Analogue temperature transmitter
Model T19.10, configurable measuring ranges, head mounting version
Model T19.30, configurable measuring ranges, rail mounting version

Applications

- Plant construction
- Power engineering
- Heating, air-conditioning, ventilation, refrigeration

Special features

- Versions for Pt100
- Configurable measuring ranges (solder bridges)
- Error signalling in the event of sensor break and sensor short-circuit
- Large ambient temperature range
- Compact and value for money

Analogue temperature transmitter
Fig. left: head mounting version, model T19.10
Fig. right: rail mounting version, model T19.30

Description

The analogue transmitters of the T19 series feature configurable measuring ranges and are intended to be used with resistance thermometers. Via the simple setting of solder bridges, one of several defined measuring ranges can be selected. These transmitters are therefore particularly suitable for users who need to respond quickly to changing requirements.

The temperature transmitters convert temperature-dependent resistance from the resistance thermometers into a 4 ... 20 mA current loop signal. Thus the measured temperature values can be transmitted securely and simply.

Accuracy, sensor monitoring and the permissible ambient conditions are matched to the requirements of industrial applications.

The case is designed as a head-mounted transmitter for direct mounting within the temperature sensor and can be fitted to any form B DIN connection head.

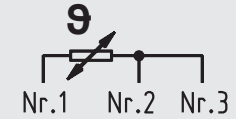
The transmitters in rail mounting cases are suitable for all standard rails in accordance with DIN EN 50022-35.

Specifications	Models T19.10 and T19.30		
	1P01	1P02	1P03
Input	1 x Pt100 per IEC 60584 (α = 0.00385) [1] in 2- or 3-wire connection		
■ Not configured	not factory-configured / the measuring range can be configured by oneself, through solder bridges, within the limits specified below		
■ Standard [2]	-50 ... +50 °C	-50 ... +200 °C	-30 ... +30 °C
	0 ... 50 °C	0 ... 200 °C	-30 ... +50 °C
	0 ... 100 °C	0 ... 250 °C	0 ... 60 °C
	0 ... 120 °C	0 ... 300 °C	0 ... 80 °C
	0 ... 150 °C	0 ... 350 °C	0 ... 100 °C
	0 ... 200 °C	0 ... 400 °C	0 ... 120 °C
■ Special measuring ranges	factory-configured, changes to the measuring range configuration is no longer possible between -200 ... +850 °C (min. span: 20 K, max. span: 1,050 K)		
Setting range zero point	approx. ±10 °C	approx. ±25 °C	approx. ±30 °C
Setting range span	approx. 10 %		
Sensor current at the measurement	approx. 0.8 mA		
Max. lead resistance	30 Ω each wire, 3-wire symmetric		
Cold-junction compensation	-		
Analogue output	4 … 20 mA, 2-wire		
Linearisation	Linear to temperature per IEC 60751/DIN 43760		
Output limits			
Sensor break	downscale, < 3 mA [3]		
Sensor short-circuit	downscale, < 3 mA [4]		
Rise time t_{90}	< 0.01 s		
Switch-on time (time to get the first measured value)	< 0.1 s		
Measuring rate	Permanent (analogue system)		
Power supply U_B [5]	DC 10 … 30 V from the 4 … 20 mA loop		
Load R_A	$R_A \leq (U_B - 10\ V) / 0.02\ A$ with R_A in Ω and U_B in V		
Measuring deviation per DIN EN 60770, at 23 °C ±5 K	±0.5 % [6]		
Effect of load	±0.05 %/100 Ω		
Power supply effect	±0.025 %/V		
Warm-up time	5 minutes until the data sheet specifications are reached		
Linearisation error	±0.1 % [7]		
Amplification error	-		
Error influence of the cold junction compensation	-		
Temperature coefficient T_C from -40 ... +85 °C	ZP: ±0.1 % / 10 K or ±0.2 K / 10 K [8] Span: ±0.2 K / 10 K		
Connection lead effects	3-wire: ±0.2 K / 10 Ω 2-wire: resistance of the supply line		
Electromagnetic compatibility (EMC)	2004/108/EC, DIN EN 61326 emission (group 1, class B) and interference immunity (industrial application)		
Galvanic isolation between sensor and output (4 ... 20 mA)	No		

Readings in % refer to the measuring span

1) Pt1000 and also special measuring ranges on request.
2) Other units e. g. °F and K are possible.
3) Upscale if only line no. 1 is open
4) Temperature value in mA, in the event of a short-circuit between lines no. 2 and no. 3 (operation of the Pt100 in 2-wire connection)
5) Power supply input protected against reverse polarity
6) For factory-configured measuring range
7) ±0.15 % with measuring range: 0 ... 50 °C, 0 ... 300 °C, 0 ... 350 °C
8) The greater value applies.

Legend of the wire number



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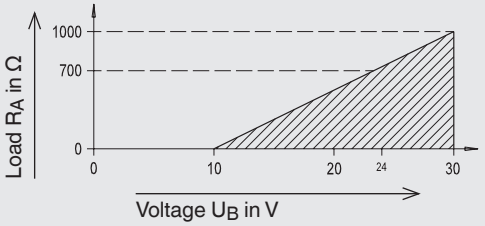
Load diagram

The permissible load depends on the loop supply voltage.



