Z31.0.XX.6C-14

GREISINGER

EN

Temperature probes for potentially explosive atmospheres

Operating Manual

GTF 103-Ex ...

CE 0158

Made in Germany

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1 General note

Read this document carefully and get used to the operation of the device before you use it.
Keep this document within easy reach near the device for consulting in case of doubt.

2 Safety

2.1 Intended Use

These resistance thermometers and thermocouples are designed for temperature measurement in explosion-prone areas in industrial applications.

The measuring range, depending on the version, covers temperatures from **-200 °C +600 °C (900 °C with thermocouple)**, wherein this can be limited due to the temperature class of the Ex area.
The probes are intended exclusively for use within the technical limit values indicated on the type plate and in this operating manual.

Only technically qualified persons are permitted to carry out installation, commissioning, operation and decommissioning. The qualified personnel must have carefully read and understood the operating manual before beginning any work.

The compatibility of the housing materials coming into contact with the medium to be measured and the measuring medium must assures so that no impairments of operational safety can arise.

The liability and warranty of the manufacturer for damages and consequential damages are voided with misuse, disregard of this operating manual, assignment of inadequately qualified technical personnel and arbitrary modifications of the product.

2.2 Safety signs and symbols

Warnings are labelled in this document with the followings signs:

Caution!
This symbol warns of imminent danger, death, serious injuries and significant damage to property at non-observance

Caution!
This symbol indicates a potentially dangerous situation in explosion-prone areas that can result in death or severe injuries if it is not avoided.

Attention!
This symbol warns of possible dangers or dangerous situations which can provoke damage to the device or environment at non-observance.

Note!
This symbol point out processes which can indirectly influence operation or provoke unforeseen reactions at non-observance.

2.3 Skilled personnel

are persons who are familiar with the set-up, installation, commissioning and operation of the product and have appropriate qualification for their work. For example:

- Training or instruction and/or authorisation, power circuits and devices/systems in accordance with the standards of safety for activation, deactivation, disconnection, earthing and identification.
- Training or instruction in accordance with the standard of safety technology for care and use of suitable safety equipment.
- Knowledge about the installation of devices in explosion-prone areas.

2.4 Safety guidelines

This device has been designed and tested in accordance with the safety regulations for electronic devices. However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advises given in this manual will be adhered to when using the device.

2.4.1 General

1.  Requirements of Directive 2014/34/EU (ATEX) and IECex must be observed
   The respective national regulations for Ex use must also be complied with (e.g. EN 60079-10 and EN 60079-14).
2.  Install the GTF 103-Ex according to the manufacturer's specifications and the valid standards and regulations.
3.  The temperature probe must only be connected to the feed devices provided for this purpose and approved for operation of the system for passive resistance sensors and thermocouples according to the appropriate standard. The electrical operating values must not be exceeded.
4.  **In ignition protection rating 'e' (elevated safety),** a fuse corresponding to the specifications of EC type examination certificate (refer also to chapter 3.5.2) and suitable for a possible short-circuit current of 1500 A must be installed upstream from every temperature probe in a suitable manner.
5.  **In ignition protection rating 'i' (intrinsically safe)** the probe must be earthed!
6.  With use of head transmitters, the configuration of the measuring head transducer is only permitted in <u>not</u> explosion-prone areas.
7. When replacing the measuring insert, the connections must be severed.
8. The environmental temperatures for the head must be observed.
9. The connections in the head must be made according to the connection diagram.
10. Only use connection cables with the permissible diameter and the appropriate seals of the cable and conductor gland (CCG). The intermediate support of the CCG must not be lost. Use blue cable screw glands of the cable and conductor gland for intrinsically safe power circuits.
11.  Take into account the self- heating of the probe tube for use depending on the measuring current.
    The sum of the media temperature and the temperature from self-heating of the probe tube must always be less that the ignition temperature of the medium.

12. 

The compatibility of the device materials used with your probe version and the measuring medium must be assured.
(*refer to Technical data for the materials*)

13. 

Use of the probe tube or housing as a climbing aid (e.g. for installation purposes) or as a holder for additional external loads is not permitted!

14. 

Mechanical modifications of the product (e.g. application of material by means of painting, removal of material by means of drilling into the housing) are not permitted!

2.4.2 Additional safety instructions for zone 0 or zone 20

These instructions must also be observed if the probe and head are installed in this zone.

1. 
Explosion-prone mixtures must only form under the following atmospheric conditions: -20°C ≤ Ta ≤ +60°C and 0.8 bar ≤ p ≤ 1.1 bar.

2. The limited environmental temperatures must be complied with (see chapter 4.1).

3. 
The feeding supply circuit must satisfy ignition protection rating Ex ia IIC and/or Ex ia IIIC.

2.4.3 Additional safety instructions for zone isolation

These instructions must also be observed if the probe is installed in Zone 0 and/or 20 and the head in zone 1, 2, 21 or 22.

1. 
Only use versions that are suitable for zone separation!

2. 
A gas-tight must be assured after installation!

3 Product description

3.1 General information

The GTF 103-Ex temperature probes are designed as integrated probes for use in explosion-prone areas **of all zones**. With their modular design, they offer maximum flexibility.
The probes have a connecting head with protection rating **IP 65**, which is either use for connection of the outside conductor only or also offers space for a head transmitter.

The measuring inserts of the GTF 103-Ex are available in 2 different sensor element groups, **resistance thermometer:** Pt 100, Pt 1000 or **thermocouple:** Type K.

