



[1] **EU – TYPE EXAMINATION CERTIFICATE**

[2] Equipment or Protective Systems Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU.

[3] EU-Type Examination Certificate Number: **FIDI 22 ATEX 0029X** Issue: **1**

[4] Product: **Switch amplifier**

Type: **KFU8-SR-Ex*.W***

[5] Manufacturer: **Pepperl+Fuchs SE**

[6] Address: **Lilienthalstrasse 200; 68307 Mannheim; Germany**

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

[8] FIDITAS Ltd., Notified Body number 2829 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 of the Directive.

The examination and test results are recorded in confidential Report No: **FIDI 22 CR 045**

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

EN IEC 60079-0:2018

EN IEC 60079-7:2015+A1:2018

EN 60079-11:2012

EN IEC 60079-15:2019

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 Specific Conditions of Use specified in the schedule to this certificate.

[11] This EU-Type Examination Certificate relates only to the design, examination and test of the specified product in accordance with Annex III. Further requirements of the Directive apply to the manufacturing process and supply of this products. These are not covered by this certificate.

[12] The marking of the product shall include the following:



II 3 (1) G Ex ec nC [ia Ga] IIC T4 Gc

II (1) D [Ex ia Da] IIIC

I (M1) [Ex ia Ma] I

Our ref.: 22.CRT.003

Date: 19.09.2022



Fiditas d.o.o.
ZAGREB

FIDITAS Ltd.
Certification department

Approved:

Marino Kelava, M.E.Eng.



[13] **SCHEDULE**

[14] **EU – TYPE EXAMINATION CERTIFICATE No.: FIDI 22 ATEX 0029X**

[15] **Description of product**

The switch amplifier KFU8-SR-Ex*.W* is designed as associated apparatus and can be installed in the non-hazardous area or in areas requiring EPL Gc equipment. The device is an associated apparatus for areas requiring EPL Ga, Da or Ma equipment. The voltage and current at the input terminals are limited to intrinsically safe levels. The hazardous area circuit is galvanically isolated from the non-hazardous area circuit.

The outputs are designed as relay outputs.

The hazardous area circuits are galvanically isolated from all other circuits up to a peak value of the nominal voltage of 375 V.

Type designation:

KFU8-SR-Ex1.W*
KFU8-SR-Ex1.W.LB*
KFU8-SR-Ex2.W*

Where “*” represents alphanumeric signs (e.g. –Y1). This “*” is optional and is used to describe different versions of a module. These differences do not affect type of protection.

Non-intrinsically safe circuits:

Power Supply:

Connection: Terminals 14 and 15 resp.
Rated Voltage: 19 ...30 V DC or 90...253 V AC
Maximum Voltage U_m : 253 V

Outputs:

Connection: Terminals 7, 8, 9 resp. 10, 11, 12

$U \leq 250 \text{ V AC}$	$U \leq 126.5 \text{ V AC}$	$U \leq 40 \text{ V DC}$	$U \leq 220 \text{ V DC}$
$I \leq 2 \text{ A AC}$	$I \leq 4 \text{ A AC}$	$I \leq 2 \text{ A DC}$	$I \leq 200 \text{ mA DC}$
$S \leq 500 \text{ VA}$	$S \leq 500 \text{ VA}$	$P \leq 80 \text{ W}$	
$\cos \varphi \geq 0.75$	$\cos \varphi \geq 0.75$		

Maximum Voltage U_m : 253 V AC





Intrinsically safe circuits:

Input circuits:

Connection: Terminals 1, 2, 3 resp. 4, 5, 6

Maximum values per channel: U_0 = 10.5 V
 I_0 = 13 mA
 P_0 = 34 mW
Characteristic: linear
 C_i = negligible
 L_i = negligible

The capacitance and the inductance of the load connected to the input terminals must not exceed the following values:

Type of protection	Ex ia resp. ib			
	I	IIA	IIB/IIIC	IIC
Maximum permissible external inductance L_0	1000 mH	1000 mH	840 mH	210 mH
Maximum permissible external capacitance C_0	95 μ F	75 μ F	16.8 μ F	2.41 μ F

Note:

The above parameters of capacitance and inductance apply when one of the two conditions below is met:

- The total L_i of the external circuit (excluding the cable) is < 1 % of the L_0 value or
- The total C_i of the external circuit (excluding the cable) is < 1 % of the C_0 value.

