

Analogue temperature transmitters

Model T19.10, configurable ranges, head mounting version

Model T19.30, configurable ranges, rail mounting version

WIKA data sheet TE 19.03



Applications

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

Special features

- Designs for Pt100
- Configurable measuring ranges (soldered jumpers)
- Fault signal for sensor burnout and sensor short-circuit
- Large ambient temperature range
- Compact and inexpensive



Analogue temperature transmitters

Fig. left: model T19.10

Fig. right: model T19.30

Description

The analogue transmitters in the T19 series are provided with configurable ranges and are intended for use with resistance thermometers. Simply by setting the solder jumpers, one of the several available measuring ranges can be selected. Therefore, these transmitters are especially suitable for applications where frequently changing requirements have to be taken into account.

The temperature transmitter converts temperature-dependent changes in resistance, in the case of resistance thermometers, into a 4 ... 20 mA loop signal. This guarantees the simple and reliable transmission of the measured temperature values.

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

For direct mounting into the temperature probe, the instrument case is configured as a head-mounted transmitter and can be easily mounted into any DIN Form B connection head.

The rail mounting case fits to any standard rail per DIN EN 50022-35.

Specifications	Models T19.10 and T19.30		
	1P01	1P02	1P03
Input	1 x Pt100 per IEC 60584 ($\alpha = 0.00385$) * 2- or 3-wire		
■ Not configured	not factory configured / the measuring range can be configured via solder jumpers, within the limits specified below		
■ Standard ¹⁾	°C	-50 ... +50	-50 ... +200
	°C	0 ... 50	0 ... 200
	°C	0 ... 100	0 ... 250
	°C	0 ... 120	0 ... 300
	°C	0 ... 150	0 ... 350
	°C	0 ... 200	0 ... 400
■ Special measuring ranges	factory-configured, permanent, changing the measuring range configuration is no longer possible between -200 ... +850 °C (min. span: 20 K, max. span: 1050 K)		
Adjustment range zero point	°C	approx. ± 10	approx. ± 25
Adjustment range span	%	approx. 10	
Sensor measuring current	approx. 0.8 mA		
Max. output resistance	30 Ω per wire, 3-wire symmetric		
Cold junction compensation	-		
Analogue output	4 ... 20 mA, 2-wire design		
Linearisation	proportional to temperature per IEC 60751/DIN 43760		
Output limits			
Sensor burnout	mA	down scale, < 3 ²⁾	
Sensor short circuit	mA	down scale, < 3 ³⁾	
Rise time t_{90}	s	< 0.01	
Switch-on time (time to first measured value)	s	< 0.1	
Measuring rate	Permanent (analogue system)		
Power supply U_B ⁴⁾	DC 10 ... 30 V from 4 ... 20 mA loop		
Load R_A	$R_A \leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$ with R_A in Ω and U_B in V		
Measuring deviation per DIN EN 60770, at 23 °C ± 5 K	%	± 0.5 ⁵⁾	
Load effect	%/100 Ω	± 0.05 Ω	
Power supply effect	%/V	± 0.025	
Warm-up time	5 minutes to reach data sheet specifications		
Linearity error	%	± 0.1 ⁶⁾	
Amplification error	%	-	
Error effect of cold junction compensation	-		
Temperature coefficient T_K of -40 ... 85 °C	ZP: ± 0.1 %/10 K or ± 0.2 K/10 K ⁷⁾ Span: ± 0.2 K/10 K		
Effect of the supply lead resistances	3-wire: ± 0.2 K / 10 Ω 2-wire: resistance of the supply lead		
Electromagnetic compatibility (EMC)	CE-Conformity per DIN EN 61326-1		
Galvanic isolation between the sensor and output side (4 ... 20 mA)	No		

Specifications in % refer to the measuring span

* Pt1000 and special measuring ranges on request.

1) Further units e.g. °F and K are possible.

2) Up scale, in the event only lead no. 1 open-circuit.

3) Temperature value, in the event of a short between leads no. 2 and no. 3 (operation of Pt100 in 2-wire configuration).

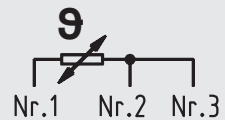
4) Input power supply protected from reverse polarity.

5) With factory configured measuring range.

6) ±0.15 % with measuring range: 0 ... 50 °C, 0 ... 300 °C, 0 ... 350 °C

7) Whichever is greater.

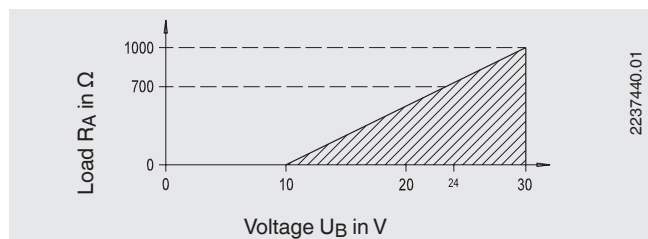
Legend for lead numbers



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Load diagram

The permissible load is dependent upon the loop power supply voltage.



