

Operating manual

Temperature probe

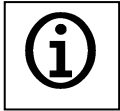
GTL 244
GTL 254



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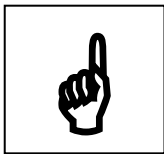
1 Intended use (application area)



The chapter “Product description” provides details on the application area.

The operational safety of the device is only ensured for the intended use according to this manual. Any changes not described in this manual must only be done by personnel authorized by the manufacturer due to security and warranty aspects. Unauthorized reconstructions or changes are expressly prohibited.

Application-specific hazards may be provoked by improper or not intended use of this device.



The device must **not** be used in potentially explosive areas or for security-related components according to SIL.

General safety notices, application

This manual must be kept at a place at which it can be looked at any time by the qualified personnel.

All procedures described in this manual must be done only by skilled and authorized personnel with adequate protective clothing.

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1.1 Safety signs and symbols

Warnings are labeled in this document with the followings signs:




 GEFAHR	<p>Caution! This symbol warns of imminent danger, death, serious injuries and significant damage to property at non-observance.</p>
	<p>Attention! This symbol warns of possible dangers or dangerous situations which can provoke damage to the device or environment at non-observance.</p>
	<p>Note! This symbol point out processes which can indirectly influence operation or provoke unforeseen reactions at non-observance.</p>

Table 1

1.2 Safety instructions

Read this document carefully before you use the device.

Assure that the device is suitable for the desired application



The operator is responsible for interference-free operation. He must assure the accordance to required job safety measures of the current applicable regulations during the whole period of application.

1.3 Product liability and warranty

Disclaimer:

The content of the manual is checked for conformity to the described device. However, differences cannot be excluded completely. Therefore we cannot guarantee full conformity. All information of this manual are continuously checked and necessary corrections are included to the following editions. Technical modifications are reserved. Additionally all claims are subject to the latest “General Terms of Delivery for Products and Services of the Electrical Industry (ZVEI)”.

Please note that Greisinger electronic cannot check or repair devices without the specified, fully completed form (see chapter 8, “Returns”).

1.4 Standards and directives

Conform to EMVG 2004/108/EG

CE-conformity EN 61326-2-3:2007-05

Vibration test EN60068-2-6

1.5 Approval

EHEDG

Conform to FDA and 3A

2 Product description

The GTL 244 and GTL 254 are temperature probes with or without transmitter for collecting and converting temperature input signals.

2.1 Scope of supply

- Temperature probe
- This operating manual
- Possibly further documents

2.2 Ambient temperature

Restrictions dependent on ambient temperature (recommended values)

Max. ambient temperature	Max. process temperature	Note
up to 20 °C	150 °C	
up to 40 °C	130 °C	140 °C if $t \leq 30\text{min}$
up to 60 °C	110 °C	120 °C if $t \leq 30\text{min}$

Note:



The max. permitted process temperature depends on the ambient temperature and must not be exceeded to ensure faultless functioning.

2.3 Design of temperature probe

GTL 244

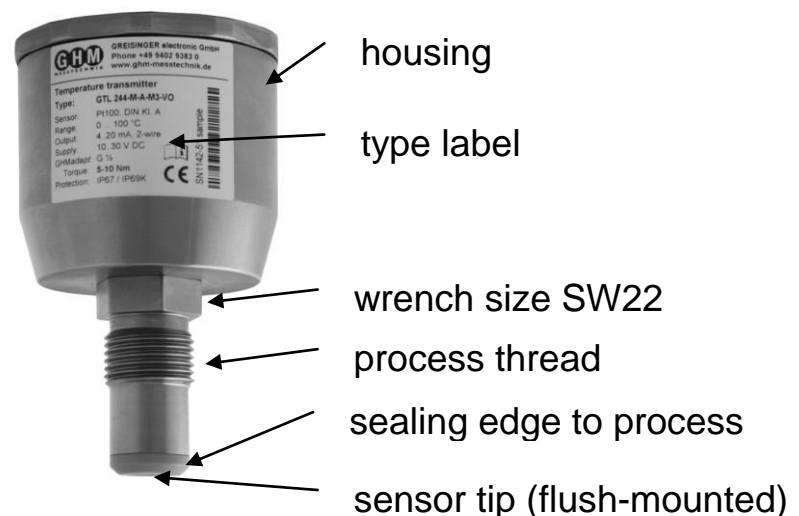


Figure 1

2.4 Type label

The type label (Fig. 2) provides important identification data:

- Type and article name
- Technical data
- Serial number

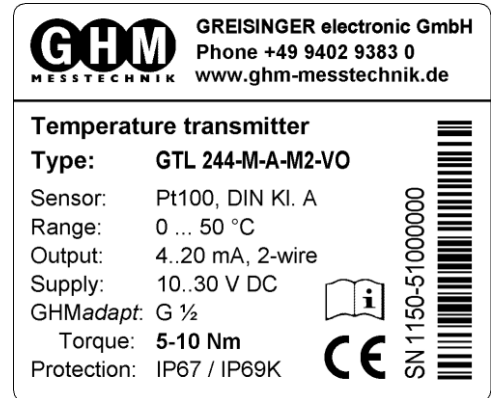


Figure 2

3 Mounting and electrical installation

3.1 Mechanical mounting

The correct seating of the device, correct function and sealing of the connection can only be ensured by using the GHMadapt accessories. The device is not suitable for use in abrasive materials.

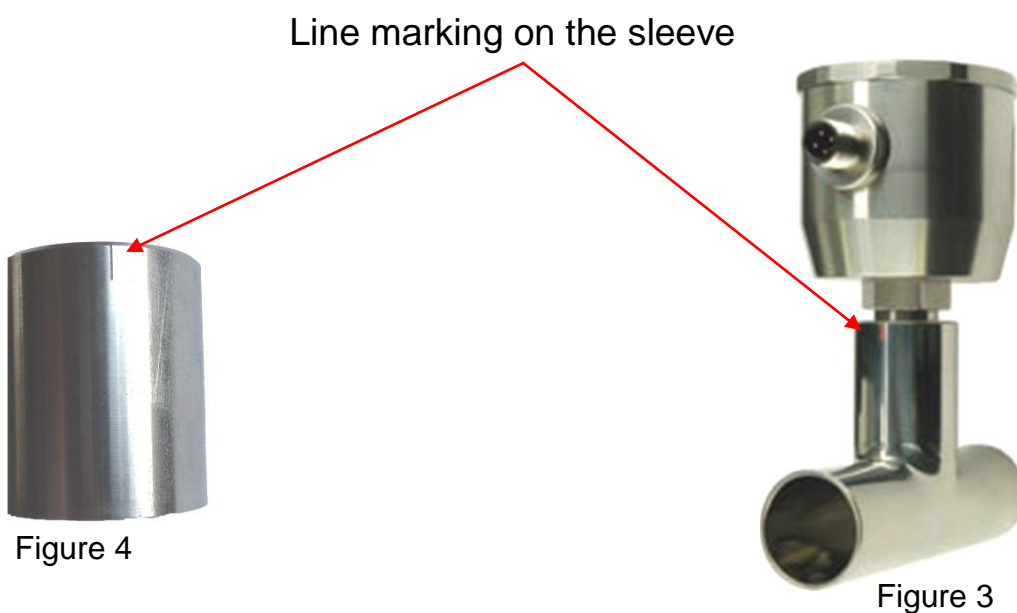


No additional sealing material (e.g. Teflon[®] tape) must be used on the sealing cone or on the thread. Use a suitable welding mandrel for the correct installation of GHMadapt welded sleeves.

The switch must not be used as a welding aid.

Installation direction of the welded sleeves (Fig. 4 and 5).

The marking shows the position of the M12 connector or cable screw fitting.