Only mineral-insulated resistance thermometers and/or mineral-insulated thermocouples are used as sensor elements.
The materials used for the probe parts that come into contact with the medium consist of stainless steel (e.g. 1.4404, 1.4435, 1.4571 or Inconel 600). This guarantees high resistance to a wide variety of chemical compounds.

The range of use, depending on the version, theoretically covers a medium temperature of **-200 °C to +600 °C (900 °C)**. This is limited by the temperature class of the Ex area!
The permissible environmental temperature in the area of the connecting head depends on the temperature class, the temperature of the explosion-prone area and the medium temperature. It is a maximum of -20 °C to +80 °C (refer also to chapter 4.1).

With temperatures above 100°C, all GTF 103-Ex must be ordered with a minimum extension tube length (standard = 50 mm). The extension tube length must be selected such that the

permissible environmental temperature of the head is not exceeded depending on the measuring temperature and the installation situation.
Recommendation for minimum necessary extension tube lengths with good ventilation:

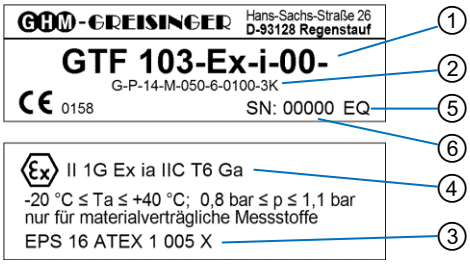
Measuring temperatures up to 250 °C	=>	extension tube length 50 - 100 mm
Measuring temperatures up to 400 °C	=>	extension tube length 100 - 200 mm
Measuring temperatures above 400 °C	=>	extension tube length 200 mm or longer

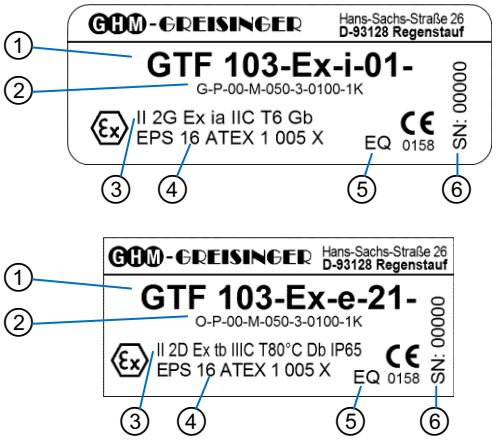
The measuring inserts of the GTF 103-Ex series are interchangeable, except for the measuring inserts with a probe tube diameter of 3 mm.

There a multitude of **base types of GTF 103-Ex** available that can all be custom assembled.

3.2 Identification

Examples for type plates





① Base type

② Extension of the variant code
(Type designation = ① + ②)

③ Approval number

④ Ex identification

⑤ Code for month/year of manufacture: MY
M: A = January, B = February, ..., L = December
Y: P = 2015, Q = 2016, R = 2017, ..., Z = 2025
(Example: EQ = May 2016)

⑥ Serial number

3.3 Which temperature probe, transmitter do I need?

You can easily determine the temperature probe or temperature transmitter for your specific application from the table below.

Zone 0 or 20

If the temperature must be detected in Ex Zone 0 or 20, the appropriate GTF103-Ex temperature probe in ignition protection class Ex ia IIC T6 can be used.
Only ATEX-approved devices can be used as display and/or control devices that meet the requirements of the corresponding zones.

Zone 0/1 or 20/21 (zone-separating)

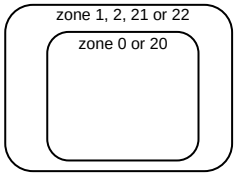
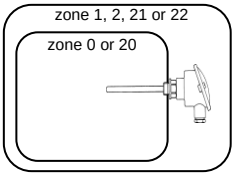
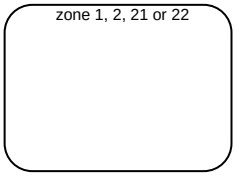
If the temperature must be detected in Ex Zone 0 or 20 and the probe connection is outside of this zone, the probe must be installed as appropriately zone-separating. For this purpose, the appropriate, suitable GTF103-Ex temperature probes in ignition protection class Ex ia IIC T6 are used.
Only ATEX-approved devices can be used as display and/or control devices that meet the requirements of the corresponding zones.

Zone 1, 2 or 21, 22

If the temperature must be detected in Ex Zone 1, 2 or 21, 22, the appropriate GTF103-Ex temperature probe in ignition protection class Ex ia IIC T6 or Ex e IIC T6 and Ex ia IIIC or Ex tb IIIC can be used.
If the display and/or control device is in Zone 1, 2 or 21, 22, only ATEX-approved devices of the appropriate zone can be used.

If the display and/or regulating device is outside of the Ex area, Ex approval is not required if the GTF 103-Ex temperature probe in ignition protection class Ex e IIC T6 or Ex tb IIIC is used and the safety instructions from chapter 2.4 are observed.

Table 1: Overview of use and requirements for the GTF 103-Ex-... in the individual Ex zones.

