



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: **Baseefa07ATEX0302X – Issue 1**

4 Equipment or Protective System: **HiC2851\* / HiC2853\* Isolated Switch Amplifier**

5 Manufacturer: **Pepperl + Fuchs GmbH**

6 Address: **Lilienthalstrasse 200, 68307 Mannheim, Germany**

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. GB/BAS/ExTR11.0217/00

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

**EN 60079-0:2009 EN 60079-11:2007 EN 61241-11:2006**

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 :

 II (1) G [Ex ia] IIC

 II (1) D [Ex ia] IIIC

 I (M1) [Ex ia] I

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0808**

Project File No. **11/0435**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

A handwritten signature in blue ink, appearing to read "R S Sinclair".

**R S SINCLAIR**  
DIRECTOR  
On behalf of  
Baseefa

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## Schedule

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Certificate Number Baseefa07ATEX0302X – Issue 1

### 15 Description of Equipment or Protective System

The Type HiC2851\* / HiC2853\* Isolated Switch Amplifier is designed to transfer digital signals from the hazardous area to unspecified apparatus located in the non-hazardous area. The voltage and current appearing at the hazardous area connections is limited to intrinsically safe levels and has linear characteristics. The hazardous area circuit is galvanically isolated from the non-hazardous area circuit using transformers and opto-isolators.

The Type HiC2851\* / HiC2853\* Isolated Switch Amplifier comprise a number of electronic components including isolating transformers, an opto-isolator, fuses, zener diodes and resistors all mounted on a single printed circuit board and housed in a plastic enclosure with two polarised sockets in the base of the enclosure for hazardous and non-hazardous area connections via a terminal backplane. LED indication is provided for power-on, channel status and fault conditions.

#### Input / Output Parameters

Power Supply: Non-Hazardous Area Connector SL1 pins 2a & 2b (+) and 1a & 1b (-)

$$U_m = 253V \text{ r.m.s}$$

The circuit connected to non-hazardous area connector SL1 pins 2a & 2b and 1a & 1b are designed to operate from a d.c. supply voltage of 19 to 30V.

Outputs: Non-Hazardous Area Connector SL1 pins 7a & 8a (Output 1) and 9a & 10a (Output 2)

$$U_m = 253V \text{ r.m.s}$$

The circuit connected to each output are designed to operate from a d.c. supply up to 30V.

Fault Bus: Non-Hazardous Area Connector SL1 pin 6b

$$U_m = 253V \text{ r.m.s}$$

The circuit connected to non-hazardous area connector SL1 pin 6b is designed to operate from a d.c. supply up to 30V.

Hazardous Area Connector SL2 pins 5a w.r.t 5b

$$\begin{array}{ll} U_o = 10.5V & C_i = 0 \\ I_o = 17.1mA & L_i = 0 \\ P_o = 45mW & \end{array}$$

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the load connected to the output terminals must not exceed the following values:

GROUP	CAPACITANCE in $\mu F$	INDUCTANCE in mH	OR	L/R RATIO in $\mu H/\Omega$
IIC	2.41	121.5		792
IIB	16.8	486.3		3,168
IIA	75.0	972.7		6,336
I	66.0	1,000		10,396

Note: The above load parameters apply where:



1. The external circuit contains no combined lumped inductance  $L_i$  and capacitance  $C_i$  greater than 1% of the above values.
- or 2. The inductance and capacitance are distributed as in a cable.
- or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance and capacitance, up to 50% of each of the L and C values is allowed. But the maximum capacitance allowed must not be more than 1 $\mu$ F for Group IIB and 600nF for Group IIC.

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#### 17 Specific Conditions of Use

1. The socket connections at the base of the enclosure must be afforded a degree of protection of at least IP20 when correctly installed.

#### 18 Essential Health and Safety Requirements

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

#### 19 Drawings and Documents

New drawings submitted for this issue of certificate.

Number	Sheet	Issue	Date	Description
16-0586BS A	1 of 1	A	2011-July-19	Summary HiC285**
16-0586BS-00A	1 & 2	A	2011-July-11	Description HiC285**
16-0586BS-01A	1 – 3	A	2011-July-11	Schematics HiC2853*
16-0586BS-03A	1 of 1	A	2011-July-11	Component Setup HiC2853*
16-0586BS-05A	1 – 4	A	2011-July-11	Layout HiC2853*
16-0586BS-10A	1 of 1	A	2011-July-19	Type Label HiC285**

The above drawings are associated, and held with, IECEx Certificate Number IECEx BAS 07.0097X.

#### 20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0302X	17 April 2008	The release of the prime certificate. The associated test and assessment is documented in Test Report GB/BAS/ExTR07.0182/00.
Baseefa07ATEX0302X Issue 1	23 September 2011	This issue of the certificate incorporates minor electrical changes which do not affect the original assessment, the use of alternative opto-isolators covered by PTB10ATEX2016U, the introduction of the HiC2853* and confirms the current design meets the requirements of EN 60079-0: 2009. The equipment name has also been amended to HiC2851*.

For drawings applicable to each issue, see original of that issue.