3.2 Welding instructions

Welding in tanks:

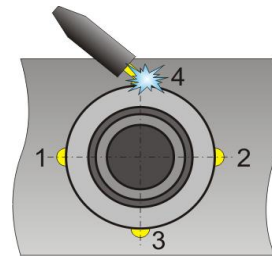


Figure 5

1. Drill a hole with the outer diameter of the sleeve, max. tolerance +0.2 mm
2. Tack the sleeve in place at 4 points (Fig. 5)
Note the correct sequence of the tacking
3. Screw in the welding aid
(see Product information GHMadapt AMH121, -122, -123)
4. Weld the sections between the tacks
4 sections for thread G ½



Welding in pipes:

In addition to the APH pipe system, ball sleeves or sleeves with a welding shoulder for pipes with collars are also available.



Note the maximum permissible tightening torque when mounting! Remove the switch before carrying out any welding work on the tank. This will avoid damage to the electronics due to inductive coupling.

The case must not be used for screwing in! Tightening will result in damage to the electronics. Use the hexagonal provided for screwing in the switch.

In order to avoid excess heating or warping of the sleeve during the welding process, allow a pause between the individual sections so that the sleeve can cool down.

3.2.1 Instructions for installation to EHEDG

The installation without gap and dead space is based on the hygienic elastomer-free sealing principle. For this purpose, we offer corresponding fitting accessories such as sleeves and adapters with the GHMadapt sealing principle.

3.3 Electric installation



The device must be installed only by a qualified electrician. The national and international regulations for the installation of electrical systems of the relevant operator country apply.

Power supply according to DIN EN66664-1, SELV, PELV.

3.4 Connection

For electric connection: Cable junction M12-plug

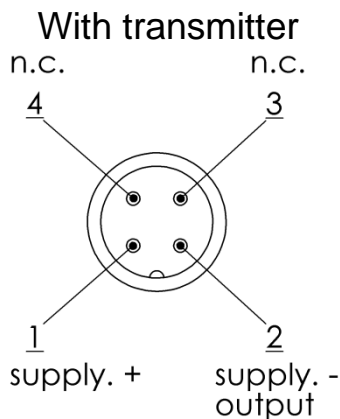


Figure 6

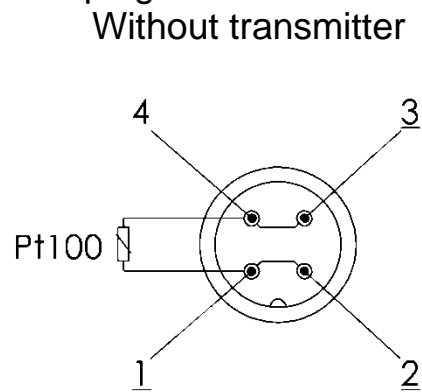


Figure 7

For electric connection: Cable gland M16x1.5(PG)

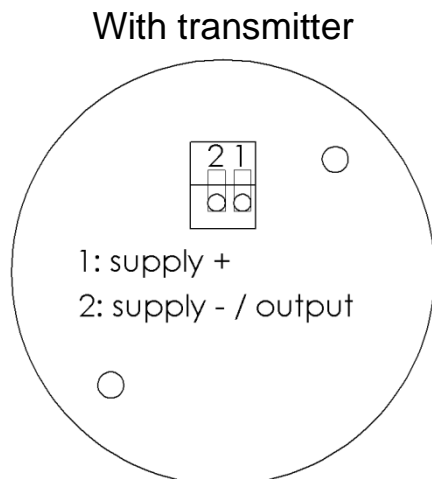


Figure 8

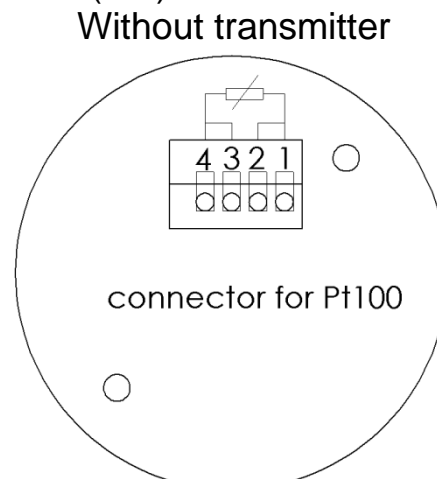


Figure 9

4 Operating elements and functions

4.1 Operation (with integrated on-site display)

min/max

- Press button (Fig. 10) shortly:
The following points are displayed one after another:

Display	Duration
“Lo”	0.5s
Min value	1.5s
“Hi”	0.5s
Max value	1.5s
blank	0.5s
Current value	∞



Figure 10

Press button for 2s while the device still displays “Lo”, “Hi” or the corresponding values to delete min/max values.
Confirmation: display of “CLr”

4.2 Configuration of device with button (with integrated on-site display)

To configure the device’s functions proceed as follows:

- Switch the device on
- Press button 4s until the first parameter “rAnG” is displayed
 - Press button shortly to select next parameter
 - No button-press >5s: restart, data is saved
- Press button for 2s until the current parameter value is displayed
 - Press button shortly to set parameter value
 - No button-press >2s: back to parameter selection

Parameters adjustable via button

Parameter	Display	Parameter value	Meaning
Temperature range	rAnG	r1	-10.0..40.0 °C
		r2	0.0...50.0 °C
		r3	0.0...100 °C
		r4	0.0...150.0 °C
Filter	FiLt	off	no filter
		1	filter stage 1
		2	filter stage 2
		3	filter stage 3
Default state of input	dA.Er	Lo	3.75 mA
		Hi	22 mA
Backlight	bL	off	off
		on	on

Example: Switch-on backlight

- Switch the device on
- Press button 4s until the first parameter “rAnG” is displayed
- Press button shortly to select next parameter until “bL” is displayed
- Press button for 2s until the current parameter value (“off” or “on”) is displayed
- Press button shortly to select parameter value “on”
- No button-press >2s: back to parameter selection
- No button-press >5s: restart, data is saved

4.3 Configuration of device with GTL - Configuration tool

The transmitter integrated in GTL 244 / GTL 254 provides several configuration possibilities. For parameterization the **GTL - Configuration tool** is needed. The operating manual of the GTL - Configuration tool provides detailed information.

The following parameters are supported:

- Measuring range
- Filter
- Default state

Parameter measuring range:

5 predefined and a freely selectable measuring range can be chosen.

M1: -10..+40 °C

M2: 0..50 °C

M3: 0..100 °C

M4: 0..150 °C

MB: measuring range freely selectable, span ≥ 50 K

Parameter filter

Integrated software filter (low-pass filter) to “smooth” the output signal. 4 filter steps are available:

0: Filter off, maximal reaction time

1: T_{90} approx. 250 ms

2: T_{90} approx. 800 ms

3: T_{90} approx. 3000 ms

Parameter default state

This parameter allows selecting whether < 3.75 mA or > 20.5 mA is outputted in case of a detected error.

5 Commissioning, maintenance and servicing

Commissioning

1. Check the integrity at the sleeve.
2. Ensure that the M12-plug or cable gland is correctly fitted.

Maintenance

When cleaning take care that case surface and seals are not attacked by the cleaning agent.

If the case is cleaned using a high-pressure cleaning appliance, ensure not to direct the spray jet at the electrical connection. Deposits of cleaning agents on the thread must be avoided.

Servicing

Clean the switch (and especially the sealing cone) and the auxiliary tool after dismantling and before refitting the device carefully with suitable tools and agents, in order to maintain the integrity and hygiene requirements.

The device itself *cannot* be repaired.