Ex zone	0	20	Zone isolation		1, 2	21, 22
			0/1	20/21		
Usable types	GTF 103-Ex-i-00-..	GTF 103-Ex-i-20-..	GTF 103-Ex-i-0A-..	GTF 103-Ex-i-2A-..	GTF 103-Ex-i-01-.. GTF 103-Ex-e-01-..	GTF 103-Ex-i-21-.. GTF 103-Ex-e-21-..
ATEX identification of probes	II 1G Ex ia IIC T6 Ga Ta = -20 … +60 °C	II 1D Ex ia IIIC T80°C Da IP65 Ta = -20 … +60 °C	II 1/2G Ex ia IIC T6 Ga/Gb	II 1/2D Ex ia IIIC T80°C Da/Db IP65	II 2G Ex ia IIC T6 Gb *or* II 2G Ex e IIC T6 Gb	II 2D Ex ia IIIC T80°C Db IP65 *or* II 2D Ex tb IIIC T80°C Db IP65
Probe with head transmitter	II 1G Ex ia IIC T6 Ga Ta = -20 … +40 °C	II 1D Ex ia IIIC T80°C Da IP65 Ta = -20 … +40 °C	II 1/2G Ex ia IIC T6 Ga/Gb Ta = -20 … +50 °C	II 1/2D Ex ia IIIC T80°C Da/Db IP65 Ta = -20 … +50 °C		
						

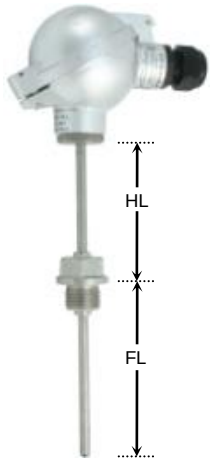
3.4 Probe types

The GTF 103-Ex is available in wide range of versions.
All variants of the GTF 103-Ex series have a large connecting head with adequate room for a head transmitter. In addition, the measuring inserts in this type series are interchangeable without removing the entire probe (except for probe tube D = 3 mm).

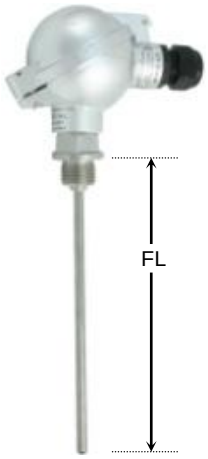
All other specifications are based on the choice of sensor element, the desired temperature range, the environmental temperature or the necessary ignition protection class.

Standard probes have a probe length of 100 mm, a probe diameter of 6 mm, a screw-in thread G=1/2" and an extension tube length of 50 mm for temperatures above 100 °C.
We also assemble the probes according to your specifications, insofar as the specifications for the GTF 103-Ex-... permit this (see technical data).

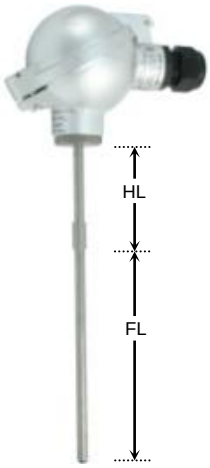
GTF 103-Ex-...-XX-M-...



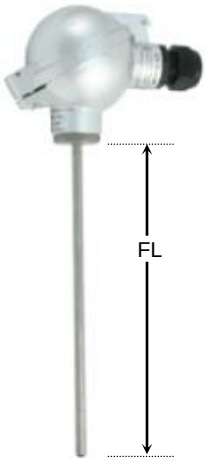
GTF 103-Ex-...-XX-K-...



GTF 103-Ex-...-00-M-...



GTF 103-Ex-...-00-K-...



3.5 Connection values (version without measuring transducer)

3.5.1 Approval 'i': intrinsically safe

Measuring circuit only for connection to certified intrinsically safe power circuits with the following maximum values:

Ui = 30 V
Ii = 300 mA
Pi = see table

The maximum permissible output of the connected intrinsically safe power circuit Pi depends on the temperature class of the temperature probe.

temperature class	Pi [mW]	
	D = 3 - 5 mm	D ≥ 6 mm
T6	125	250
T5	250	500
T4	400	800
T3	1000	1500
T1, T2	1500	

3.5.2 Approval 'e' elevated safety

Measuring current circuit:

Rated voltage = 4 V
Rated measuring current = 10 mA

Maximum permissible short-circuit current for current circuit: 500 mA (for Pt100, Pt1000)
100 mA (for TC type K)

4 Notes

4.1 Limited environmental temperatures

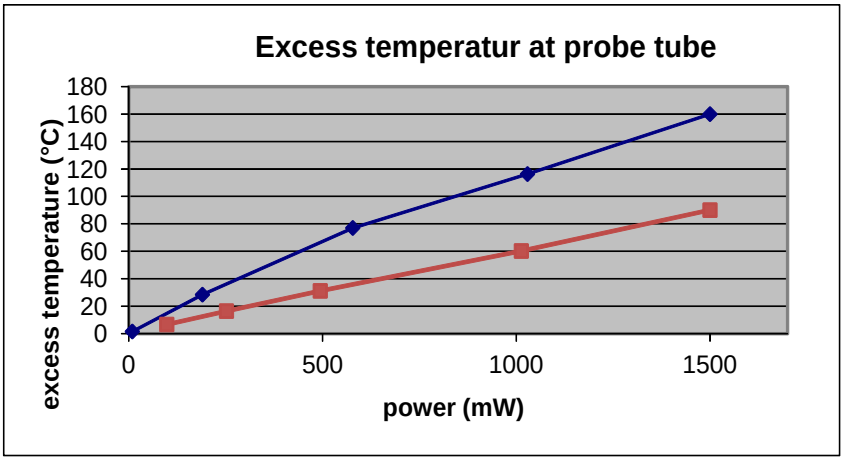
4.1.1 For type GTF 103-Ex-..-G-....		
Temperature class T6	Zone 0 -20°C ≤ Ta ≤ +40°C	Zone 1 and 2 -20°C ≤ Ta ≤ +50°C
4.1.2 For types GTF 103-Ex-i..-O-....		
Temperature class T6	Zone 0 -20°C ≤ Ta ≤ +60°C	Zone 1 and 2 -20°C ≤ Ta ≤ +80°C
4.1.3 For types GTF 103-Ex-e..-O-....		
Temperature class T6		Zone 1 and 2 -20°C ≤ Ta ≤ +60°C

4.2 Connection values and environmental conditions

A maximum of 25 mW should be applied to the measuring current circuit. When this value is observed, the temperature on the probe tube increases by a maximum of 4 °C in relation to the environmental temperature. The GTF 103-Ex must only be used if this temperature increase in relation to the medium temperature within the container is permissible.

