

Data sheet

TW68 Compact Resistance Thermometer

The compact resistance thermometer TW68 serves the direct measurement of the temperature of liquid and gaseous media. It stands out thanks to its very compact form.

Fields of application include:

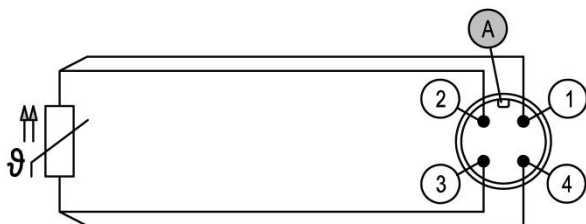
- Food industry
- Heating, air conditioning and ventilation engineering
- Environmental technology
- Procedural engineering
- Petrochemical industry

Design and mode of operation

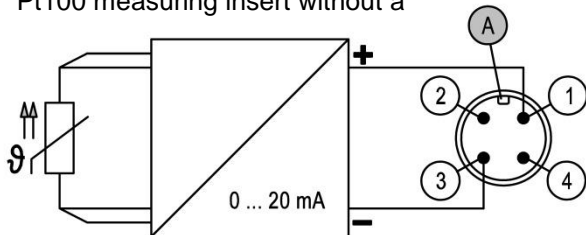
The temperature is measured with a Pt100 measuring insert in a 4-conductor switch. Optionally the TW68 is available with an integrated measuring transducer that converts the Pt100 signal into an analogue, temperature-linear 4...20 mA output signal.

The measuring transducer can be programmed via the M12 plug connector. The configuration set TZ62 is available for this purpose and comprises PC software and a transmitter-PC interface.

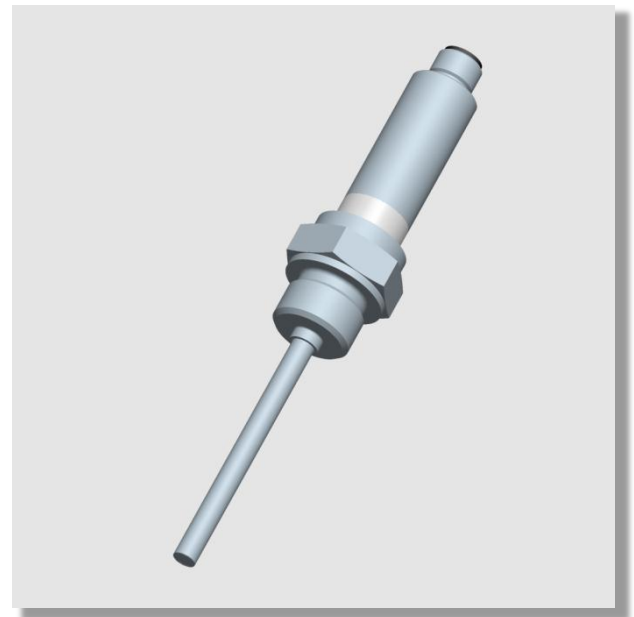
Functional Schematic



Pt100 measuring insert without a



Pt100 measuring insert with a transmitter



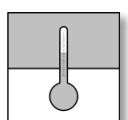
Important features

- Compact design
- Fast and straightforward installation

Terminal assignment

Pin	Signal name		Cable colour
A	Coding		
1	Supply	+U _b	brown
2	Signal	+Sig	white
3	Supply	-U _b	blue
4	Signal	-Sig	black

Pin	Signal name		Cable colour
A	Coding		
1	Supply / signal	+U _b +Sig	brown
2	Interface	RxD	white
3	Supply / signal	-U _b -Sig	blue
4	Interface	TxD	black

