eltherm®
innovations in heat tracing

Temperature sensor type
ELTF-PTEx.1
ELTF-PTEx.2
ELTF-PTEx.3
ELTF-PTEx.4

Instruction manual

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Index of contents

Revision service

Revision	Page	Type of changes	Person in charge	Date of change
2	all	Complete rework of rev. 1, added the ELTF PTEx 3 and 4	T.Herwick	31.07.2008
3		Installation examples added	P. Schmidt	08.12.2009
4		New electrical equipment marking	E. Christ	30.05.2012
5				

Technical data

Equipment group:

Ⓔx II 2G Ex eb IIC T6…T2 Gb
Ⓔx II 2D Ex tb IIIC TX Db

Exposure temperature: –45°C to + 235°C
max. measurement current: 10 mA

Temperature Class	T2	T3	T4	T5	T6
Max. measuring voltage	1,7V	1,7V	1,5V	1,3V	1,3V
Max. useable temperature for one RTD	235°C	195°C	130°C	95°C	80°C
Max. useable temperature for two RTD	230°C	190°C	125°C	90°C	75°C

The maximal surface temperature TX for dust is equivalent to the max. operation temperature.
In case of using both included RTD (type ELTF-PTEx.3 and ELTF-PTEx.4) it is required to have a min. difference of 10K between operating temperature and the limit of the relevant T-class.

Connection cable:

ELTF-PTEx.1 & ELTF-PTEx.2: 4x 0,14 mm², PTFE-insulated, shield nickel-plated copper, outer insulation diameter 3,5mm

ELTF-PTEx.3 & ELTF-PTEx.4: 6x 0,14 mm², PFA-insulated, shielding copper nickel-plated, outer insulation PFA, diameter 4,4mm

Protectionpipe:

ELTF-PTEx.1 & …3: mat. 1.4571, dimensions 50mm x 5mm
ELTF-PTEx.2 & …4: mat. 1.4301, dimensions 6mm x 6mm x 47mm, with protection bracket and fixing hole diameter 4mm

IP-Protection class: 65
max. impact resistance: 4 J for ELTF-PTEx.1 and ELTF-PTEx.3 7 J for ELTF-PTEx.2 and ELTF-PTEx.4
Precision acc. to IEC 751: B {+-(0,3 + 0,005 x T)} (T in °C)

Receipt of goods

Upon receipt of the goods check the temperature sensor and ancillaries with the information on the delivery note in order to ensure that the correct materials have been delivered.

Ensure that the correct certificate from an approved agency has been provided. The number on the sensor and the number stated in the certificate must be the same. The printing for the ELTF-PTEx.1 and ELTF-PTEx.3 is on the protective casing, and by the ELTF-PTEx.2 and ELTF-PTEx.4 on the protective bracket.

The marking is as follows:

for ELTF-PTEx.1:[1]

eltherm ELTF-PTEx.1 <Batch No: ...>

II 2G Ex eb IIC T6...T2 Gb

II 2D Ex tb IIIC TX Db

for ELTF-PTEx.2:

eltherm GmbH Burbach ELTF-PTEx.2

II 2G Ex eb IIC T6...T2 Gb

II 2D Ex tb IIIC TX Db

IBExU 04 ATEX 1004 X < Batch No: ...> CE 0637

IECEx IBE 12.0002 X

for ELTF-PTEx.3:[2]

eltherm ELTF-PTEx.3 < Batch No: ...>

II 2G Ex eb IIC T6...T2 Gb

II 2D Ex tb IIIC TX Db

for ELTF-PTEx.4:

eltherm GmbH Burbach ELTF-PTEx.4

II 2G Ex eb IIC T6...T2 Gb

II 2D Ex tb IIIC TX Db

IBExU 04 ATEX 1004 X < Batch No: ...> CE 0637

IECEx IBE 12.0002 X

[1] Shortened due to available space: Company, Location, Certificate Number, CE Symbol and Approval Agency Number – see marking for ELTf-PTEx.2 and .4

[2] refer to [1]

Storage

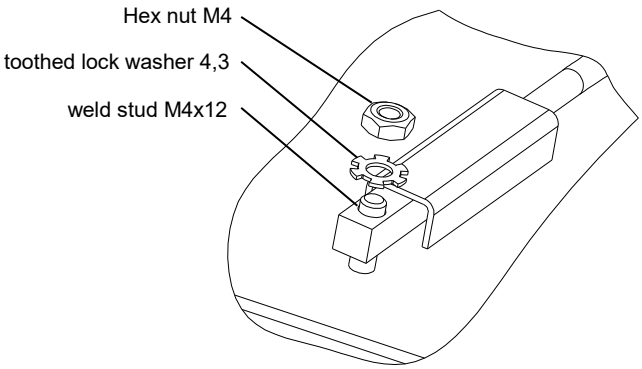
- The storage should follow at a dry area with an ambient temperature from –45...+60° C