If an additional load is applied to the measuring current circuit in the event of an error, the independent heating of the probe tube must be factored in during use.
The sum of the medium temperature and the temperature from independent heating of the probe tube must always - even in the event of an error - be less that the ignition temperature of the medium!

Overtemperature with loading of the measuring current circuit



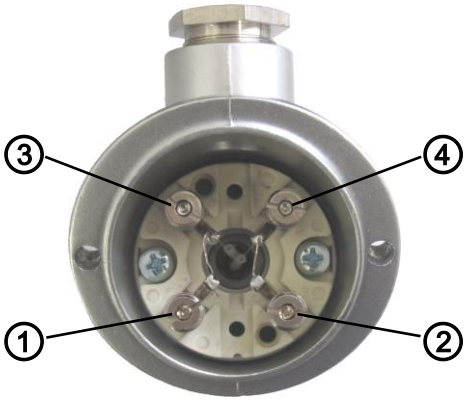
power [mW]	temperature rise [°C] D = 3 mm	D = 6 mm
9	1,5	
98		6,6
190	28,4	
252		16,4
494		31,1
578	77,0	
1013		60,2
1029	116,3	
1500	160	90

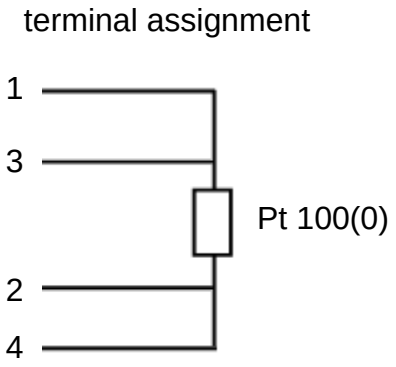
The requirements specified in the safety instructions apply for the supply and evaluating devices that are used.

5 Installation instructions

The layout for types GTF 103-Ex-i-..-G-.... with head transmitter GITT01-Ex or TMT181..-B.. is described in the separate operating manual of the head transmitter

5.1 Connection diagram for Pt100 and Pt1000





5.2 Layout for type K thermocouples

The connection terminal for the +pole is marked red.

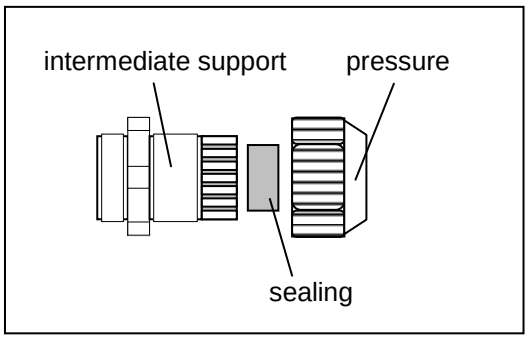
5.3 Cable and conductor gland (CCG)

The connecting heat has at least IP 65 protection rating, depending on the version. The customer is obligated to only use the cable with the specified diameter and to carry out proper installation. There is a risk of explosion if the cable installation is defective!
Attention: The cables and conductors must be secured (e.g. with a cable clamp) in a manner such that they cannot be pulled out of the gland.
The screw of the CCG must be checked in regular intervals to ensure tightness and re-tightened as necessary. Conversions and modifications of the gland elements are not permitted. Only original spare parts can be used for any repair work.

There are two different variants of the CCG available:

5.3.1 Cable screw gland

The intermediate support of the cable screw gland is adhered to the connecting head at the factory. Removal or loosening of the intermediate support with force is not permitted (torque > 3.75 Nm).

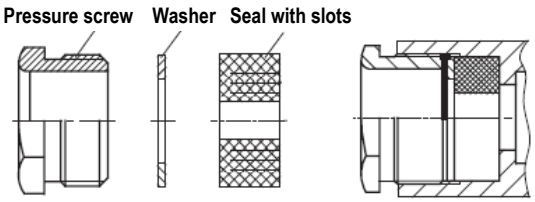


Only round cables with outside diameters (OD) between 5 and 9 mm are permitted. The screw must be tightened firmly to ensure the IP protection rating (2.50 Nm).
Over-tightening can also impair the protection rating.

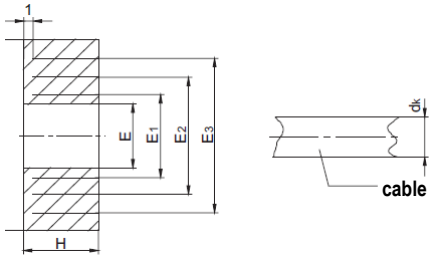
5.3.2 Pressure screw

In order to enable a greater clamping area for the cable inlet, the seal insert is equipped with fins.
For thicker connecting cables, the seal must be adapted to the outside diameter of the cable. Carefully remove the fins for this purpose.
(Please note: this adaptation cannot be undone!)

