1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion Directive 2014/34/EU**

3 EU - Type Examination Certificate Number: **Baseefa06ATEX0040 – Issue 4**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **Type KFD2-VR2-Ex1.50M/500M Transformer Isolated Voltage Repeater**

5 Manufacturer: **Pepperl+Fuchs SE**

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

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa06ATEX0040 to apply to product 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 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

8.1 The original certificate was issued by SGS Baseefa Ltd (UK Notified Body 1180). It, and any supplements previously issued by SGS Baseefa Ltd have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

The examination and test results are recorded in confidential Report No. **See Certificate History**

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

EN IEC 60079-0:2018 **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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

See Schedule

SGS Fimko Oy Customer Reference No. **0808** Project File No. **22/0465**

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Authorised Signatory for SGS Fimko Oy

13 # Schedule

14 ## Certificate Number Baseefa06ATEX0040 – Issue 4

15 Description of Product

The Type KFD2-VR2-Ex1.50M/500M Transformer Isolated Voltage Repeater is used to restrict the transfer of energy in the form of a low voltage analogue signal from unspecified non-hazardous area apparatus to intrinsically safe circuits located in a hazardous area. It also provides galvanic isolation between the hazardous area and non-hazardous area circuits.

The Type KFD2-VR2-Ex1.50M/500M Transformer Isolated Voltage Repeater comprises a number of electrical components, including two isolating transformers, fuses, resistors and zener diodes all mounted onto a single printed circuit board (PCB) and housed within a plastic enclosure with plug-in terminals.

The safety device is marked as follows:

⟨Ex⟩ II (1) G [Ex ia Ga] IIC (-40°C ≤ Ta ≤ +70°C)

⟨Ex⟩ II (1) D [Ex ia Da] IIIC (-40°C ≤ Ta ≤ +70°C)

⟨Ex⟩ I (M1) [Ex ia Ma] I (-40°C ≤ Ta ≤ +70°C)

Any temperature range within the -40°C ≤ Ta ≤ +70°C range shown above the front of this certificate may be printed on the equipment. e.g. -20°C ≤ Ta ≤ +60°C.

Input/Output Parameters

Non-hazardous Area Terminals 1 & 14 wrt 2 & 15 and 7 wrt 8

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 4 wrt 5

U_o	=	5.5V	C_o	=	58µF
I_o	=	2.4mA	L_o	=	1000mH
P_o	=	3.3mW			
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 the apparatus must not exceed the following values:

Hazardous Area Terminals 4 wrt 5

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/ohm)
IIC	58	1000	425
IIB/IIIC	1000	1000	425
IIA	1000	1000	425
I	1000	1000	425

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

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

16 Report Number

See Certificate History

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	LVD type requirements	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
266-012BS-D	1 of 1	D	2022-Aug-12	Summary
266-012BS-10D	1 & 2	D	2022-Aug-12	Type Label

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
266-012BS-01A	1 & 2	A	2008-Dec-02	Schematic
266-012BS-03A	1 of 1	A	2008-Dec-02	Component overlay
266-012BS-05A	1 – 6	A	2008-Dec-02	Main printed circuit board
266-012BS-02B	1 of 1	B	2017-Sep-20	Safety relevant components
266-010BS-04F	1 – 15	F	2016-Mar-23	Mechanical Parts
266-012BS-06A	1 & 2	A	2017-Sep-20	Transformer details

All drawings are common to, and held with, IECEx BAS 06.0011.

20 Certificate History

Certificate No.	Date	Comments
Baseefa06ATEX0040	8 March 2006	The release of the prime certificate. The associated test and assessment is documented in Test Report No. 05(C)0664.
Baseefa06ATEX0040/1	29 September 2009	To permit changes to the schematic and PCB to introduce the Type KFD2-VR2-Ex1.500M. 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 60079-

Certificate No.	Date	Comments
		0:2000 and EN 60079-11:1999 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: **Ex I (M1) [Ex ia] I** **Ex II (1)D [Ex iaD]** Report No. GB/BAS/ExTR09.0009/00. Project File No. 08/0921.
Baseefa06ATEX0040 Issue 2	7 July 2015	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: **Ex II (1)G [Ex ia Ga] IIC** **Ex II (1)D [Ex ia Da] IIIC** **Ex I (M1) [Ex ia Ma] I** Test Report No. GB/BAS/ExTR15.0021/00 Project File No. 15/0067.
Baseefa06ATEX0040 Issue 3	10 April 2018	To permit the introduction of alternative components and the use of an alternative housing material. Test Report No. GB/BAS/ExTR18.0075/00 Project File No. 17/0737.
Baseefa06ATEX0040 Issue 4	22 December 2022	To permit a change of ambient temperature from -20°C to +60°C to -40°C to +70°C (any temperature range within the -40°C ≤ Ta ≤ +70°C range shown on the front of this certificate may be printed on the equipment. e.g. -20°C ≤ Ta ≤ +60°C) and to confirm that the safety device meets the requirements of EN IEC 60079-0:2018 in respect of the differences from EN 60079-0:2012+A11:2013. Additionally, the company name has changed to Pepperl+Fuchs SE. Test Report No. GB/BAS/ExTR22.0231/00 Project File No. 22/0465
For drawings applicable to each issue, see original of that issue.		