6 Technical data

Housing

Probe head	: 1.4305 (V2A)
Neck tube (GTL 254)	: 1.4305 (V2A)
Tip	: 1.4404 (V4A), PEEK
Protection class	: IP67 / IP69K

Ambient conditions

Working temperature	: -20..+70 °C
Storage temperature	: -20..+85 °C
Climate class	: EN 60068-2-38:06/2010
Vibrations	: EN 60068-2-6

Sensor

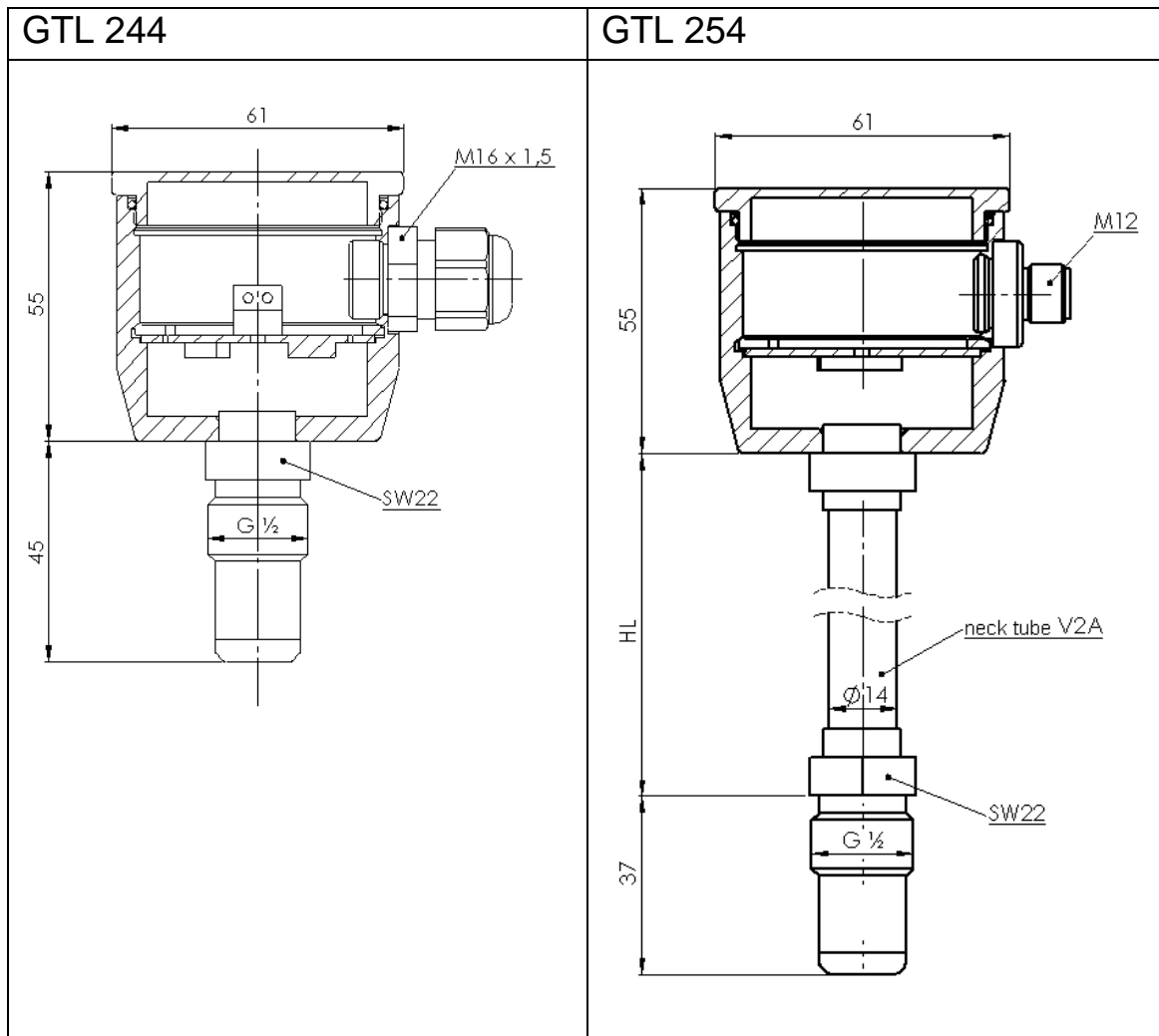
Sensor type	: Pt100 to IEC 60751
Temperature range	: -40..150 °C (probe tip)
Accuracy	: Klasse A, Klasse AA
Response time	: $T_{90} \leq 15$ s

