

# GIT01, RT420, T03 BU, T19 Встраиваемые преобразователи GHM MESSTECHNIK



## Технические характеристики

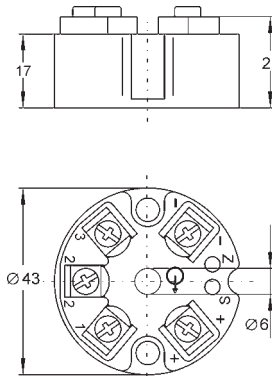
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# Head Transmitter T19

## Dimensions



## Characteristics

The transmitter T19 makes the field-mounting in the head of a RTD temperature sensor with DIN-head, possible. The current output guarantees a trouble free signal transmission over long distances. Different measuring ranges are configurable by internal links.

## Technical data

Supply voltage : loop powered  
 Operating temperature : -40..+85 °C  
 relative humidity : < 95 % without condensation  
 acc. to DIN IEC 68-2-30 Var.2  
 Vibration : 10..2000 Hz, 5 g DIN IEC 68-2-6  
 Shock : acc. to DIN IEC 68-2-27 g<sub>N</sub> = 15  
 CE - conformity : EN50 082-2

**Input** : Pt100, DIN IEC 751 2- or 3-wire  
**Measuring range** : -50..+400 °C  
**Temperature coefficient** : ± 0.2 K / 10 Ohm, 3-wire  
**Max. line resistance** : 30 Ohm each line, 3-wire, symmetric  
**0-point adjustment (Z)** : type 1P0-1 ±10 °C  
 type 1P0-2 ±25 °C  
 type 1P0-3 ±30 °C  
**End-value adjustment(S)** : approx. 10 % of the end-value

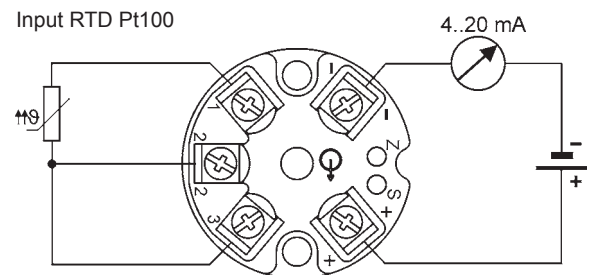
**Output** : 4..20 mA, loop powered  
**Accuracy** : ± 0.5 %  
**Linearisation error** : ± 0.1 %  
**Circuit error indication**  
**Broken line** : output current < 3 mA  
**Cross fault** : output current < 3 mA  
**Burden** :  $RA \leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$

**Case**  
**Material** : Polyamide, with fiber glass  
**Weight** : approx. 30 g  
**Connection** : screw terminals, 0.14..1.5 mm<sup>2</sup>  
**Protection class** : case IP50, terminals IP 00

## Measuring ranges and code for factory configuration

Pt100 [°C] (Code XX for ordering code field 3)					
Type 1P0-1	Code (XX)	Type 1P0-2	Code (XX)	Type 1P0-3	Code (XX)
-50..+50	EA	-50..+200	EL	-30..+30	CA
0..50	1A	0..200	1L	-30..+50	CB
0..100	1E	0..250	1M	0..60	1C
0..120	1F	0..300	1N	0..80	1D
0..150	1H	0..350	1P	0..100	1E
0..200	1L	0..400	1Q	0..120	1F

## Connection diagram



## Ordering code

1.            2.            3.  
 T19-10-  0 -  -

1.	Measuring input
1P	Pt100
2.	Measuring range
1	Pt100, -50..+200 °C configurable
2	Pt100, -50..+400 °C configurable
3	Pt100, -30..+120 °C configurable
3.	Factory configuration
NK	without
XX	see table for code

## Product Information

## Sensors

# Analog Head Transmitter T03 BU / WE



- Continuous measurement due to analog signal path
- Measuring range programmable
- 2- or 3- wire sensor connection

## Characteristics

The T03 BU / WE is an analog Pt100 transmitter. It is designed for industrial applications and are used to measure the temperature through Pt100 resistance thermometers in 2-/3-wire circuits connections. The 0...10 V output signal is linear with temperature.

