[1] EU-TYPE EXAMINATION CERTIFICATE - Translation

[2] Equipment or protective systems
intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU20ATEX1107 X** | Issue 0

[4] Product: **Ex-i isolated switch amplifier**
Type: 707540/38

[5] Manufacturer: JUMO GmbH & Co. KG

[6] Address: Moritz-Juchheim-Straße 1
36039 Fulda
GERMANY

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

[8] IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 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.

The examination and test results are recorded in the confidential test report IB-20-3-0018.

[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 and 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 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:

Ex I (M1) [Ex ia Ma] I
Ex II (1)G [Ex ia Ga] IIC
Ex II (1)D [Ex ia Da] IIIC
Ex II 3(1)G Ex ec nC [ia Ga] IIC T4 Gc
$-40\ °C \leq T_{amb} \leq +60\ °C$

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- Seal -
(notified body number 0637)

Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2020-10-21

[13] **Schedule**

[14] **Certificate number IBExU20ATEX1107 X** | Issue 0

[15] **Description of product**

The Ex-i isolated switch amplifiers type 707540/38 are used for the intrinsically safe and galvanically iso-lated operation of proximity switches with NAMUR behaviour or potential-free switches and re-sistance-connected switches. They are equipped with a wide voltage range supply. The equipment is provided for installation in zone 2 or in the safe area as associated apparatus. The intrinsically safe signal circuits may be routed into areas that require EPL Ma, Ga (Zone 0) or Da (Zone 20).
The voltage difference between input and output circuit or supply can be up to 375 V peak. The mod-ules are equipped with a circuit for the detection of line faults.

Technical data:

Environmental data	
Ambient temperature range	-40 °C up to +60 °C
Degree of protection of the enclosure	≥ IP 20

Electrical data			
1.	**Power Supply (1.1 and 1.2)**		
	rated voltage range	U_N	24 ... 230 V DC or AC
	supply current	I_N	< 42 mA (24 V DC); max. < 80 mA (20 V AC)
	power consumption	P_N	< 1.1 W
	maximum r.m.s. or d.c. voltage	U_m	253 V
	galvanically separated up to a peak voltage	U_p	375 V
2.	**Intrinsically safe sensor circuit (4.1 and 4.3/5.1 and 5.3)**		
	maximum output voltage	U_O	9.56 V
	maximum output current	I_O	10.3 mA
	maximum output power	P_O	25 mW
	characteristic		linear (928 Ω)
	internal capacitance, inductance	C_i;L_i	negligible
3.	**Relay output (2.1 ... 2.3 / 3.1 ... 3.3)**		
	maximum switching voltage	U_S	250 V AC (2 A) / 120 V DC (0.2 A) / 30 V DC (2 A)
	maximum switching power	P_S	500 VA

For circuits including inductances and capacitances the following has to be observed:
The values for L_O and C_O, mentioned in this certificate are allowed for:

- distributed inductances and capacitances, e.g. as in a cable or
- if the total L_i of the external circuit (excluding the cable) is < 1 % of the L_O value or
- if the total Ci of the external circuit (excluding the cable) is < 1 % of the Co value.

	Ex ia IIC	Ex ia IIB/IIIC	Ex ia IIA, Ex ia I
C_O	3.6 µF	26 µF	210 µF
L_O	300 mH	1000 mH	1000 mH

The values of L_O and C_O, mentioned in this certificate shall be reduced to 50 % or taken from the following table if both of the following conditions 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.

	Ex ia IIC					Ex ia I, Ex ia IIB/IIA, Ex ia IIIC			
C_o	510 nF	580 nF	600 nF	600 nF	600 nF	1 µF	1 µF	1 µF	1 µF
L_o	100 mH	50 mH	5 mH	1 mH	10 µH	100 mH	5 mH	1 mH	10 µH

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

[16] **Test report**

The test results are recorded in the confidential test report IB-20-3-0018 of 2020-10-16.
The test documents are part of the test report and they are listed there.

Summary of the test results

The Ex-i isolated switch amplifiers type 707540/38 mentioned under [4] fulfil the requirements of explosion protection on an associated apparatus for Group I and II and Category M1 and 1G or 1D in type of protection intrinsic safety.
Additionally the Ex-i isolated switch amplifiers fulfil the requirements of explosion protection of an electrical equipment for Equipment Group II and Category 3G in type of protection increased safety in combination with type of protection "n", sealed device and intrinsic safety.

[17] **Specific conditions of use**

- The Ex-i isolated switch amplifiers 8 have to be installed in a certified housing fulfilling the requirements of EN 60079-7 or another recognized type of protection. The housing has to maintain a degree of protection of at least IP54 according to EN 60529 for operation in zone 2.
- Connecting and disconnecting of non-intrinsically safe circuits are not allowed in energized state of the Ex-i isolated switch amplifiers.
- The DIP Switches may only be used if no explosive atmosphere is present.

[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 test report:
None

[19] **Drawings and Documents**

The documents are listed in the test report.

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By order

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Freiberg, 2020-10-21