

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: **Baseefa14ATEX0129X – Issue 1**

4 Equipment or Protective System: **Universal Temperature Converter Type HiC2081**

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. 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 :

⊕ II (1) G [Ex ia Ga] IIC (-20°C ≤ Ta ≤ +60°C / +70°C)

⊕ II (1) D [Ex ia Da] IIC (-20°C ≤ Ta ≤ +60°C / +70°C)

⊕ I (M1) [Ex ia Ma] I (-20°C ≤ Ta ≤ +60°C / +70°C)

Baseefa Customer Reference No. **0808**

Project File No. **15/0179**

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R S SINCLAIR
GENERAL MANAGER

On behalf of SGS Baseefa Limited

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Schedule

14

Certificate Number Baseefa06ATEX0170 – Issue 2

15 Description of Equipment or Protective System

The Universal Temperature Converter Type HiC2081 is designed to transfer a signal from TC/mV, RTD (2, 3 or 4-wire) or Potentiometer in a hazardous area to unspecified apparatus located in a non-hazardous area. The hazardous area circuit is galvanically isolated from the non-hazardous area circuit using a transformer and opto-couplers and the voltage and current appearing at the hazardous area connectors are limited to intrinsically safe levels.

The Universal Temperature Converter Type HiC2081 comprises a number of electronic components including an isolating transformer, two opto-isolators, 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. LEDs provide status indication.

Non-Hazardous Area Connector(s)

Power Supply: SL1:Pins 1a[-]/1b[-] w.r.t 2a[+]/2b[+]

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

The circuit connected to the power supply pins is designed to operate from a d.c. supply voltage of up to 30V.

Outputs: SL1:Pin 8a[+] w.r.t 7a[-]

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

The circuit connected to the output is designed to operate from a d.c. supply of up to 30V.

Module Identification Pins: SL1:Pin 5a w.r.t 5b

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

The circuit connected to the output is designed to operate from a d.c. supply of up to 30V.

Programming jack

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

The circuit connected to the output is designed to operate from a d.c. supply of up to 30V.

Fault Signal: SL1:Pin 6b wrt 1b

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

The circuit connected to the output is designed to operate from a d.c. supply of up to 30V.

Hazardous Area Connector(s)

Input: SL2:Pins 1a[+], 5a[+], 1b[-], 5b[-] (any combination)

$$\begin{array}{ll} U_o = 9V & C_i = 0 \\ I_o = 13.1mA & L_i = 0 \\ P_o = 30mW & \end{array}$$

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

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO (μH/ohm)
IIC	4.9	207		1158
IIB	40	828		4635
IIA	500	1657		9270
I	1000	2719		15209

The above parameters apply when one of the two conditions below is given:

- the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

The above parameters are reduced to 50% when both of the two conditions below are given:

- the total L_i of the external circuit (excluding the cable) \geq 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) \geq 1% of the C_o value.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1 μ F for Groups I, IIA & IIB and 600nF for Group IIC.

16 Report Number

GB/BAS/ExTR15.0183/00

17 Specific Conditions of Use

1. The HiC2081 must be installed in a controlled environment with suitably reduced pollution.
2. The socket connections at the base of the enclosure must be afforded a degree of protection of at least IP20 when 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
16-1036BS-A	1 of 1	A	2015-Mar-19	Summary
16-1036BS-00A	1 – 11	A	2015-Mar-19	Description
16-1036BS-01A	1 – 3	A	2015-Feb-12	Schematic
16-1036BS-03A	1 of 1	A	2015-Feb-12	Component Layout
16-1036BS-05A	1 – 4	A	2015-Feb-12	PCB Layout

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
16-1036BS-02	1 of 1	-	2014-Jan-10	I.S. Relevant Components
16-534-04A	1 & 2	A	2009-Feb-04	Mechanical Parts (Housing)
16-1036BS-06	1 – 5	-	2014-Jan-13	Transformer
16-1036BS-10	1 – 3	-	2014-Jan-13	Type Label

All drawings are common to Baseefa14ATEX0130X and IECEx BAS 14.0071X and held with IECEx BAS 14.0071X.

20 Certificate History

Certificate No.	Date	Comments
Baseefa14ATEX0129X	14 July 2014	The release of the prime certificate. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR14.0204/00. Project File No. 14/0123.
Baseefa14ATEX0129X Issue 1	6 July 2015	This issue permits minor changes and permits the introduction of the Module Identification Pins. Report No. GB/BAS/ExTR15.0183/00. Project File No. 15/0179.
For drawings applicable to each issue, see original of that issue.		