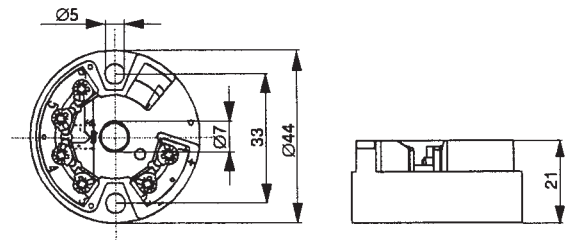
The transmitter is factory preset, but can also be configured by the customer via programming tool. This makes customers' warehousing easier and has the advantages of a freely programmable measuring range.

This transmitter combines the advantages of a continuous analog signal path and those of digital adjustment.

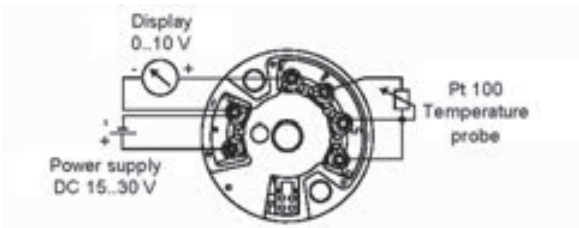
## Technical data

Measuring input	: Pt100
Measuring range	: -200..+850 °C, programmable
Measuring span	: 40 to 1050 K
Lower range limit	: if span <75 K: -40, -20, 0, 20, 40 °C
	: if span =75 K: ±50 °C
	: if span >75 K: ±(span*0.2+35 °C)
Sensor connection	: 2- or 3-wire connection
Measuring rate	: continuous measurement due to analog signal path
Output signal	: 0..10 V, 3-wire-technology
Transfer accuracy	: ±0.2 % Full Scale
Calibration accuracy	: ≤ ±0.2 °C or ±0.2 % of meas. span
Power supply $U_B$	: 15..30 V DC
Permissible load $R_L$	: ≥ 10 kOhm
Setting time on a temperature change	: ≤ 10 ms
Working temperature	: -40..+85 °C
Electrical connection	: via screw terminals
	max. cable cross-section 1.75 m <sup>2</sup>
Housing	: PC-housing, suitable for installation in connection head (DIN 43729 form B)
Operating position	: unrestricted
Protection class	: housing: IP54
	terminals: IP00

## Dimensions



## Connection diagram



## Ordering code

T03BU/WE -  1. -  2.

<b>1. Sensor connection</b>	
P2	resistance thermometer Pt100, 2-wire
P3	resistance thermometer Pt100, 3-wire
<b>2. Measuring range</b>	
MBx	state desired measuring range e.g.: MB -50..+400 °C (max. possible measuring range: -200..+850 °C)

## Accessories

### Rail adapter

(for snapping the T03BU onto a top-hat rail)



### Programming tool for T03BU

The programming tool contains a multilingual configuration software and PC-Interface USB / SP-translator

Product Information

Sensors

# Head Transmitter / Transmitter RT420



- For head or rail mounting
- 2-, 3- and 4- wire
- Error signaling in case of sensor break or short-circuit

### Characteristics

The RT420 is a installation resistance thermometer with transmitter. Pt100 temperature probes can be connected (2-, 3- or 4- wire technology). The device has a linearized 4..20 mA current output. The RT420 is fully potted, robust, shakeproof and durable. This makes it particularly suitable for stressing industrial application as well as outdoor usage.

The transmitter is factory preset, but can also be configured by the customer via programming tool. This makes customers' warehousing easier and has the advantages of a freely programmable measuring range.

The RT420 is suitable for head or rail mounting depending on design type. The device provides error signaling in case of sensor break or sensor short-circuit.