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Case

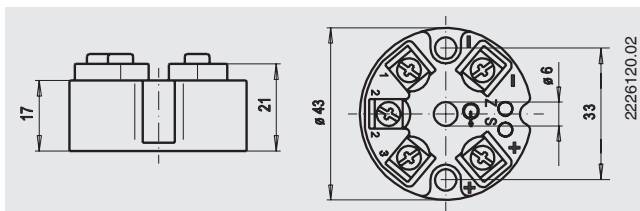
Model	Material	Weight	Ingress protection Case (terminal connection)	Terminal connection (captive screws)
T19.10	plastic, PA, glass-fibre reinforced	approx. 0.03 kg	IP00 (IP40)	0.14 ... 1.5 mm ²
T19.30	polyamide, glass-fibre reinforced	0.05 kg	IP10 (IP40)	0.5 ... 1.5 mm ²

Ambient conditions

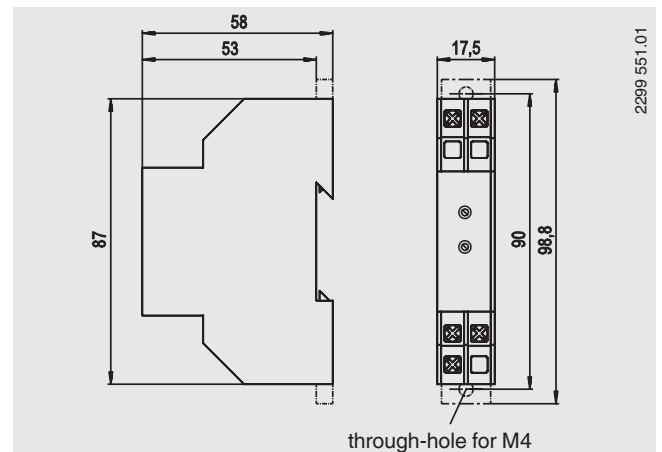
Model	Climate class per DIN IEC 60068-2-30	Ambient / storage temperature	Vibration per DIN IEC 60068-2-6	Shock per DIN IEC 60068-2-27
T19.10	Cx (-40 ... +85 °C, 5 % to 95 % relative humidity)	-40 ... +85 °C	10 ... 2000 Hz; 5g	10 g
T19.30	Bx (-20 ... +70 °C, 5 % to 95 % relative humidity)	-20 ... +70 °C	10 ... 2000 Hz; 5g	10 g

Dimensions in mm

Transmitter model T19.10, head mounting version

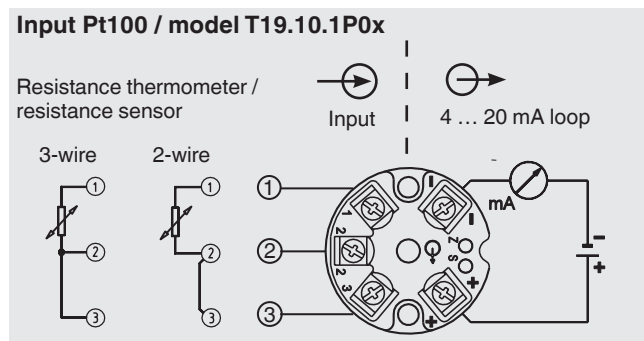


Transmitter model T19.30, rail mounting version

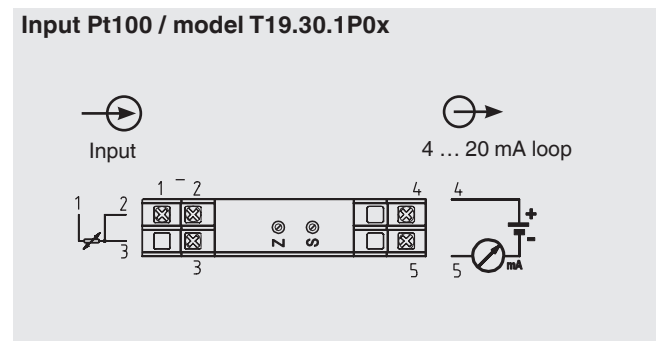


Designation of terminal connectors

Transmitter model T19.10, head mounting version



Transmitter model T19.30, rail mounting version



Accessories for model T19.10 temperature 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, tiuned 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 (B x L x H) For head mounting of transmitter, permissible ambient temperature: -40 ... +80 °C, with two M16 x 1.5 cable glands	3301732

The specifications given in this document represent the state of engineering at the time of publishing.
We reserve the right to make modifications to the specifications and materials.



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