

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: **Baseefa03ATEX0141 – Issue 3**

4 Equipment or Protective System: **Transformer Isolated Loop Powered Current Separator Type KFD0-CS-Ex\*.52**

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)

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

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

Baseefa Customer Reference No. **0808**

Project File No. **15/0067**

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**SGS Baseefa Limited**

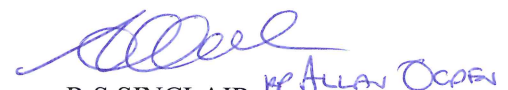
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R S SINCLAIR

GENERAL MANAGER

On behalf of SGS Baseefa Limited

13

## Schedule

14

### Certificate Number Baseefa03ATEX0141 – Issue 3

#### 15 Description of Equipment or Protective System

A Transformer Isolated, Loop Powered, Current Separator Type KFD0-CS-Ex\*.52 is designed to restrict the transfer of energy from unspecified Non Hazardous Area Apparatus to Hazardous Area Apparatus without the need for a high integrity earth. The unit is intended to provide a signal return path from the hazardous area and both a dual and a single channel version is available. The “\*” in the type number is replaced by a “2” for the dual channel version and a “1” for the single channel version.

The apparatus is designed for a rated input voltage not exceeding 40V d.c. but the creepage and clearance distances between the non-hazardous area and the hazardous area circuitry are acceptable for a peak voltage of 375 volts, (253V volts r.m.s.)

The apparatus comprises a maximum of two channels, and each channel comprises a transformer and electronic components mounted on a printed circuit board and housed within a plastic enclosure which is fitted with terminals for the connection of external equipment.

#### Input/Output Parameters

##### Non-Hazardous Area Terminals 8 to 12

$$U_m = 253V$$

The apparatus is designed to operate from a d.c. supply of up to 40V on the above terminals.

##### Hazardous Area Terminals 1 w.r.t. 2 (Channel 1) and 4 w.r.t. 5 (Channel 2)

Each channel may be considered as a separate intrinsically safe circuit.

$$\begin{array}{ll} U_o = 25.2V & U_i = 25.2V \\ I_o = 0 & I_i = 121mA \\ P_o = 0 & P_i = 762mW \\ C_i = 0 & \\ L_i = 0 & \end{array}$$

The hazardous area terminals of each channel of this equipment must be treated as a 25.2 Volt source. The 25.2 Volts is considered as being the theoretical maximum to which a capacitive load across the hazardous area terminals could become charged through the series blocking diodes. This voltage does not contribute to the short circuit sparking risk across the hazardous area terminals but only to the calculation of the load capacitance.

The Capacitance and either the Inductance or the Inductance to Resistance (L/R) ratio of the cables connected to the Hazardous Area Connectors should not exceed the following values:

GROUP	CAPACITANCE ( $\mu$ F)	INDUCTANCE (mH)	OR L/R RATIO ( $\mu$ H/ohm)
IIC	0.107	1000	947
IIB	0.82	1000	947
IIA	2.9	1000	947
I	4.15	1000	947

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  $1\mu\text{F}$  for Groups I, IIA & IIB and  $600\text{nF}$  for Group IIC.

**16 Report Number**

GB/BAS/ExTR15.0021/00

**17 Specific Conditions of Use**

None.

**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
266-0039BS-A	1 of 1	A	2014-Oct-15	Summary
266-0039BS-10A	1 – 3	A	2014-Oct-15	Type Label
266-010BS-04E	1 – 15	E	2014-Mar-27	Mechanical Parts

Current drawings which remain unaffected by this issue:






Number	Sheet	Issue	Date	Description
266-0039BS-00	1 to 10	-	2008-Sep-30	Description
266-0039BS-01	1 & 2	-	2008-Mar-20	Schematic
266-0039BS-02	1	-	2008-Sep-26	I.S. Relevant Components
266-0039BS-03	1	-	2008-Sep-29	Component Layout
266-0039BS-05	1 & 2	-	2008-Sep-29	PCB Layout
266-0039BS-06	1 to 3	-	2008-Mar-20	Transformer Details
266-0039BS-07	1 & 2	-	2008-Sep-29	PCB Lacquering Details

These drawings are common to, and held with, IECEx BAS 08.0059.

**20 Certificate History**

Certificate No.	Date	Comments
Baseefa03ATEX0141	10 April 2003	The release of the prime certificate. The associated test and assessment is documented in Test Report No. 03(C)0171.
Baseefa03ATEX0141/1	23 March 2004	To permit the replacement of a diode type with an equivalent type. Project File No. 04/0192
Baseefa03ATEX0141/2	27 February 2008	To permit minor electrical changes, a change of manufacturer address and to confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-0:2006 and EN 60079-11:2007 in respect of the differences from EN 50014:1997 + A1 & A2 and EN 50020:2002 and that none of these differences affect this equipment.  The equipment is also considered suitable for Group I applications and has additionally been assessed against the relevant requirements of EN 61241-11:2006 and the following additional marking may be applied:



Certificate No.	Date	Comments
		<p>  I (M1) [Ex ia] I   II (1)D [Ex iaD]            Test Report No. GB/BAS/ExTR08.0116/00. Project File No. 08/0267.         </p>
Baseefa03ATEX0141 Issue 3	7 July 2015	<p>           This issue incorporates previously issued primary and supplementary certificates into one certificate, permits changes to the transformer and confirms that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-0:2012+A11:2013 and EN 60079-11:2012 in respect of the differences from EN 60079-0:2006 and EN 60079-11:2007 and that none of these differences, with the exception of marking, affect this equipment. The equipment is now marked:         </p> <p>  II (1)G [Ex ia Ga] IIC   II (1)D [Ex ia Da] IIIC   I (M1) [Ex ia Ma] I         </p> <p>           Test Report No. GB/BAS/ExTR15.0021/00.            Project File No. 15/0067.         </p>
For drawings applicable to each issue, see original of that issue.		