### Technical data

Measuring input	: Pt100
Measuring range	: -200..+850 °C, programmable
Measuring span	: 25 to 1050 K
Lower range limit	: -200..+825 °C
Sensor connection	: 2-, 3- or 4- wire connection
Measuring rate	: < 700 ms
Output signal	: 4..20 mA, 2-wire technology
Accuracy	: ±0.25 °C or ±0.1 % of meas. span (higher value applicable)
Accuracy (output)	: < ±0.1 % of current signal
Power supply U <sub>B</sub>	: 8..35 V DC
Permissible burden R <sub>A</sub>	: $R_A \leq (U_B - 8 V) / 0.023 A$ (R <sub>A</sub> in Ohm)
Power-on time	: 10 s
Working temperature	: -40..+85 °C
Electrical connection	: via screw terminals
Protection class	: housing: IP40 terminals: IP10

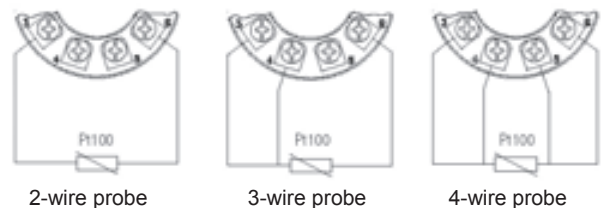
### Design types

	RT420	RT420 - SG
Housing / mounting	Head transmitter, suitable for head mounting	Head transmitter in snap-on housing, suitable for rail mounting

### Dimensions

	RT420	RT420 - SG
Housing	Ø 44 mm x 19 mm	22.5 x 78 x 105 mm

### Connection diagram



### Ordering code

RT420 -  / WE -  -  -

1. Design type	
00	head transmitter
SG	head transmitter in snap-on housing
2. Sensor connection	
P2	Resistance thermometer Pt100, 2-wire
P3	Resistance thermometer Pt100, 3-wire
P4	Resistance thermometer Pt100, 4-wire
3. Measuring range	
MBx	state desired measuring range e.g.: MB -50..+400 °C (max. possible measuring range: -200..+850 °C)
4. Sensor break signal	
FBU	3.5 mA
FBO	> 23 mA

### Accessories

#### Rail adapter

(for snapping the RT420-00 onto a top-hat rail)



#### Programming tool for RT420

The programming tool contains a multilingual configuration software, Programmer, USB connection cable. Configuring without computers is possible.

## Product Information

## Sensors

# Universal Head Transmitter GITT01



- Freely programmable for resistance thermometers, thermocouples, resistance sensors, voltage sensors
- Electrically isolated

### Characteristics

The GITT01 is a universally programmable transmitter for measuring temperature, resistance and voltage. The input signal is linearized and output as 4..20 mA or 20..4 mA signal. This allows to transmit signals over large distances.

The GITT01 is well-suited for industrial application.

The transmitter is factory preset, but can also be configured by the customer via programming tool. This makes customers' warehousing easier and has the advantages of a freely programmable measuring range.

The GITT01 provides error signaling in case of sensor break or sensor short-circuit. PC-configuration is possible while the transmitter is in measuring mode.

### Technical data

Measuring input : resistance thermometer, thermocouple, resistance, voltage

Input signal max. meas. range min. meas. range

#### Resistance thermometers

Pt100	: -200..+850 °C	10 K
Pt500	: -200..+250 °C	10 K
Pt1000	: -200..+250 °C	10 K
Ni100	: -60 ... +250 °C	10 K
Ni500	: -60..+150 °C	10 K
Ni1000	: -60..+150 °C	10 K

#### Thermocouples

Type B (PtRh30-PtRh6)	: 0..+1820 °C	500 K
Type C (W5Re-W26Re)	: 0..+2320 °C	500 K
Type D (W3Re-W25Re)	: 0..+2495 °C	500 K
Type E (NiCr-CuNi)	: -270..+1000 °C	50 K
Type J (Fe-CuNi)	: -210..+1200 °C	50 K
Type K (NiCr-Ni)	: -270..+1372 °C	50 K
Type L (Fe-CuNi)	: -200.. + 900 °C	50 K
Type N (NiCrSi-NiSi)	: -270..+1300 °C	50 K
Type R (Pt13Rh-Pt)	: -50..+1768 °C	500 K
Type S (Pt10Rh-Pt)	: -50..+1768 °C	500 K
Type T (Cu-CuNi)	: -270..+ 400 °C	50 K
Type U (Cu-CuNi)	: -200.. + 600 °C	50 K

