



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: **Baseefa06ATEX0171X**

4 Equipment or Protective System: **Type HiC2871 Transformer Isolated Solenoid Driver**

5 Manufacturer: **Pepperl + Fuchs GmbH**

6 Address: **Königsberger Allee 87, 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 (2001) Ltd., 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. 06(C)0106/2

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


**EN 60079-0: 2004 EN 50020: 2002 EN 60079-26: 2004 EN 61241-11: 2005**

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 (I) GD** [Ex ia] IIC  $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$   
[Ex iaD]  $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

 **I (M1)** [Ex ia] I  $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

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

Baseefa Customer Reference No. **0808**

Project File No. **06/0106**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

**R S SINCLAIR**

**DIRECTOR**

On behalf of

Baseefa (2001) Ltd.

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Baseefa is a trading name of Baseefa (2001) Ltd  
Registered in England No. 4305578 at the above address



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## Schedule

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Certificate Number Baseefa06ATEX0171X

### 15 Description of Equipment or Protective System

The Type HiC2871 Transformer Isolated Solenoid Driver is designed to transfer current from unspecified apparatus located in the non-hazardous area to the hazardous area. The voltage and current passed to the hazardous area are limited to intrinsically safe levels and have linear characteristics. The hazardous area circuit is galvanically isolated from the non-hazardous area circuit using a transformer.

The Type HiC2871 Transformer Isolated Solenoid Driver comprise a number of electronic components, including an isolating transformer, 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 channel status.

#### Input/Output Parameters

Non-Hazardous Area Connector SL1 pins 7a & 7b and 8a & 8b

$U_m = 253V$  r.m.s.

The circuits connected to non-hazardous area connector SL1 pins 7a & 7b and 8a & 8b are designed to operate from a d.c. supply voltage of up to 35V.

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

$U_o = 25.2V$   
 $I_o = 110mA$   
 $P_o = 693mW$   
 $C_i = 0$   
 $L_i = 0$

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

GROUP	CAPACITANCE ( $\mu F$ )	INDUCTANCE (mH)	OR L/R RATIO ( $\mu H/ohm$ )
IIC	0.107	2.94	51
IIB	0.82	11.75	205
IIA	2.90	23.50	410
I	4.15	38.56	673

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 or lumped capacitance, up to 50% of each of the L and C values is allowed.



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**17 Special Conditions for Safe 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**

Number	Sheet	Issue	Date	Description
266-022BS	1	Original	2006-Jan-12	Summary – HiC2871
266-022BS-00	1 to 9	Original	2006-Jan-10	Description – HiC2871
266-022BS-01	1 to 3	Original	2006-Jan-18	Schematic – HiC2871
266-022BS-02	1	Original	2006-Jan-09	Description of Relevant Components – HiC2871
266-022BS-03	1 & 2	Original	2006-Jan-25	Component Overlay – HiC2871
16-534-04	1 & 2	Original	2005-Dec-05	Housing – HiC
266-022BS-05	1 of 5	Original	2006-Jan-25	Printed Circuit Board - HiC2871
266-022BS-05	2 of 5	Original	2006-Jan-25	Printed Circuit Board – Top – HiC2871
266-022BS-05	3 of 5	Original	2006-Jan-25	Printed Circuit Board – Bottom – HiC2871
266-022BS-05	4 of 5	Original	2006-Jan-25	Printed Circuit Board – Top Lacquering Details – HiC2871
266-022BS-05	5 of 5	Original	2006-Jan-25	Printed Circuit Board – Bottom Lacquering Details – HiC2871
266-022BS-06	1 to 4	Original	2006-Jan-16	Transformer – KCD0-SD-Ex1.1245 / HiC2871
266-022BS-10	1	Original	2006-Jan-26	Type Label – HiC2871



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary EC - Type **Baseefa06ATEX0171X/1**  
4 Examination Certificate Number:

4 Equipment or Protective System: **Type HiC2871 Transformer Isolated Solenoid Driver**

5 Manufacturer: **Pepperl + Fuchs GmbH**

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

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa06ATEX0171X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 Item 9 of the original Certificate is replaced by "Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0:2009 EN 60079-11:2012**

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

9 The marking of the equipment has changed from the original Certificate and shall include the following:

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

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

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

This certificate shall be held with the original certificate and may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0808**

Project File No. **12/0193**

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

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.

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Registered in England No. 4305578. Registered address as above.

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



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## Schedule

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Certificate Number Baseefa06ATEX0171X/1

### 15 Description of the variation to the Equipment or Protective System

#### Variation 1.1

To permit minor drawing changes that do not affect the original assessment.

#### Variation 1.2

To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-0:2009 and EN 60079-11:2012 in respect of the differences from EN 60079-0:2004 and EN 50020:2002 and that none of these differences, with the exception of marking, affect this equipment. The equipment is now marked:

⊕ II (1)G [Ex ia Ga] IIC

⊕ II (1)D [Ex ia Da] IIIC

⊕ I (M1) [Ex ia Ma] I

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### 17 Specific Conditions of Use

None additional to those listed previously

### 18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

### 19 Drawings and Documents

Number	Sheet	Issue	Date	Description
266-022BS-A	1 of 1	A	2012 Feb 28	Summary
266-020BS-06A	1 – 4	A	2012 Feb 28	Transformer
266-022BS-10A	1 of 1	A	2012 Feb 28	Type Label (ATEX)