

[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 **IBExU20ATEX1015 X** | Issue 1

[4] Product: **Electronic Temperature Controller**
Type: Ex-TC/*-*

[5] Manufacturer: eltherm production GmbH

[6] Address: Ernst-Heinkel-Straße 6-10
57299 Burbach
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-20-3-0184.

[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 60079-18:2015 and EN 60079-31:2014
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:

II 2G Ex eb ib mb IIC T6...T5 Gb

II 2D Ex ib tb IIIC T85°C...T100 °C Db

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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, 2021-03-09

[13] **Schedule**

[14] **Certificate number IBExU20ATEX1015 X | Issue 1**

[15] **Description of product**

The electronic temperature controller type Ex-TC/*-* is intended for use for control and limitation of operating equipment in explosion hazardous areas.

The types Ex-TC/*-W and Ex-TC/*-10 are for wall mounting and type Ex-TC/*-It is for mounting on pipes.

type	function	intrinsically safe circuits for Pt100	output
Ex-TC/A-*	Controller	1	With Alarm output
Ex-TC/L-*	Limiter	1	With Alarm output
Ex-TC/AL-*	Controller + Limiter	2	With Alarm output
Ex-TC/M-*	Controller + MODBUS	1	With MODBUS

Technical Data

enclosure material	Polyamide, glas filled, UV resistant
ambient temperature types ...-W	-45 °C to 40 °C / 50 °C (dep. on current)
ambient temperature types ...-It	-20 °C to 40 °C / 50 °C (dep. on current)
Ambient temperature types ...-10	-55 °C to 40 °C / 50 °C (dep. on current)
IP rating	At least IP65
supply voltage (Connections L, N)	U _n = 230 V AC, ±10 %, 50 Hz U _m = 253 V AC The load input has to be fused with 25 A (40 °C) resp. 20 A (50 °C)
Load output (Connections No, Lo)	for connection of heating devices max. 25 A (40 °C), resistive load max. 20 A (50 °C), resistive load
Relay output common alarm Ex-TC/A-*, Ex-TC/L-*, Ex-TC/M-* (2 Connections A)	1 NO contact: permissible values: 250 V AC, 3 A, 100 VA resp. 24 V DC, 5 A, 100 W
Modbus, Ex-TC/M-* (Connections D+, D-, GND)	RS485 RTU, U _m = 6 V
Measuring circuits (Connections 1, 2, 3 [TC/A: Controller: TC/L: Limiter] 1, 2, 3 [TC/AL: Controller] 4, 5, 6 [TC/AL: Limiter] 1, 2, 3 [TC/M: Controller])	in type of protection intrinsic Safety Ex ib IIC/IIB resp. Ex ib IIIC Maximum values per circuit: U _o = 2.5 V I _o = 36.8 mA P _o = 40 mW R = 155 Ω Characteristic line: trapezoidal Only for the connection of Pt100-resistance thermo-couples

Ex ib	IIC			IIB, IIIC		
maximum external inductance	44 mH	10 mH	1 mH	100 mH	10 mH	1 mH
maximum external capacitance	1.2 µF	7.1 µF	14 µF	28 µF	65 µF	110 µF

Variations compared to issue 0 of this certificate:

- Addition of new type Ex-TC/*-10
- Use of alternate terminals

[16] Test report

The test results are recorded in the confidential test report IB-20-3-0184 of 2021-03-03.
The test documents are part of the test report and they are listed there.

Summary of the test results

The electronic temperature controller type Ex-TC/*-* further meets the requirements of explosion protection for devices of group II, category 2G in ignition protection type "eb" with "ib" and "mb" as well as category 2D in type of protection protection by enclosure "t".

[17] Specific conditions of use

- For the circuits "MODBUS" and "supply voltage", an overvoltage category I/II/III according to EN 60664-1 is permissible.
- The supply circuit has to be fused externally with max. 25 A (40 °C) resp. 20 A (50 °C).
- The Pt100 sensors connected to the intrinsically safe circuits can be assessed as simple electrical apparatus according to section 5.7 of EN 60079-11.
- The device can be used in an extended ambient temperature range:

Types Ex-TC/*-W:	-45 °C to 40 °C (25 A)
	-45 °C to 50 °C (20 A)
Types Ex-TC/*-It:	-20 °C to 40 °C (25 A)
	-20 °C to 50 °C (20 A)
Types Ex-TC/*-10:	-55 °C to 40 °C (25 A)
	-55 °C to 50 °C (20 A)
- When using connection cables with a cable cross-section of 3x1.5 mm², T5/T100 °C must be marked and temperature resistant cables according to the manual must be used. For larger cable cross sections, T6/T85 °C applies.
- The selection of the cable glands, blanking plugs and reduction fittings used depends on the ambient temperature range and may vary.
- The installation of the types Ex-TC/*-It is only possible with mounting post „eltherm Ex-It“.
- The use of cable glands, blanking plugs and reducing glands is only allowed combined with sealing gasket / O-ring and has to be rated for protection level „e“ or „t“ with EPL Gb or Db.

[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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