Installation notes

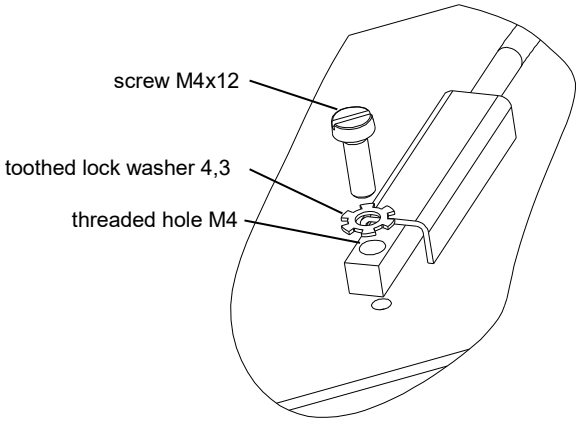
- The maximal temperature from +235°C may not be exceeded during the installation.
- The installation may only follow at temperatures above –45°C.
- Attention is to be made that the temperature sensor has a good contact to the surface to be sensed.
- The sensor cable is to be installed fixed, with protection against damage and without tension.
- The temperature sensor ELTF-PTEx.1 and ELTF-PTEx.3 are approved only with am impact protection from maximal 4J and must be mechanically protected
- In case of contemporary use of both included RTDs (type ELTF-PTEx.3 and ELTF-PTEx.4) it is required to have a min. difference of 10K between operating temperature and the limit of the relevant T-class!
- If only one RTD is used and a failure occurred, it is possible to switch to the redundant RTD. Therefore the electrical and mechanical attributes must be checked, before switching to the redundant sensor.

Installation examples

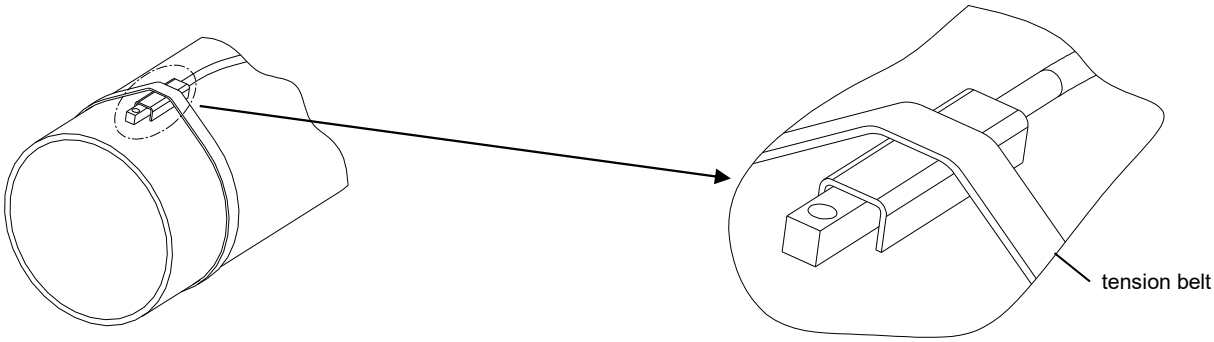
Alternative 1



Alternative 2

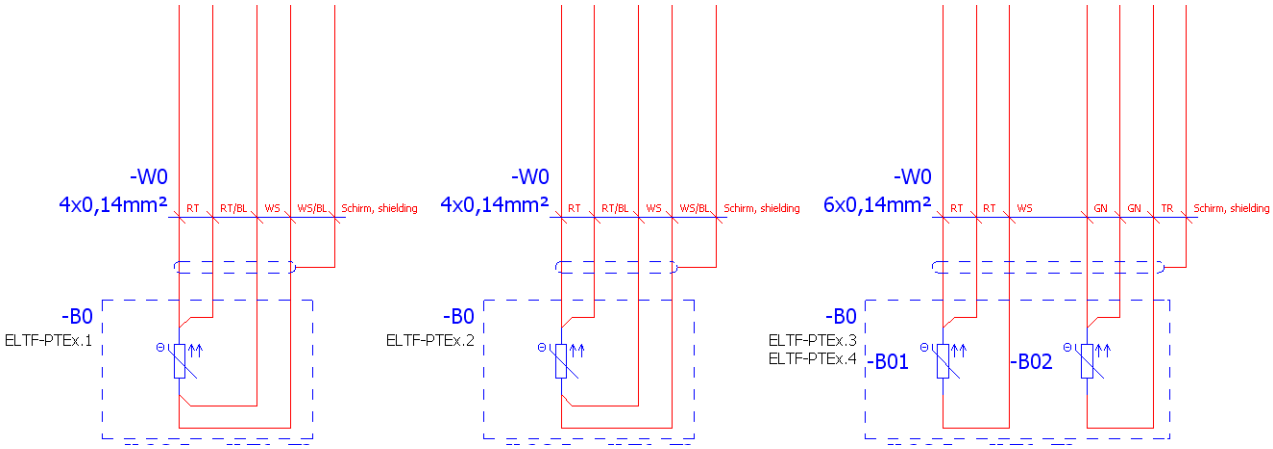


Alternative 3



electrical connection

- The temperature sensor is only to be terminated on the correct connections of an appropriate temperature controller. The controller operation values stated under 1 „
-
- Technical **data**“ must not be exceeded.
- The termination of the free cable ends must be either connected outside of the hazardous area or on an connection housing which is approved according to a method of protection stated in EN 60079-0, Part 1 „application range“
- The supply wire screen is to be earthed. This may either be done by fastening of the sensor protective tube to an earthed metallic area or by termination of the braiding to an earthed PE terminal. Only one of these methods should be used in order to prevent possible deviation of the measurement.
- Wiring diagram:



Operation and Maintenance:

- **The values mentioning in para. „**
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- **Technical** data**“ must be strictly adhered by the customer**
- The highest operation temperature of each temperature class must not be exceeded, see section „
-
- Technical data“.
- It is recommended that in regular intervals, but at least once a year, a visual check and function test be performed by trained personnel.
- The temperature sensors are to be protected against damage should there be any repair work done on the heated component parts.
- The temperature sensors are to be checked after completion of the repair work.
- Damaged temperature sensors are to be exchanged immediately.