

Temperature transmitter GV4 MiniTherm for installation in a separate thermowell Type series GV4730



Application area

- Pharmaceutical industry
- Food industry
- Biotechnology

Features

- Compact case of stainless steel in hygienic design according to recommendations from EHEDG and 3A, degree of protection IP 65/67
- High-resolution graphic display with Intuitive operation and backlight
- Quick access to device data
- Accuracy $\leq 0.1\%$
- Temperature range: $-50\dots 200\text{ °C}$
- Output signal $4\dots 20\text{ mA}$ with HART® protocol
- Digital communication via PDM/EDD and FDT/DTM
- Measuring resistor Pt100, class A
- Measuring insert spring loaded
- Fast response

Options

- Approvals/Certificates
 - Calibration certificate per EN 10204-3.1
- Degree of protection IP 69K
- Weitere Temperaturmessumformer s. Produktgruppe T4
- Case and front cover of stainless steel 316L
- EAC declaration (upon request)

Application

The temperature transmitter GV4730 MiniTherm is designed for the installation in a separate thermowell. Due to the design the transmitter is suitable for highest requirements. The 4 operation buttons allow an easy and fast parameterisation.

In the data sheets T5-051 (Thermowells for MiniTherm) and T5-050 (Thermowell system HIT) you can find the suitable thermowells.

Technical data

Constructional design

Design:	Hygienic case of stainless steel, continuously rotatable by $\pm 170^\circ$
Material case and front cover:	<u>Process connection back:</u> Stainless steel mat.-no. 1.4305 (303) Option: stainless steel mat.-no. 1.4404 (316L) <u>Process connection bottom:</u> Stainless steel mat.-no. 1.4301 (304) Option: stainless steel mat.-no. 1.4404 (316L)
Gasket:	Silicone / NBR EPDM / FKM (if degree of protection IP 69K)
Degree of protection per EN 60529:	IP 65 / IP 67 Option: IP 69K
Climatic category per EN 60721 3-4:	4K4H
Electrical connection:	Circular connector M12 Option: Cable glands <ul style="list-style-type: none">■ M16x1.5, PA black■ M16 x1.5, brass nickel-plated■ M16x1.5, stainless steel■ M20x1.5, PA black■ M20 x1.5, brass nickel-plated■ M20x1.5, stainless steel■ 1/2" NPT, PA black Further connections upon request
Terminal blocks:	Spring clamp terminals up to 2 mm ²
Type plate:	Adhesive label

Measuring system

Design:	Measuring insert \varnothing 3 mm, spring loaded and union nut M12.
Material:	Measuring insert: stainless steel mat.-no. 1.4404 (316L) Union nut: stainless steel mat.-no. 1.4301 (304)
Length measuring insert:	See order code
Measuring resistor:	Pt100 per EN 60751, class A
Instrument connection:	Union nut M 12

Accuracy

Accuracy:	≤ 0.1 % of nominal range
Temperature influence case:	typ. 0.1 K/10 K

Response time per EN 60751 (with flowing water):	For measuring insert \varnothing 3 mm: $t_{90} = 3s$ For further information see the data sheets of the thermowells.
--	---

We recommend the use of heat sink compound (see data sheet T6-030).

Indication

Display:	- High-resolution graphic display with backlight - 4-button operation - Freely configurable display modes - Continuously rotatable - Removable under voltage
----------	--

Output

Signal:	2-wire technology	4...20 mA
	Lower limit	3.8...4 mA
	Upper limit	20...21 mA
	Lower alarm current	< 3.6 mA
	Upper alarm current	> 21 mA
	Current limitation	22 mA
	Digital communication:	HART [®] -protocol, version 7
	Device driver:	
		■ EDD for SIMATIC PDM
		■ DTM for PACTware or compatible systems (FDT compliance)
Resolution:	$\leq 1 \mu A$	
Current sensing-function:	3.55...21.5 mA selectable in steps of 0.001 mA	
Load R:	$R \leq (U-12V DC)/0.022 A [\Omega]$ U = supply voltage for HART [®] communication $R \geq 230 \Omega$	

Supply voltage

Functional range:	12...30 V DC, protected against polarity reversal
Ripple:	< 5 %

