18.0082X**	Page 1 of 5	Certificate history:
Status:	**Current**	Issue No: 2	Issue 1 (2019-03-22) Issue 0 (2018-11-09)
Date of Issue:	2020-01-16		

Applicant: **Hansford Sensors Limited**
Artisan
Hillbottom Road
Sands Industrial Estate
Bucks
HP12 4HJ
United Kingdom

Equipment: **HS-150I & HS170I Series Accelerometers**

Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking: See Certificate Schedule for Marking Details

Approved for issue on behalf of the IECEx Certification Body: **R S Sinclair**

Position: **Technical Manager**

Signature: (for printed version)

Date: 16-1-2020

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton, Derbyshire, SK17 9RZ
United Kingdom

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Manufacturer: **Hansford Sensors Limited.**
Artisan
Hillbottom Road
Sands Industrial Estate
Bucks
HP12 4HJ
United Kingdom

Additional manufacturing locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

GB/BAS/ExTR18.0244/00 GB/BAS/ExTR19.0059/00 GB/BAS/ExTR19.0347/00

Quality Assessment Report:

GB/BAS/QAR07.0040/08

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

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

Electrical connections are made via a connector or integral cable. The equipment carries the following markings:

SPECIFIC CONDITIONS OF USE: YES as shown below:
1. Where equipment is supplied with an attached cable, this must be terminated in an enclosure providing at least degree of protection IP20.

2. The equipment is marked with reduced certification markings. Refer to the Certificate Schedule for the full certification markings & applicable temperature classification and associated ambient temperature range.

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Equipment (continued):

Uni-axial accelerometers with integral cable

Ex ia IIC T6 Ga -55ºC ≤ Ta ≤ +57ºC
Ex ia IIC T4 Ga -55ºC ≤ Ta ≤ +103ºC

Ex ia IIIC T_{200}110°C Da -55ºC ≤ Ta ≤ +57ºC
Ex ia IIIC T_{200}135°C Da -55ºC ≤ Ta ≤ +70ºC
Ex ia IIIC T_{200}145°C Da -55ºC ≤ Ta ≤ +92ºC

Ex ia I Ma -55ºC ≤ Ta ≤ +103ºC

Uni-axial accelerometers with connectors

Ex ia IIC T6 Ga -55ºC ≤ Ta ≤ +57ºC
Ex ia IIC T4 Ga -55ºC ≤ Ta ≤ +103ºC

Ex ia IIIC T_{200}135°C Da -55ºC ≤ Ta ≤ +70ºC

Ex ia IIIB T_{200}110°C Da -55ºC ≤ Ta ≤ +57ºC
Ex ia IIIB T_{200}145°C Da -55ºC ≤ Ta ≤ +92ºC

Ex ia I Ma -55ºC ≤ Ta ≤ +103ºC

Tri-axial Accelerometers with integral cable.

Ex ia IIC T6 Ga -55ºC ≤ Ta ≤ +69ºC
Ex ia IIC T4 Ga -55ºC ≤ Ta ≤ +104ºC

Ex ia IIIC T_{200}102°C Da -55ºC ≤ Ta ≤ +69ºC
Ex ia IIIC T_{200}131°C Da -55ºC ≤ Ta ≤ +98ºC

Ex ia I Ma -55ºC ≤ Ta ≤ +104°C

Triaxial accelerometers with connectors.

Ex ia IIC T6 Ga -55ºC ≤ Ta ≤ +69ºC
Ex ia IIC T4 Ga -55ºC ≤ Ta ≤ +104ºC

Ex ia IIIC T_{200}135°C Da -55ºC ≤ Ta ≤ +70ºC

Ex ia IIIB T_{200}102°C Da -55ºC ≤ Ta ≤ +69ºC
Ex ia IIIB T_{200}131°C Da -55ºC ≤ Ta ≤ +98ºC

Ex ia I Ma -55ºC ≤ Ta ≤ +104°C
See Certificate Annex for terminal parameters.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Variation 2.1

To permit the use of an alternative cable type to be included as part of the existing construction not affecting terminal parameters.

Variation 2.2

To permit the inclusion of a 300 m integral cable option to the product range.

ExTR: **GB/BAS/ExTR19.0347/00**	File Reference: **19/0412**

Annex:

IECEx BAS 18.0082X Annex 1.pdf

SGS Baseefa Limited
Rockhead Business Park
Staden lane, Buxton, Derbyshire
SK17 9RZ
United Kingdom

The HS-150i and HS-170i Series Accelerometers

The equipment has the following terminal parameters:

Uni-axial accelerometer.

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

10m of cable		
Ui	=	28 V
Ii	=	93 mA
Pi	=	0.65 W
Ci	=	4.6 nF
Li	=	7.2 µH

92m of cable		
Ui	=	28 V
Ii	=	93 mA
Pi	=	0.65 W
Ci	=	32.1 nF
Li	=	66 µH

*300 m of cable		
Ui	=	28 V
Ii	=	93 mA
Pi	=	0.65 W
Ci	=	64.2 nF
Li	=	150 µH

Tri-axial accelerometer

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

10m of cable		
Ui	=	28 V
Ii	=	93 mA
Pi	=	0.65 W
Ci	=	7.0 nF
Li	=	7.2 µH

92m of cable		
Ui	=	28 V
Ii	=	93 mA
Pi	=	0.65 W
Ci	=	34.5 nF
Li	=	66 µH

*300 m of cable		
Ui	=	28V
Ii	=	93mA
Pi	=	0.65W
Ci	=	66.6 nF
Li	=	150 µH

Note: The construction of the accelerometers are controlled by the part number. Products with the part numbers HS-150*****40**, HS-170*****40** and HS-173*****40** are the only models that are permitted to have an integral cable length of 300 m where "*" may be any alphanumeric value defined by the applicant. The terminal parameters for a 300 m length of integral cable are only applicable to these part numbers. All other part numbers, where integral cable options are selected, are limited to 92 m under this certification.