Configuration sketch:



Seal slots:



	without machining (E)	first fin removed (E1)	second fin removed (E2)	third fin removed (E3)
Seal inside diameter	Ø 5 mm	Ø 7.5 mm	Ø 10 mm	Ø 12.5 mm
Clamping area	4.0 - 6.0 mm	6.5 - 8.5 mm	9 - 11 mm	11 - 12.5 mm

6 Specification

Measuring range:

Pt100/Pt1000 without neck tube:	-200 ... +100 °C
Pt100/Pt1000 with neck tube:	-200 ... +600 °C
Thermocouple without neck tube:	-200 ... +100 °C
Thermocouple with neck tube:	-200 ... +900 °C

Sensor elements:

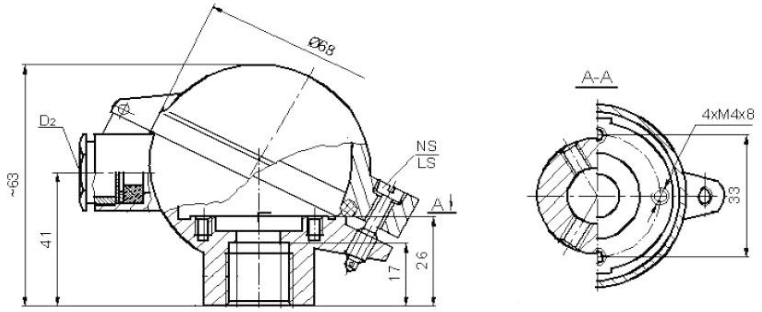
- Mineral-insulated resistance thermometer Pt100, class B, 4-wire
- Mineral-insulated resistance thermometer Pt1000, class B, 4-wire
- Mineral-insulated thermocouple type K

Probe tubes:

Stainless steel thread and probe tube
(1.4404, 1.4435, 1.4571, Inconel 600, etc.)
Standard version:
without neck tube: Thread G ½“A,
FL = 100 mm, D = 6 mm, WS ≥ 1,0 mm
with neck tube: Thread G ½“A,
FL = 100 mm, D = 6 mm, WS ≥ 1,0 mm,
HL = 50 mm, HD = 8 mm

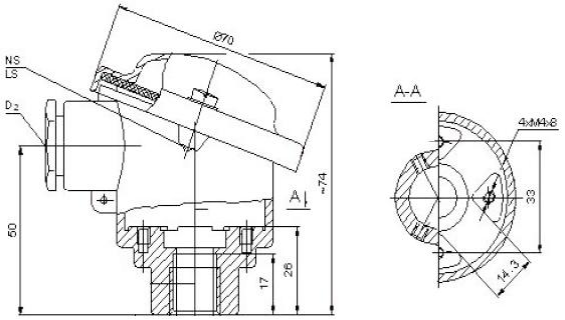
Head:

- **B-head with flap cover:**
  Housing: Die-cast aluminium (AlSi9Cu3), powder-coated (polyester),
  seal: Silicone, protection rating: IP 65,
  Environmental temperature (max): -20°C +80°C,



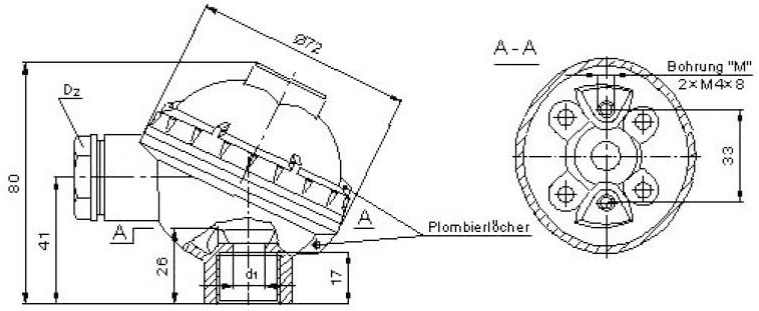
Maximum space for transmitter: ØxH = 42 x 14 mm
or 4-pin connection base with insulating washer

- **B-head:**
  Housing: Die-cast aluminium (AlSi9Cu3), cover: Aluminium die, powder-coated (Kreodur),
  Seal: oil-resistant rubber, Protection rating: IP 65,
  Environmental temperature (max): -20 +80 °C,



Maximum space for transmitter: ØxH = 44 x 21 mm
or 4-pin connection base with insulating washer

- **Anti-static plastic head**
  PAV (anti-static polyamide PA12),
  Seal: oil-resistant rubber, Protection rating: IP 65,
  Environmental temperature (max): -20 +80 °C,



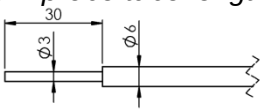
Maximum space for transmitter: ØxH = 42 x 14 mm
or 4-pin connection base with insulating washer

Cable and conductor gland

- **Cable screw gland**
  Material: Polyamide, Seal ring: NBR, IP 68 - 10 bar,
  Environmental temperature: max.: -20 +80 °C,
  Clamping range: Ø 5 - 9 mm
- **Pressure screw**
  Material: Nickel-plated brass and/or PAV (with plastic head)
  Seal ring: oil-resistant rubber or silicone (= identical with head seal), IP 65,
  Environmental temperature: max.: -20 +80 °C,
  Clamping range: Ø 4 - 12.5 mm

Possible components (not always applicable for all ignition protection classes and Ex zones)

Probe tube diameter: 3, 4, 5, 6, 8 mm
Comment: with diameter = 3 mm: Minimum probe tube length is 60 mm, the probe is offset 3 to 6 mm



Extension tube diameter: 6, 8 or 14 mm
Comment: Extension tube lengths up to 50 mm are also designed with a tube diameter of 6 mm with a probe tube diameter of 6 mm.
With greater lengths, and/or with a probe tube diameter of 8 mm, the standard diameter is 8 mm.
In addition, a tube extension diameter of 14 mm can be made.

