



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Ex COMPONENT CERTIFICATE

Certificate No.:	IECEx TUN 19.0014U	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 0	
Date of Issue:	2019-11-27		
Applicant:	eltherm production GmbH Ernst-Heinkel-Straße 6 - 10 57299 Burbach Germany		
Ex Component:	Ex-Heating control unit		

This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 60079-0).

Type of Protection: **Increased safety "e", intrinsic safety "i", encapsulation "m"**

Marking: Ex eb ib mb [ib Gb] IIC Gb
Ex eb ib mb [ib IIIC Db] IIC Gb

Approved for issue on behalf of the IECEx
Certification Body:

Christian Roder

Position:

Head of the IECEx Certification Body

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1, 30519 Hannover
Germany





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Manufacturer: **eltherm production GmbH**
Ernst-Heinkel-Straße 6 - 10
57299 Burbach
Germany

Manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The component and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-18:2014 Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"
Edition:4.0

IEC 60079-7:2015 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
Edition:5.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the component listed has successfully met the examination and test requirements as recorded in:

Test Report:

DE/TUN/ExTR19.0020/00

Quality Assessment Report:

FR/INE/QAR12.0007/05



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Ex Component(s) covered by this certificate is described below:

General product information:

The apparatus Ex-Heating controls type EX-TC/A, type EX-TC/L, type EX-TC/AL and type EX-TC/M are intended for use for control and limitation of operating equipment in explosion hazardous areas.

Ambient temperature range: -55 °C ... +40 °C (+55 °C), in dependence of load current, see below.

The following versions of the heating control exist:

Type	Function	Intrinsically safe circuits for Pt100	With MODBUS	With Alarm output
EX-TC/A	Controller	1	-	X
EX-TC/L	Limiter	1	-	X
EX-TC/AL	Controller + Limiter	2	-	X
EX-TC/M	Controller + MODBUS	1	X	-

Electrical data

Supply voltage $U_n = 230 \text{ V a. c.}, \pm 10\%, 50 \text{ Hz}$
(Connections L, N) $U_m = 253 \text{ V a. c.}$
The load input has to be fused with
25 A (40 °C) resp. 20 A (55 °C)

Load output for connection of heating devices
(Connections No, Lo) load current
max. 25 A (40 °C), resistive load
max. 20 A (55 °C), resistive load

Relay output common alarm,
EX-TC/A, EX-TC/L, EX-TC/M 1 NO contact; permissible values:
(2 Connections A) 250 V a. c., 3 A, 100 VA resp. 24 V d. c., 5 A, 100 W

Modbus, EX-TC/M RS485 RTU, $U_m = 6 \text{ V}$
(Connections D+, D-, GND)

Measuring circuits in type of protection Intrinsic Safety Ex ib IIC/IIB resp. Ex ib IIIC

(Connections

1, 2, 3 [TC/A: Controller; TC/L: Limiter]

Maximum values per circuit:

1, 2, 3 [TC/AL: Controller]

$U_o = 2.5 \text{ V}$

4, 5, 6 [TC/AL: Limiter]

$I_o = 36.8 \text{ mA}$

1, 2, 3 [TC/M: Controller]

$P_o = 40 \text{ mW}$

$R = 155 \text{ }\Omega$

Characteristic line: trapezoidal

Only for the connection of Pt100-resistance
thermometers

Ex ib	IIC			IIB		
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

The maximum values of the table are also allowed to be used up to the permissible limits as concentrated capacitances and as concentrated inductances.

The values for IIC and IIB are also permissible for explosive dust atmospheres (IIIC).

The intrinsically safe measuring circuits are safely galvanically separated from the non intrinsically safe circuits up to the peak value of the voltage of 375 V.

The intrinsically safe measuring circuits are galvanically connected with each other and safely separated from earth potential.



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1. [PTK1]Include nomenclature (description of the type designations), if applicable.
2. When multiple types of protection are involved, details should be provided regarding which aspects of the equipment provide which types of protection, if not obvious.

SCHEDULE OF LIMITATIONS:

1. The "Ex-Heating control unit" has to be installed in a separate certified enclosure with a degree of protection of min. IP 54 according IEC 60079-0.
2. For the circuits "MODBUS" and "Supply voltage", an overvoltage category I/II/III according to IEC 60664-1 is permissible.
3. The supply circuit has to be fused externally with max. 25 A (40 °C) resp. 20 A (55 °C).
4. The Pt100 sensors connected to the intrinsically safe circuits can be assessed as simple electrical apparatus according to section 5.7 of IEC 60079-11.
5. The max. surface temperature rise has to be observed as follows:

Load current	Max. operating temperature	Max. surface temperature rise
25 A	40 °C	31 K
20 A	55 °C	20 K