Process temperature	: -20..+150 °C (see chapter 2.2) : CIP-/SIP-capable
Process pressure	: max.10 bar
Process material	: 1.4404 (V4A), PEEK
Process connection	: G ½
Tightening torque	: 5..10 Nm
Electric connection	: M12-plug or cable gland

Transmitter

Supply voltage	: 10..28 V DC
Measuring ranges	: -10 °C..+40 °C, 0 °C..+50 °C, 0 °C..+100 °C : 0 °C..+150 °C : or freely selectable within range -20..150 °C
Measuring span	: ≥ 50 K
Accuracy	: $\leq 0.2\%$ FS
Temperature drift	: $\leq 0.01\%$ FS/K
Reaction time*	: ≤ 200 ms (filter off) : filter selectable in 4 steps
Initialization time	: 1.5 s
Output	: 4..20 mA, 2-wire
Sensor break / short circuit:	≤ 3.75 mA or ≥ 20.5 mA

6.1 Mechanical design / dimensions

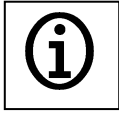


6.2 Ordering code

GTL 1. 2. 3. 4. 5.
 - - - -

1.	Design type	
	244	without neck tube
	254	with neck tube (HL = 100 mm)
2.	Electric connection	
	P	cable screwing M16x1.5 (PG)
	M	cable connection M12-plug
3.	Accuracy class	
	A	class A
	D	class AA (1/3 class B)
4.	Transmitter GTML1 (programmable)	
	00	without transmitter
	M1	with transmitter, measuring range -10..+40 °C
	M2	with transmitter, measuring range 0..50 °C
	M3	with transmitter, measuring range 0..100 °C
	M4	with transmitter, measuring range 0..150 °C
	MB	transmitter with special measuring range in °C (state special measuring range separately e.g.: 0..75 °C or -20..+30 °C) keep a minimum range of 50°C
5.	Option	
	00	without option
	VO	with integrated on-site display (LCD) (only combined with electric connection: cable connection M12-plug and integrated transmitter)

6.3 Accessories



For sleeves, adapters and connection cables, see separate product information “Accessories Hygienic Design”.

7 Device transport and storage

The case must be packed carefully and stress-free for transport (no automatic binding of the packaging).

The device must be stored under the ambient conditions specified in the technical data.

8 Returns



Legal regulations for the protection of the environment and our personnel require that returned devices which have come into contact with media can be handled without risk to personnel and the environment.

If you send a device back to us for checking or repair, we must request that you pay strict attention to the following requirements:

A returns form can be downloaded from our homepage under: “Download / Repair/Service”.


The repair can be carried out quickly and without further questions if:

1. A completed form is available for every device.
2. The device has been cleaned and returned in packaging which prevents any damage to the device.
3. The completed form and any possible safety data sheet on the measurement medium are attached to the outside of the packaging.


9 Disposal



The device components and packaging must be separated by materials for disposal. The legal regulations and guidelines applicable at the relevant time must be observed.

 The device must not be disposed of as general waste. If a device is to be disposed of, send it back to us direct with the completed Returns form specified under Point 8 and we will then take care of proper disposal.

10 EC conformity certificate



EC – Declaration of Conformity

For the following identified products

**GTL 244 - ..., GTL 254 - ...,
GTL 459 - ...**

will certified herewith, that the device corresponds to the essential protection ratings established in the Regulations of the Council for the Approximation of Legislation for the member countries regarding electromagnetic compatibility (2004/108/EG) and the low voltage directives (2006/95/EG).

The conformity to EMC are verified under observance of following standards:


EN 61326-1 : 2006
EN 61326-2-3 : 2006

This declaration is responsible for the manufacturer

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Alois, Hinreiner
Director BU

Regenstauf 14.12.2011 
place date signature

11 Imprint

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