

1 **EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa07ATEX0149X – Issue 6**

4 Equipment or Protective System: **HS-100 Series Accelerometer**

5 Manufacturer: **Hansford Sensors Ltd**

6 Address: **Sands Industrial Estate, Bucks, HP12 4HJ**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No's. **See certificate history**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2012 + A11:2013 EN 60079-11: 2012

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⊕ I M1 Ex ia I Ma (-55°C ≤ Ta ≤ +110°C)

Baseefa Customer Reference No. **5943**

Project File No. **16/0137**

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R S SINCLAIR
GENERAL MANAGER

On behalf of SGS Baseefa Limited

13 Schedule

14 Certificate Number Baseefa07ATEX0149X – Issue 6

15 Description of Equipment or Protective System

The HS-100 Series Accelerometer is designed to measure acceleration, shock 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 a piezo electric crystal connected to a signal conditioning board, all contained within a stainless steel enclosure of various shapes measuring approximately 25cm³. The enclosure is a fully welded construction.

Electrical connections are made to the apparatus either via an IP65 rated connector or via an integral cable which is encapsulated in the end of the apparatus.

The non-fused version of the apparatus (HS-100Mxxxxxxx and HS-100MSxxxxxxx) has the following terminal parameters:

Connector only	10m of Cable	92m of Cable
U _i = 28V	U _i = 28V	U _i = 28V
I _i = 93mA	I _i = 93mA	I _i = 93mA
P _i = 0.65W	P _i = 0.65W	P _i = 0.65W
C _i = 1.0nF	C _i = 9.9nF	C _i = 83nF
Li = negligible	Li = 7μH or Li/Ri = 15.4μH/Ω	Li/Ri = 15.4μH/Ω

The fused version of the apparatus (HS-100MFxxxxxxx and HS-100SFxxxxxxx) has the following terminal parameters:

Connector only	10m of Cable	92m of Cable
U _i = 16.5V	U _i = 16.5V	U _i = 16.5V
C _i = 1.0nF	C _i = 5nF	C _i = 41nF
Li = negligible	Li = 7μH or Li/Ri = 15.4μH/Ω	Li/Ri = 15.4μH/Ω

16 Report Number

See certificate history.

17 Specific Conditions of Use

- The C_i of the non-fused version of the equipment (HS-100Mxxxxxxx and HS-100MSxxxxxxx) when fitted with 92m of cable has been increased from 41nF to 83nF.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

As follows, in addition to those covered by the standards at item 9.

Clause	Subject	Compliance
1.2.7	LVD type requirements	Standards require manufacturer's declaration, supplied.
1.2.8	Overloading of equipment (protection relays, etc.)	Covered by installation rules and manufacturer's instructions
1.4.1	External effects	The Purchaser should make the manufacturer aware of such issues. Covered in Instructions
1.4.2	Aggressive substances, etc.	The Purchaser should make the manufacturer aware of such issues. Covered in Instructions

19 Drawings and Documents

New drawings submitted for this issue of certificate.

Number	Sheet	Issue	Date	Description
M06-001-D	1 to 6	D	04/03/16	General Arrangement and Product Information for Group I, Group II and Group III Accelerometer

Current drawings also associated with this certificate.

Number	Sheet	Issue	Date	Description
M06-025-C	1 to 5	C	30/08/12	General Arrangement and Product Information for Group I Fused Accelerometer
HS100.M	1 of 1	A	11.11.08	HS-100 Schematic
P01.031	1 of 1	A	30.10.08	Connection PCB for HS-100I M12 or Cable + Fuse
P02.031.1	1 of 1	A	30.10.08	Connection PCB for HS-100 MF Cable Versions
P02.031.2	1 of 1	A	30.10.08	Connection PCB for HS-100 MF M12 Versions

These drawings are also associated with IECEx BAS 07.0035X, IECEx BAS 07.0037X, Baseefa07ATEX0144X and held with IECEx BAS 07.0035X and IECEx BAS 07.0037X.

20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0149	13 July 2007	The release of the prime certificate. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR07.0076/00 held on technical file IECEx BAS 07.0035X.
Baseefa07ATEX0149/1	20 November 2008	1. The introduction of the fused version (HS-100MFxxxxxxx and HS-100SFxxxxxxx), thus eliminating the need to limit power into the equipment. Intrinsic safety is not affected. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR08.0237/00 held on technical file IECEx BAS 07.0037X.
Baseefa07ATEX0149/2X	10 March 2011	1. To permit the use of a different type of cable on the non-fused version only (HS-100Mxxxxxxx and HS-100MSxxxxxxx). The fused versions (HS-100MFxxxxxxx and HS-100SFxxxxxxx) are not affected by this change. 2. Show the new address of the manufacturer on the marking drawings. Intrinsic safety is not affected. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR11.0045/00 held on technical file IECEx BAS 07.0035X.
Baseefa07ATEX0149/3X	10 October 2012	1. To confirm that the equipment covered by this certificate also meets the requirements of EN 60079 0: 2012 (IEC 60079 0: 2011, Edition 6) and EN 60079 11: 2012 (IEC 60079 11: 2011, Edition 6). Intrinsic safety is not affected. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR12.0254/00 held on technical file IECEx BAS 07.0035X.

Certificate No.	Date	Comments
Baseefa07ATEX0149X Issue 4	29 April 2013	<p>This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and permits the accelerometer to be supplied with 10m of cable with a resultant change to the entity parameters.</p> <p>Specific condition of use relating to a change in Ci removed.</p> <p>Intrinsic safety is not affected. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR13.0101/00 held on technical file IECEX BAS 07.0035X.</p>
Baseefa07ATEX0149X Issue 5	9 January 2015	<p>To permit additional terminal parameters to be added for connector only variants (no cable included) and 10m of cable. A test and assessment report was not required for this change.</p>
Baseefa07ATEX0149X Issue 6	22 March 2016	<p>To permit the use of an alternative cable type and the use of an alternative catalyst with the encapsulant. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR16.0097/00 held on technical file IECEX BAS 07.0035X</p>
For drawings applicable to each issue, see original of that issue.		