The above parameters for capacitance and inductance are reduced to 50 % when both of the two conditions below are met:

- the total L_i of the external circuit (excluding the cable) is \geq 1 % of the L_0 value and
- the total C_i of the external circuit (excluding the cable) is \geq 1 % of the C_0 value.

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

Maximum values for both channels combined: U_0 = 10.5 V
 I_0 = 26 mA
 P_0 = 68 mW
Characteristic: linear
 C_i = negligible
 L_i = negligible

The capacitance and the inductance of the load connected to the input terminals must not exceed the following values:

Type of protection	Ex ia resp. ib			
	I	IIA	IIB/IIIC	IIC
Maximum permissible external inductance L_0	500 mH	420 mH	210 mH	52 mH
Maximum permissible external capacitance C_0	95 μ F	75 μ F	16.8 μ F	2.41 μ F



Note:

The above parameters of capacitance and inductance apply when one of the two conditions below is met:

- The total Li of the external circuit (excluding the cable) is < 1 % of the Lo value or
- The total Ci of the external circuit (excluding the cable) is < 1 % of the Co value.

The above parameters for capacitance and inductance are reduced to 50 % when both of the two conditions below are met:

- the total Li of the external circuit (excluding the cable) is ≥ 1 % of the Lo value and
- the total Ci of the external circuit (excluding the cable) is ≥ 1 % of the Co value.

The reduced capacitance of the external circuit (including cable) shall not be greater than $1\mu\text{F}$ for I, IIA, IIB and 600nF for IIC.

Rated data:

Tamb = -40°C to $+60^{\circ}\text{C}$ / $+70^{\circ}\text{C}$

(extended ambient temperature range up to 70°C , refer to the manual for necessary mounting conditions)

Ingress protection: IP20

[16] Confidential Report No. FIDI 22 CR 045

[16.1] Routine testing

The manufacturer shall carry out routine test for the infallible transformer according to EN 60079-11.

[17] Specific Conditions of Use

Requirements for installation in areas requiring Equipment Protection Level Gc

- The device must be installed and operated only in a controlled environment that ensures a pollution degree 2 (or better) according to EN IEC 60664-1.
- The device must be installed and operated only in an environment of overvoltage category II (or better) according to EN IEC 60664-1.
- The device must be installed and operated only in the surrounding enclosure that:
 - complies with the requirements for surrounding enclosures according to EN IEC 60079-0,
 - is rated with the degree of protection IP54 according to EN 60529.

[18] Essential Health and Safety Requirements

Covered by the conformity with harmonized standards listed under item 9.





[19] Drawings and Documents

Title:	Drawing No.:	Rev. level:	Date:
Description, Calculations (39 pages)	16-1580FI-00	-	30.06.2022
Schematics (2 pages)	16-1580FI-01	-	14.02.2022
Relevant Components (3 pages)	16-1580FI-02	-	30.06.2022
Component Set-Up (2 pages)	16-1580FI-03	-	14.02.2022
Enclosure / Housing (1 pages)	16-1580FI-04	-	14.02.2022
Layouts, Multilayer (4 pages)	16-1580FI-05	-	14.02.2022
Transformer (2 pages)	16-1580FI-06	-	14.02.2022
Coating (2 pages)	16-1580FI-07	-	14.02.2022
Instructions (2 pages)	16-1580FI-09	-	14.02.2022
Label / Marking (1 pages)	16-1580FI-10	-	14.02.2022