#### Resistance-type sensor

Resistance : 10.. 400 Ohm 10 Ohm

Resistance : 10..2000 Ohm 10 Ohm

#### Voltage sensor

Voltage : -10..100 mV 5 mV

#### Sensor connection

Resist. thermometer : 2-, 3- or 4-wire connection

Thermocouple : 2-wire connection

Working temperature : -40..+85 °C

Output signal : 4..20 mA, 20..4 mA, 2-wire

Power supply  $U_B$  : 8..35 V DC

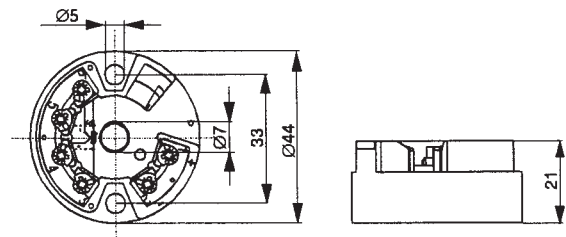
Response time : 1 s

Electric connection : via screw terminals, max. cable cross-section 1.75 m<sup>2</sup>

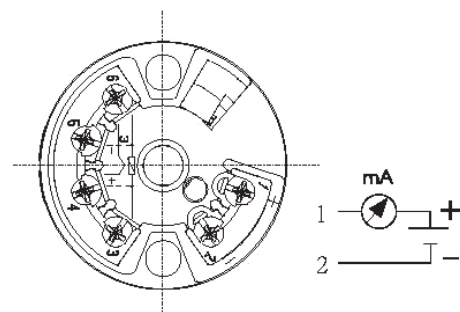
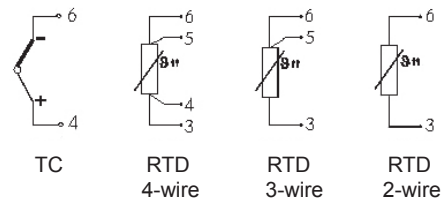
Housing : round head transmitter, Ø 44 x 21 mm, suitable for installation in connection head acc. to DIN 43729 form B

Protection class : housing: IP54 terminals: IP00

### Dimensions



### Connection diagram



continued on next page

### Ordering code

GITT01 -  1. -  2. -  3. -  4. -  5.

1. Input signal	
1	resistance thermometer Pt100
2	resistance thermometer Pt500
3	resistance thermometer Pt1000
4	resistance thermometer Ni100
5	resistance thermometer Ni500
6	resistance thermometer Ni1000
B	type B (PtRh30-PtRh6)
C	type C (W5Re-W26Re)
D	type D (W3Re-W25Re)
E	type E (NiCr-CuNi)
J	type J (Fe-CuNi)
K	type K (NiCr-Ni)
L	type L (Fe-CuNi)
N	type N (NiCrSi-NiSi)
R	type R (Pt13Rh-Pt)
S	type S (Pt10Rh-Pt)
T	type T (Cu-CuNi)
U	type U (Cu-CuNi)
7	resistance 10..400 Ohm
8	resistance 10..2000 Ohm
9	voltage -10..100 mV
2. Measuring range	
MBx	state desired measuring range e.g.: MB -50..+400 °C (must be within max. possible measuring range)
3. Sensor break signal	
FBU	3.6 mA
FBO	≥ 21.0 mA
4. Output signal	
A1	4..20 mA
A2	20..4 mA
5. Options	
00	without option
Ex	with Ex protection (ATEX) for use in potentially explosive areas

### Accessories

#### Rail adapter

(for snapping the GITT01 onto a top-hat rail)



#### Programming tool for GITT01

The programming tool contains a multilingual configuration software and USB-connection cable

## Transmitter GTMU-A5



- Transmitter for already existing Pt100 or NiCr-Ni sensors
- Ready for assembly

### Characteristics

The GTMU A5 is a transmitter for external thermocouples (NiCr-Ni) or resistance temperature sensors (Pt100, 2- or 3- wire). The transmitter outputs linear current or voltage signals.