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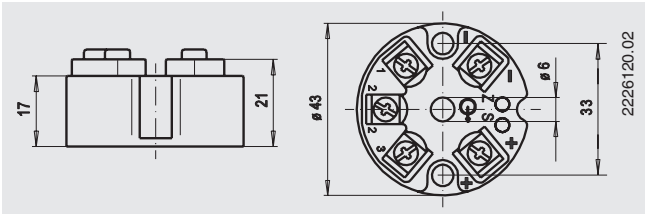
Case Model	Material	Weight in kg	Ingress protection Case (connection terminals)	Connection terminals (screws captive)
T19.10	Plastic, PA, glass-fibre reinforced	approx. 0.03	IP 00 (IP 40)	0.14 … 1.5 mm²
T19.30	Polyamide, glass-fibre reinforced	approx. 0.05	IP 10 (IP 40)	0.5 ... 1.5 mm²

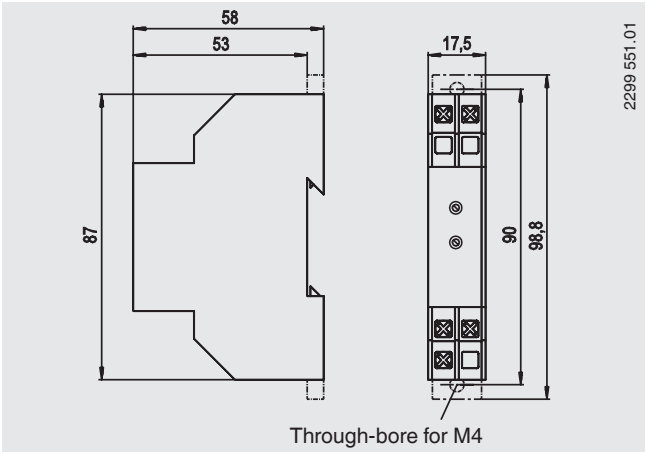
Ambient conditions Model	Climate class per DIN IEC 60068-2-30	Ambient/storage temperature	Vibration per DIN IEC 60068-2-6	Shock per DIN IEC 60068-2-27
T19.10	Cx (-40 … +85 °C, 5 % to 95 % relative humidity)	-40 ... +85 °C	10 … 2,000 Hz; 5g	10 g
T19.30	Bx (-20 … +70 °C, 5 % to 95 % relative humidity)	-20 ... +70 °C	10 … 2,000 Hz; 5g	10 g

Dimensions in mm

Transmitter model T19.10, head mounting version



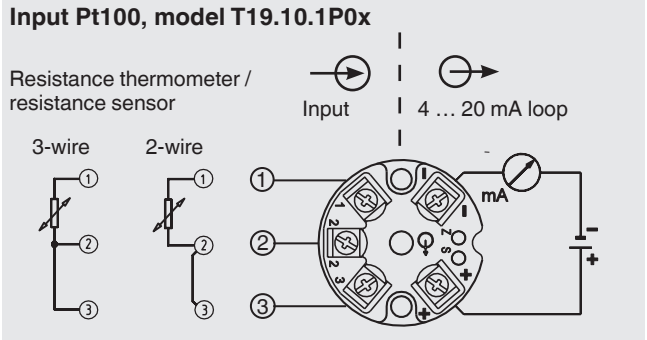
Transmitter model T19.30, rail mounting version



Assignment of connection terminals

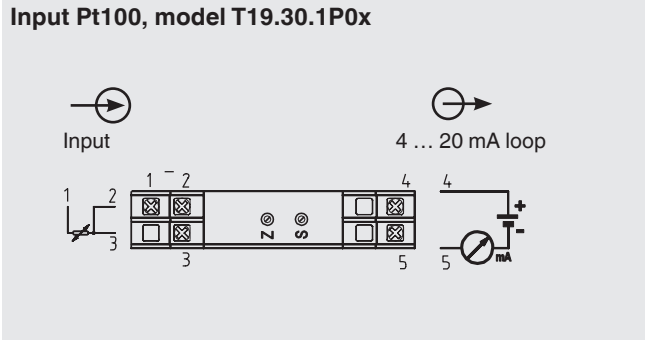
Transmitter model T19.10, head mounting version

Input Pt100, model T19.10.1P0x



Transmitter model T19.30, rail mounting version

Input Pt100, model T19.30.1P0x



Accessories for model T19.10 transmitter, head mounting version (please order separately)	Order no.
Adapter, plastic/stainless steel, dimensions: 60 x 20 x 41.6 mm Suitable for TS 35 per DIN EN 60715 (DIN EN 50022) or TS 32 per DIN EN 50036	3593789
Adapter, tin-galvanized steel, dimensions: 49 x 8 x 14 mm Suitable for TS 35 per DIN EN 60715 (DIN EN 50022)	3619851
Field case, plastic (ABS), ingress protection IP 65, dimensions: 82 x 80 x 55 mm (W x L x H) For mounting of a head-mounting transmitter, permissible ambient temperature range: -40 ... +80 °C, with two M16 x 1.5 cable glands	3301732

CE conformity

EMC directive
2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application)

Approvals (option)

- **GOST**, metrology/measurement technology, Russia

Approvals, see website

Ordering information
Model / Measuring range

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