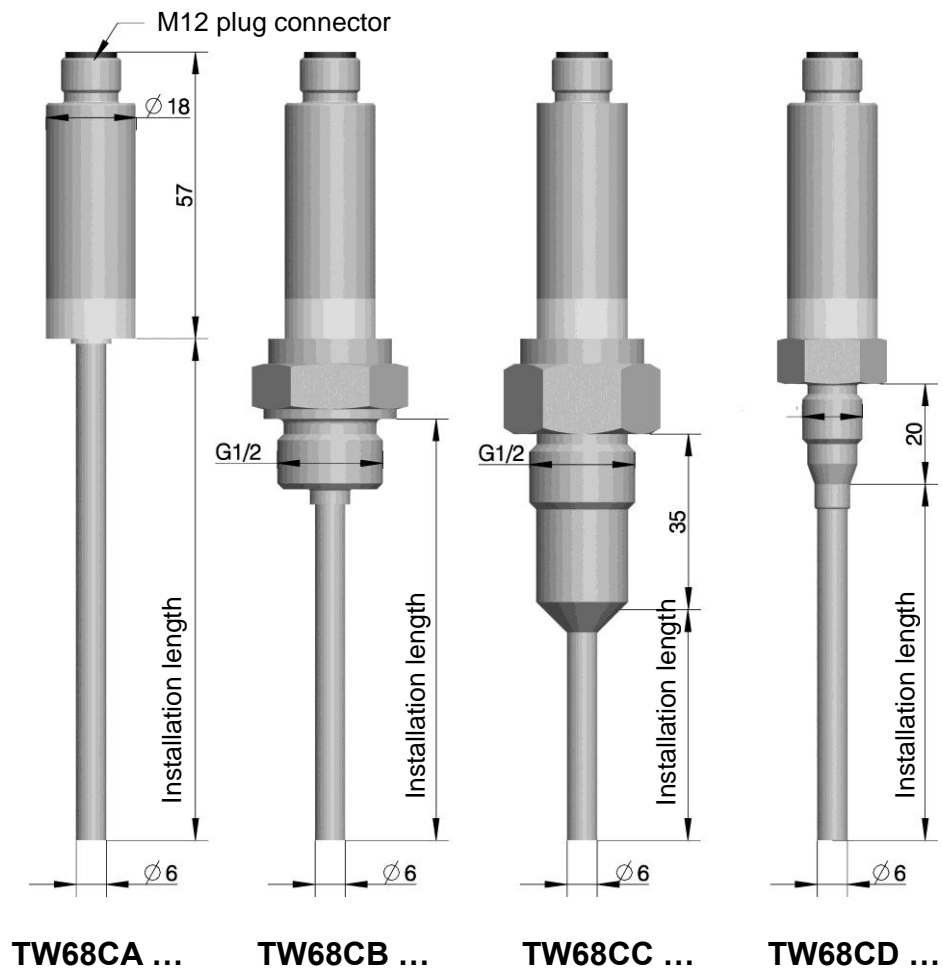


Technical data

Measuring element	4-conductor Pt100 Class B acc. to DIN EN 60751 (Class A and 1/3 Class B possible on request)
Connections	M12 plug connector
Material sensor	Stainless steel 1.4404 (1.4571 on request)
Type of protection	IP66 (IP67 possible on request)
Climatic class	Class C acc. to DIN EN 60654-1
Permissible ambient temperature	-40 ... +85 °C
General points	
Model with Transmitter	
Supply	
Rated Voltage	24 V DC
Operating voltage U_B	10 ... 35 V DC
Allowed residual ripple	$U_{ss} \leq 3V$ at $U_b \geq 13 V$, $f_{max} = 1kHz$
Output parameters	
Connections	2-Conductor
Output signal	4 ... 20 mA
Power requirement	< 3.5 mA
Current limitation	≤ 23 mA
Start delay	2 s
Error signal broken sensor	≤ 3.6 mA or ≥ 21.0 mA (can be configured)
Max. resistance	$(U_b - 10V) / 0.023A$
Start of range	< 50 % of end value (can be configured)
Attenuation	0 ... 8 s (can be configured)
Measuring accuracy	
Measuring accuracy	$\leq 0.3K$ or 0.08% of the set measuring range ¹
Long-term stability	≤ 0.1 K/year
Temperature drift	0.1 %/K
Response time	1 s
Impact of the supply voltage	Negligible
Target temperature during calibration	23 \pm 5 °C
Vibration resistance	4 g / 2 ... 150 Hz
Electromagnetic compatibility	EMC acc. to IEC 61326-1 and NAMUR NE 21

¹ The larger value is valid.

Dimensional drawings (All dimensions in mm unless otherwise stated)



Order Codes

Compact Resistance Thermometer

TW68 C [] [] [] [] 0 [] []

Basic Model

Measuring insert with 1 x Pt100, 4-conductor> C

Process connection

- Smooth sensor Ø = 6 mm> A
- Screw connection G½, sensor Ø = 6 mm> B
- Screw connection G½ with metallic seal,
Sensor Ø = 6 mm> C
- Screw connection M12x1.5 with metallic seal,
Sensor Ø = 6 mm> D

Installation length

- 50 mm> 0 5
- 100 mm> 1 0
- 160 mm> 2 0
- 200 mm> 3 0
- others available on request> 9 0

Delivery

- Pt100 without transmitter> Y
- Pt100 with 2-conductor transmitter; 4...20 mA> L

Transmitter measuring range (°C)

- Without transmitter> 0 0
- 50 ... 0> 1 0
- 50 ... +50> 2 0
- 0 ... +50> 3 0
- 0 ... +100> 4 0
- 0 ... +150> 5 0

Accessories

Item no.	Designation	No. of Poles	Length
06401993	M12-coupling with PUR cable	4-pole	2 m
06401994	M12-coupling with PUR cable	4-pole	5 m
TZ6201	Configuration kit USB		