The GTMU A5 is particularly suitable if the temperature probe is already available or if housing and temperature sensor have to be apart form each other (e.g. due to high ambient temperatures).

The transmitter is adjusted according to customer requirements.

### Technical data

Possible sensor : Pt100 (2- or 3- wire)  
NiCr-Ni

#### Standard measuring range

Pt100 : 0..100 °C, 0..200 °C, -50..+50 °C,  
-50..+150 °C

NiCr-Ni : 0..100 °C, -50..+150 °C,  
-200..+300 °C, 0..600 °C,  
0..1150 °C  
other ranges upon request

#### Max. possible measuring ranges

Pt100 : -200..+800 °C

NiCr-Ni : -200..+1150 °C

Sensor connection : insertion of sensor cable via PG7  
connection to board via screw terminals

Output signal : standard 4..20 mA (2-wire)  
optional 0..1 V, 0..2 V, 0..5 V,  
0..10 V (3- or 4-wire)

Power supply  $U_v$  : 12..30 V DC (at 0..10 V: 18..30 V DC)

Permissible burden  $R_A$  : (at 4..20 mA)  $R_A = (U_v - 12 V) / 0,02 A$

Permissible load  $R_L$  : (at ... V)  $R_L > 3000 \Omega$

Working temperature : 0..70 °C  
(-40..+85 °C at Option RT420 / GITT)

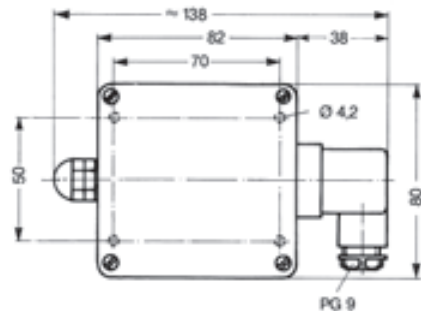
Housing material : ABS

Protection class : IP65

Mounting : with fastening holes for wall mounting

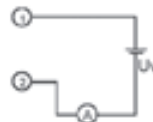
Electrical connection : elbow-type plug (EN 175301-803/A)

### Dimensions



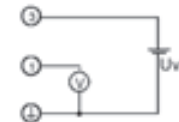
### Connection diagram

2-wire (4..20 mA)



1 = supply voltage + $U_v$   
2 = GND / signal

3-wire (.. V DC)



1 = signal +  
3 = supply voltage + $U_v$   
↓ = supply voltage - $U_v$   
signal -

4-wire (.. V DC)



1 = signal +  
2 = signal -  
3 = supply voltage + $U_v$   
↓ = supply voltage - $U_v$

continued on next page



### Ordering code

GTMU-A5 -  1. -  2. -  3. -  4.

<b>1. Sensor element</b>		
P2	resistance thermometer Pt100, 2-wire	
P3	resistance thermometer Pt100, 3-wire	
K2	thermocouple NiCr-Ni	
<b>2. Measuring range (MB)</b>		
MB1	0..100 °C	Pt100 / NiCr-Ni
MB2	-50..+150 °C	Pt100 / NiCr-Ni
MB3	0..200 °C	only Pt100
MB4	-50..+50 °C	only Pt100
MB5	-200..+300 °C	only NiCr-Ni
MB6	0..600 °C	only NiCr-Ni
MB7	0..1150 °C	only NiCr-Ni
MBx	desired measuring range (e.g. -50..+400 °C) max. possible measuring range: Pt100: -200..+800 °C / NiCr-Ni: -200..+1150 °C	
<b>3. Output signal</b>		
A1	4..20 mA (2-wire) (standard)	
V1	0..1 V (3-wire)	
V3	0..2 V (3-wire)	
V4	0..5 V (3-wire)	
V2	0..10 V (3-wire)	
<b>4. Options (combination of multiple options upon request)</b>		
00	without Option	
VO	on-site display (display and control panel)	
LACK	board varnished on both sides (for outdoor usage)	
GITT	transmitter with electrical isolation (only output 4..20 mA possible)	
RT420	transmitter particular for outdoor usage (only with sensor element Pt100 and output 4..20 mA possible)	

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