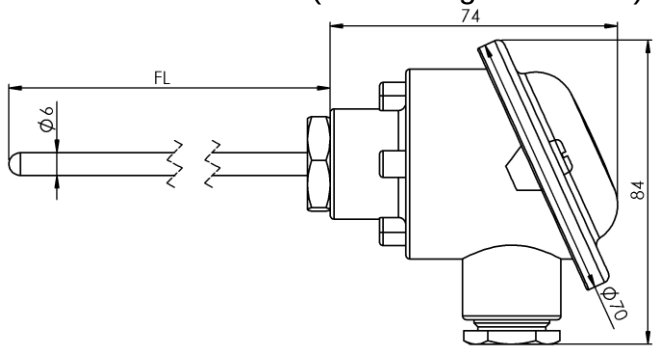
Thread type: G, R, NPT, M male thread

Thread size: $^1/_8$“, ¼“, $^3/_8$“, ½“, ¾“, 10x1, 12x1.5, 14x1.5, 16x1.5, 18x1.5

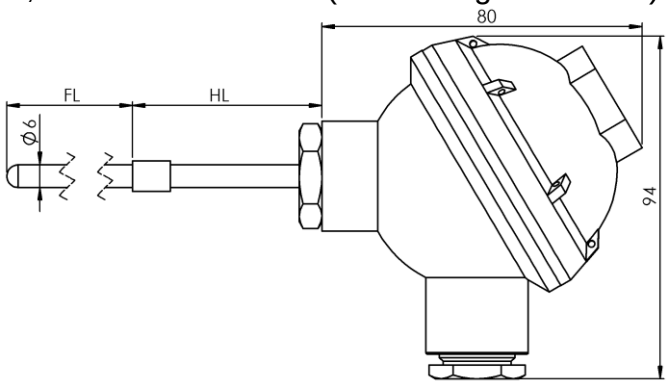
Sensor elements: Pt 100, Pt 1000, thermocouple type K

6.1 Dimensions

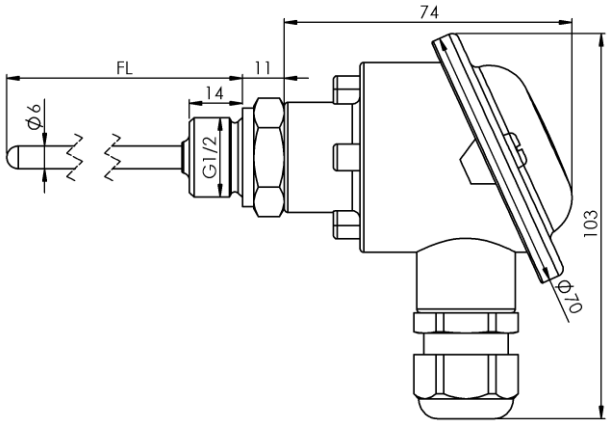
a.) Version without thread and extension tube (connecting head = 2D)



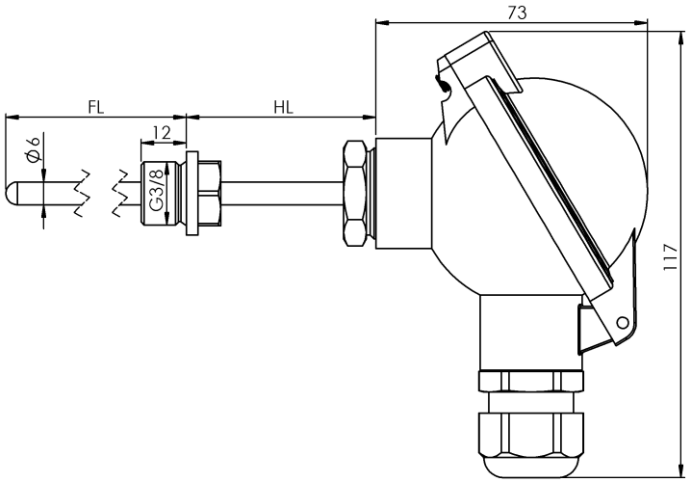
a.) Version without thread, with extension tube (connecting head = 3D)



a.) Version with thread, without extension tube (connecting head = 2K)



a.) Version with thread and extension tube (connecting head = 1K)



7 Decommissioning, reshipment and disposal

7.1 Reshipment

All devices returned to the manufacturer have to be free of any residual of measuring media and other hazardous substances. Measuring residuals at housing or probe may be a risk for persons or environment.

Use an adequate transport package for reshipment, especially for fully functional devices. Please make sure that the device is protected in the package by enough packing materials.

7.2 Disposal instructions

The device must not be disposed in the unsorted municipal waste!
Send the device directly to us (sufficiently stamped), if it should be disposed.
We will dispose the device appropriate and environmentally sound.

