

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: **BAS00ATEX7171 – Issue 4**

4 Equipment or Protective System: **Transformer Isolated Potentiometer Amplifier Type KFD2-PT2-Ex1....**

5 Manufacturer: **Pepperl + Fuchs GmbH**

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

7 This re-issued certificate extends EC – Type Examination Certificate No. BAS02ATEX7171 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 The original certificate was issued by The Electrical Equipment Certification Service, Notified Body Number 0600, which retains responsibility for its original documentation. Baseefa, Notified Body Number 1180, is responsible only for the additional work relating to this re-issued certificate and any other supplementary certificate it has issued.

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] IIIC (-20°C ≤Ta ≤+60°C)**

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

Baseefa Customer Reference No. **0808**

Project File No. **15/0066**

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**SGS Baseefa Limited**

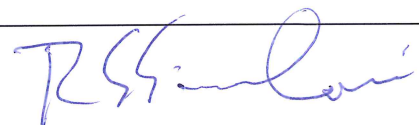
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**R S SINCLAIR**  
**GENERAL MANAGER**

On behalf of SGS Baseefa Limited

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## Schedule

14

Certificate Number BAS00ATEX7171 – Issue 4

### 15 Description of Equipment or Protective System

The Transformer Isolated Potentiometer Amplifier Type KFD2-PT2-Ex1.... is designed to enable the signal from a potentiometer located in the hazardous area to be monitored while limiting the voltage and current to intrinsically safe levels.

The equipment comprises a number of electronic components, including transformers, fuses, resistors and zener diodes, all mounted on a single printed circuit board and housed within a plastic enclosure fitted with terminals for external connections.

This certificate covers the following isolators:

	Type	Operational Output
KFD2-PT2-Ex1	KFD2-PT2-Ex1-Y98312	0-10V
KFD2-PT2-Ex1-1	KFD2-PT2-Ex1-1-Y107265	0-5V
KFD2-PT2-Ex1-2	KFD2-PT2-Ex1-2-Y107266	2-10V
KFD2-PT2-Ex1-3	KFD2-PT2-Ex1-3-Y107267	1-5V
KFD2-PT2-Ex1-4	KFD2-PT2-Ex1-4-Y107268	0-20mA
KFD2-PT2-Ex1-5	KFD2-PT2-Ex1-5-Y107269	4-20mA
	KFD2-PT2-Ex1-6-Y112844	0-24mA

The segregation of the hazardous area circuits meets the requirements for 250V.

### Input / Output Parameters

#### KFD2-PT2-Ex1... variants

Terminals 7, 8, 11 & 12 and Power Rail:

$$U_m = 253V$$

The equipment is designed to operate from a d.c. supply of up to 40V.

Terminals 1 to 5:

$$U_o = 10.4V \quad I_o = 31.4mA \quad P_o = 82mW \quad C_i = 0 \quad L_i = 0$$

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load for either current or voltage types must not exceed the following values:

GROUP	CAPACITANCE ( $\mu F$ )	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu H/ohm$ )
IIC	2.52	36.07		170
IIB	17.40	132.57		652
IIA	79.00	273.55		1203
I	110.00	473.31		3000

NOTE:

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

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

**KFD2-PT2-Ex1...Y... variants**

Terminals 7, 8, 11 & 12 and Power Rail:

$$U_m = 253V$$

The equipment is designed to operate from a d.c. supply of up to 40V.

Terminals 1 to 5:

$$U_o = 10.4V \quad I_o = 46mA \quad P_o = 120mW \quad C_i = 0 \quad L_i = 0$$

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load for either current or voltage types must not exceed the following values:

GROUP	CAPACITANCE ( $\mu$ F)	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu$ H/ohm)
IIC	2.53	17.23		123
IIB	17.40	64.57		456
IIA	79.00	136.24		901
I	110.00	220.54		3000

**NOTE:**

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

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

**16 Report Number**

GB/BAS/ExTR15.0020/00

**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
16-0706BS-D	1 of 1	D	2014-Oct-13	Summary
16-0706IE-04C	1 – 14	C	2014-Mar-27	Mechanical Parts






Current drawings also associated with this certificate.



Number	Sheet	Issue	Date	Description
16-0706IE-01	1 of 1	-	2009-Jul-21	Schematic
16-0706IE-02	1 & 2	-	2009-Jul-21	Relevant Components
16-0706IE-03	1 of 1	-	2009-Jul-21	Component Layouts
16-0706UL-05	1 – 6	-	2011-Oct-18	PCB
16-0706IE-06	1 – 4	-	2009-Jul-31	Transformer
16-0706IE-07	1 & 2	-	2009-Jul-22	PCB Lacquering
16-0706BS-10C	1 & 2	C	2012-Jan-12	Type Label

These drawings are common to and held with IECEx BAS 10.0060.

## 20 Certificate History

Certificate No.	Date	Comments
BAS00ATEX7171	4 October 2000	The release of the prime certificate. The associated test and assessment is documented in Test Report 00(C)0743.
BAS00ATEX7171/1	27 April 2001	To permit the addition of the KFD2-PT2-Ex1-6-Y112844 0-24mA type
BAS00ATEX7171/2	12 July 2010	<ul style="list-style-type: none"> <li>- 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 + Amds 1 &amp; 2 and EN 50020:1994 and that none of these differences affect this equipment.</li> <li>- 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:  <div style="margin-left: 20px;">  <b>I (M1) [Ex ia] I</b>   <b>II (1)D [Ex iaD]</b> </div> </li> </ul> <p>Report No. GB/BAS/ExTR10.0125/00. Project File No. 09/0676.</p>
BAS00ATEX7171/3	28 June 2012	<p>To permit:</p> <ul style="list-style-type: none"> <li>- Minor changes to the PCB.</li> <li>- 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 60079-0:2006 and EN 60079-11:2007 and that none of these differences, with the exception of marking, affect this equipment. The equipment is now marked:  <div style="margin-left: 20px;">  <b>II (1)G [Ex ia Ga] IIC</b>   <b>II (1)D [Ex ia Da] IIIC</b>   <b>I (M1) [Ex ia Ma] I</b> </div> </li> </ul> <p>Test Report No. GB/BAS/ExTR12.0163/00. Project File No. 12/0035.</p>

Certificate No.	Date	Comments
BAS00ATEX7171 Issue 4	28 April 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 in respect of the differences from EN 60079-0:2006 and that none of these differences affect this equipment.</p> <p>Test Report No. GB/BAS/ExTR15.0020/00 Project File No. 15/0066.</p>
For drawings applicable to each issue, see original of that issue.		