Temperature ranges

Ambient:	-20...80 °C Option: -40...80 °C (Display visibility is limited at temperatures below -30 °C)
Media:	-50...200 °C
Storage:	-40...80 °C

Tests and certificates

- EAC declaration (upon request)

Parameterisation

Parameterisation

Parameter	Values	Default setting
Device		
device ID	16 digits, freely selectable	ID:GV4 MiniTherm
Display and control unit		
temperature unit	°C, °F, °R, K	°C
lighting	on, off	on
language	English, German	German
decimal point	auto, x.xxxx, xx.xxx, xxx.xx, xxxx.x, xxxxx	auto
display mode	four values, three values, two values, big display	three values
main value	temperature, current (%), current (mA)	temperature
secondary values	temperature, current (%), current (mA), device ID, Bargraph, HART-TAG, HART descriptor, <empty>	device ID, Bargraph
Current output		
output function	linear, invers	linear
lower range value	at any value within nominal range	0 °C
upper range value	at any value within nominal range	150 °C
lower current limit	3.8...4.0 mA	3.8 mA
upper current limit	20...21 mA	20.5 mA
alarm current	low (< 3.6 mA), high (> 21.0 mA)	low (< 3.6 mA)
HART data		
HART address	0...63	0
number of response preambels	5...20	5
current mode	proportional, constant	proportional

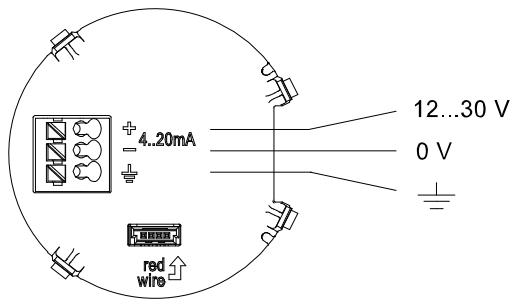
Diagnostic functions

loop-test	setting of a fixed current value at the output	3.55...21.5 mA
temperature simulation	setting a fixed temperature value	nominal range

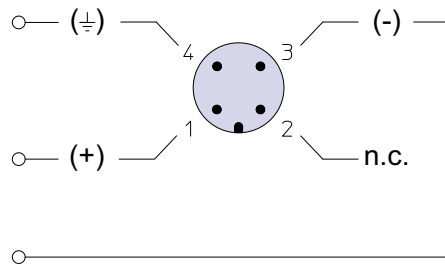
Adjustment

Adjustment type	Description
lower adjustment	adjusts reading of mounted device at ambient temperature (affects zero and span)
upper adjustment	adjusts reading to applied temperature (affects span only)
current adjustment	adjusts current output to achieve 4 resp. 20 mA at the end of the measurement chain