8 Ordering information

8.1 Ordering code for GTF 103-Ex-... probes

Ordering information for GTF 103-Ex ... Probes

GTF 103-Ex- [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] / [ ]

Protection type:

e	Gas: increased safety, encapsulation (em) - only permitted for zone 1 and 2 Dust: encapsulation (mb) - only permitted for zone 21 and 22
i	intrinsic safety

Potentially explosive atmospheres:

Gases:		
00	zone 0	
0A	zone 0/1	Measuring circuit (probe tube) in zone 0 and connection head in zone 1
01	zone 1 and zone 2	
Dusts:		
20	zone 20	
2A	zone 20/21	Measuring circuit (probe tube) in zone 20 and connection head in zone 21
21	zone 21 and zone 22	

Normalized signal:

O	without normalizid signal output
G	with normalized signal output: 4-20 mA

Sensor-element:

P	Pt100
T	Pt1000
K	Thermocouple type K

Size of screw thread:		Comment:
00	without thread	*not suitable for zone isolation !*
11	G 1/8"	*not suitable for zone isolation !*
12	G 1/4"	*only with D = 6 mm suitable for zone isolation !*
13	G 3/8"	G-screw thread
14	G 1/2"	
15	G 3/4"	
22	M10x1	*not suitable for zone isolation !*
23	M12x1.5	*only with D = 6 mm suitable for zone isolation !*
24	M14x1.5	M-screw thread
25	M16x1.5	
26	M18x1.5	
other threads (e.g. NPT) on request		

Neck tube:

K	without neck tube (for T ≤ 100 °C)
M	with neck tube (for T > 100 °C - please refer to note below)
D	with neck tube Ø 14 mm (for T > 100 °C - please refer to note below)

Neck tube length:

xxx	length in mm e.g. 050 (= standard length)

Probe tube diameter:

x	3, 4, 5, 6 or 8 mm Hint: - for zone 0/1, 20/21 (= zone isolation) only 6 mm or 8 mm available - observe for D = 3 mm: • minimum probe length is 60 mm • the probe diameter is reduced, tube top D = 3 mm (for approx. 30 mm) after this D = 6 mm • the measuring insert is not changeable

Probe length (fitting length):

xxxx	length in mm e.g. 0100 (= 100 mm)

Connection head and Cable gland:

1K	B-head with flap lid, cable entry via cable screw connection
1D	B-head with flap lid, cable entry via clamping screw
2K	B-head , cable entry via cable screw connection
2D	B-head, cable entry via clamping screw
3K	antistatic plastic head, cable entry via cable screw connection
3D	antistatic plastic head, cable entry via clamping screw
Notes:	Types for zone 0 and 20 are only possible with the antistatic plastic head. The plastic head are only suitable for protection type "i".

Measuring range:

xxx	measuring range of the probe *(necessary for type with outout signal)* e.g. -50 ... +100 °C

Notify for ambient temperature:

intrinsic safety type without output signal	
zone 0, 20:	-20 °C ... +60 °C
zone 0/1, 1, 2, 20/21, 21, 22:	-20 °C ... +80 °C
intrinsic safety type with 4-20 mA output signal	
zone 0, 20:	-20 °C ... +40 °C
zone 0/1, 1, 2, 20/21, 21, 22:	-20 °C ... +50 °C
type with increased safety	
zone 1, 2, 21, 22:	-20 °C ... +60 °C

Recommended min. neck tube length according max. meas. range:

Neck tube construction:	measuring range: Pt 100 a. type K	Pt 1000
- without neck tube	-200 ... +100 °C	-70 ... +100 °C
- neck tube above 50 mm	-200 ... +250 °C	-70 ... +250 °C
- neck tube above 100 mm	-200 ... +400 °C	-70 ... +400 °C
- neck tube above 200 mm	-200 ... +600 °C	-70 ... +600 °C

For reference only! The length should be selected so that the max. specified ambient temperature of the connection head is not exceeded in your installation situation.

Ordering example: **GTF 103-Ex** for protection type "i", Ex-zone 0, with 4-20 mA output signal, Pt100, thread: G 1/2", neck tube length: 50 mm, probe diameter: 6 mm, probe (fitting) length: 200 mm, B-head with flap lid, cable entry via cable screw connection, measuring range: -50 to +100 °C

GTF 103-Ex- [i][0][0][G][P][1][4][M][0][5][0][6][0][2][0][0][K][P] / [-50 ... +100 °C]

9 EU - Declaration of conformity

... professionelle Messtechnik „MADE IN GERMANY"

GHM MESSTECHNIK

CE

EU-KONFORMITÄTSERKLÄRUNG
EU-DECLARATION OF CONFORMITY

GHM Messtechnik GmbH Standort Greisinger, Hans-Sachs-Straße 26, 93128 Regenstauf, Germany

Dokument-Nr. / Monat.Jahr:
Document-No. / Month.Year: **1039 / 06.2016**

Wir erklären hiermit unter alleiniger Verantwortung, dass die folgenden Produkte konform sind mit den Schutzzielen der Richtlinie des Europäischen Parlaments:
We declare herewith under our sole responsibility that the following products are in compliance with the protection requirements defined in the European Council directives:

Produktbezeichnung:
Product identifier: **GTF 101-Ex-..., GTF 102-Ex-..., GTF 103-Ex-..., GTF 111-Ex-..., GTF 112-Ex-...**

Produktbeschreibung:
Product description: **Temperatursensor** / ***Temperature probe***

Die Produkte entsprechen den folgenden Europäischen Richtlinien:
The products conforms to following European Directives:

Richtlinien / *Directives*	
2014/30/EU	EMV Richtlinie / *EMC Directive* (nur für GTF 103 mit integriertem Kopftransmitter / *only for GTF 103 with integrated head transmitter)*
2014/34/EU	ATEX / *ATEX*
2011/65/EU	RoHS / *RoHS*

Angewandte harmonisierte Normen oder angeführte technische Normen:
Applied harmonized standards or mentioned technical specifications:

Harmonisierte Normen / *harmonized standards*	
EN 61326-1 : 2013	Allgemeine EMV Anforderungen / *General EMC requirements*
EN 61326-2-3 : 2013	Besondere EMV Anforderungen / *Particular EMC requirements*
EN 60079-0 : 2014 (EN 60079-0 : 2012 + A11:2013)	Allgemeine ATEX Anforderungen / *General ATEX requirements*
EN 60079-7 : 2007	Geräteschutz durch erhöhte Sicherheit "e" / *Protection by increased safety "e"*
EN 60079-11 : 2012	Geräteschutz durch Eigensicherheit "i" / *Protection by intrinsic safety "i"*
EN 60079-18 : 2015	Geräteschutz durch Vergusskapselung "m" / *Protection by encapsulation "m"*
EN 60079-26 : 2015	Geräteschutzniveau (EPL) Ga / *Equipment Protection Level (EPL) Ga*
EN 60079-31 : 2014	Staubexplosionsschutz durch Gehäuse "t" / *Dust ignition protection by enclosure "t"*
EN 50581 : 2012	Beschränkung der gefährlichen Stoffe / *Restriction of hazardous substances*

Diese Erklärung wird verantwortlich für den Hersteller abgegeben durch:
The manufacturer is responsible for the declaration released by:

Alois Hinreiner

Standortleiter
Business unit manager

Regenstauf, 10. Juni 2016

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Harmonisierungsrechtsvorschriften, beinhaltet jedoch keine Zusicherung von Eigenschaften
This declaration certifies the agreement with the harmonization legislation mentioned, contained however no warranty of characteristics.

10 EU - Type Examination Certificate

(1) **EU - Type Examination Certificate**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres – **Directive 2014/34/EU**

(3) EU - Type Examination Certificate Number

EPS 16 ATEX 1 005 X **Revision 0**

(4) Equipment: Temperature sensor type GTF 1xx-Ex-…

(5) Manufacturer: GHM Messtechnik GmbH

(6) Address: Hans-Sachs-Str. 26
93128 Regenstauf
Germany

(7) This equipment and any acceptable variation thereto are specified in the annex to this certificate and the documentation therein referred to.

(8) Bureau Veritas Consumer Products Services Germany GmbH, notified body No. 2004 in accordance with Article 21 given in the Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014, certifies that this equipment has been found to comply with the essential health and safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II of the Directive. The examination and test results are recorded in the confidential documentation under the reference number 15TH0210.

(9) Compliance with the essential health and safety requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013	**EN 60079-7:2007**
EN 60079-11:2012	**EN 60079-18:2015**
EN 60079-26:2015	**EN 60079-31:2014**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the annex to this certificate.

(11) This EU - Type Examination Certificate relates only to the design and examination of the specified equipment in accordance with Directive 2014/34/EU. Further requirements of this Directive apply to the manufacture of this equipment and its placing on the market. Those requirements are not covered by this certificate.

BUREAU VERITAS
Consumer Products Services Germany GmbH
Thurn-und-Taxis-Straße 18, 90411 Nürnberg, Germany
Phone: + 49 40 74041-0
cps-nuernberg@de.bureauveritas.com
www.bureauveritas.de/cps

(12) The marking of the equipment shall include the following:

II 1G Ex ia IIC T6 Ga
II 1D Ex ia IIIC T80°C Da IP65

or

II 1/2G Ex ia IIC T6 Ga/Gb
II 1/2D Ex ia IIC T6 Da/Db IP65

or

II 2G Ex ia IIC T6 Gb
II 2D Ex ia IIIC T80°C Db IP65

or

II 2G Ex e IIC T6 Gb
II 2D Ex tb IIIC T80°C Db IP65

or

II 2G Ex e m IIC T6 Gb
II 2D Ex mb IIIC T80°C Db IP65

Certification department of explosion protection

Nuremberg, 2016-06-07

D. Zitzmann

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(13) # Annex

(14) **EU - Type Examination Certificate EPS 16 ATEX 1 005 X** **Revision 0**

(15) Description of equipment:

The temperature sensors GTF 1xx-Ex... are designed as build-in sensors for use in potentially explosive atmospheres of all zones.

Electrical data:

The maximum permissible electrical parameters (current, power) are determined by the temperature class of each sensor, see user manual.

Maximum electrical data for the increased safety versions: U = 4 V, I = 10 mA

(16) Reference number: 15TH0210

(17) Special conditions for safe use:

Maximum ambient temperature range: -20 °C to +60 °C (increased safety)
-20 °C to +80 °C (intrinsic safety)
-20 °C to +50 °C (intrinsic safety with 4-20 mA output)

The maximum short-circuit current of the increased safety variants shall be protected in an appropriate manner: 500 mA (for Pt100, Pt1000), 100 mA (for TC type K). See user manual too.

The temperature sensor shall only be connected to power supplies / controllers which are designed and approved for the operation of passive resistance sensors. The power supplies / controllers shall provide a low safety- or protection voltage. The power supplies / controllers shall have a, the method of connection of the thermometer corresponding port. The electrical characteristics and the associated standard for the thermometer shall be observed.

(18) Essential health and safety requirements:

Met by compliance with standards.

Certification department of explosion protection Nuremberg, 2016-06-07

D. Zitzmann

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