Connection diagram

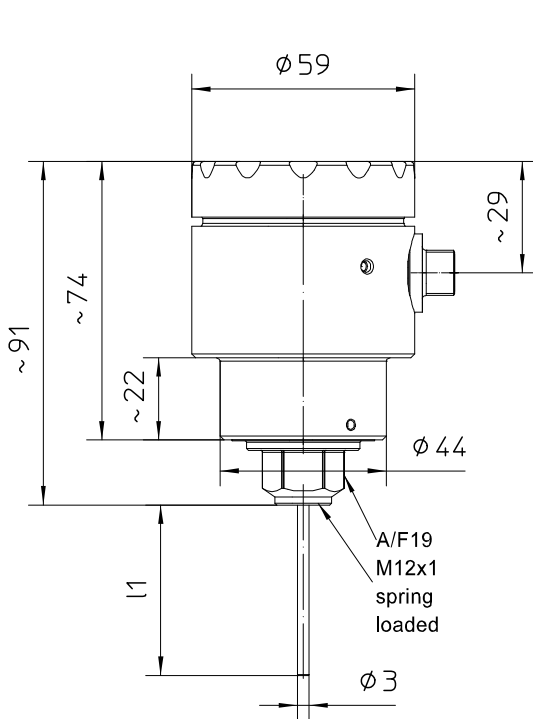


cable gland

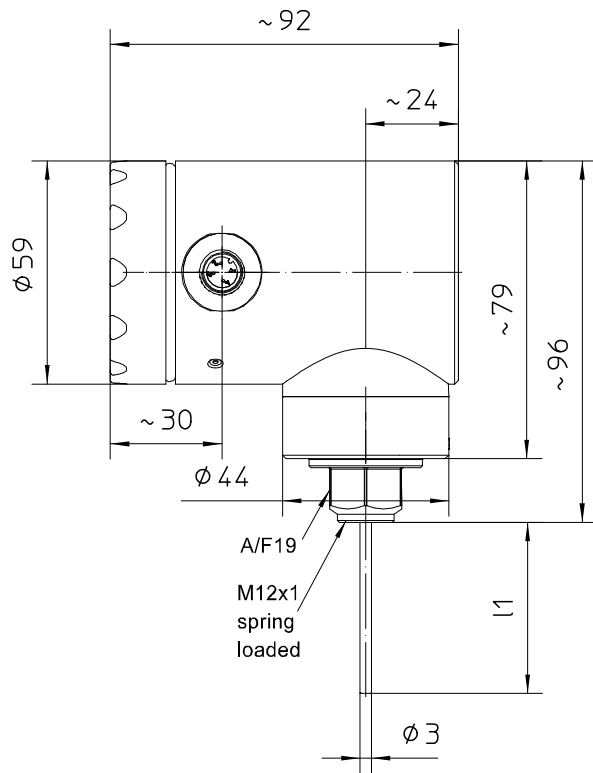


circular connector M12 x 1

Dimensions



Process connection back



Process connection bottom

Order details

Temperature transmitter GV4 MiniTherm for installation in a separate thermowell, Type series GV4730

Order details GV4730				
GV4730	temperature transmitter GV4 MiniTherm			
R70	position process connection	back		
R71		bottom		
F1	parameterisation	standard according to data sheet (see parameterisation table)		
F9		as per customer's specification (pls. specify)		
Q1	accuracy	≤ 0.1 %		
H21	output signal	4...20 mA, with HART®-protocol		
Y14	material case/window	stainless steel mat.-no.1.4301/1.4305 (304/303)	window Macrolon	
Y12			window non-splintering glass	
Y13			closed, without window	
Y24		stainless steel mat.-no. 1.4404 (316L)	window Macrolon	
Y22			window non-splintering glass	
Y23			closed, without window	
T1	case degree of protection	IP 65 / IP 67		
T4		IP 69K ¹		
			default language	
M21.2	display	High-resolution graphic display with backlight, intuitive 4-button operation, quick-setup function	German	
M21.1			English	
M1			without display	
T20	electrical connection	cable gland M16 x 1.5	polyamide for cable Ø 4.5-10 ²	
T21			brass nickel plated for cable Ø 5-10	
T22			stainless steel mat.-no. 1.4404 (316L) for cable Ø 5-9 ²	
T15		cable gland M20 x 1.5	polyamide for cable Ø 7-13 ²	
T16			brass nickel plated for cable Ø 7-13	
T17			stainless steel mat.-no. 1.4404 (316L) for cable Ø 8-13	
T27		cable gland 1/2" NPT	polyamide for cable Ø 5-12	
T30		circular connector M12x1 (4 pin) ²		
A10		instrument connection	union nut M12 x 1	
A99	as in writing			
C3 ...	temperature sensor	Ø 3 mm		
998	insertion length l1	suitable for thermowell U1 ≤ 250 mm		
028		28 mm		
038		38 mm		
060		60 mm		
084		84 mm		
161		161 mm		
...		required insertion length up to 250 mm can directly be ordered, e.g. l1: 100 mm, order code 100		
N32	measuring insert	1 x Pt100		
U1	ambient temperature	-20...80 °C		
U7		-40...80 °C		

Additional features (to be indicated in case of need, only)			
V1080	neck tube (M12 x 1)	length of neck tube M = 80 mm	
V1999		length of neck tube M (in mm)	
W1204	calibration certificate	per EN 10204-3.1, 3 measuring points	
W1201		per EN 10204-3.1, 5 measuring points	

Accessories	
MC1040	HART®-modem for USB-interface

Order code (example): **GV4730 - R70 - F1 - Q1 - H21 - Y13 - T1 - M1 - T22 - A10 - C3084 - N32 - U1**

¹ only possible with window of Macrolon, gasket made of EPDM/FKM and selected electrical connections (see footnote 2)

² suitable for degree of protection IP 69K