

Compact temperature transmitter Model TFT35

WIKA data sheet TE 67.18

Applications

- Machine building, plant and vessel construction
- Propulsion technology, hydraulics
- Heating and cooling circuits, air-conditioning technology

Special features

- Measuring ranges from -50 ... +200 °C (-58 ... +392 °F)
- Electrical connection via plug connection
- Output signal 4 ... 20 mA, 0 ... 10 V or 0.5 ... 4.5 V
- Factory configured
- Measuring insert exchangeable



Fig. left: Angular connector DIN EN 175301-803
Fig. centre: Angular connector DIN EN 175301-803, compression fitting
Fig. right: Circular connector M12 x 1

Description

The model TFT35 compact temperature transmitter is used for temperature measurement of liquid and gaseous media in the range -50 ... +200 °C (-58 ... +392 °F).

It can be used for pressures up to 40 bar. All electrical components are protected against splash water and are designed to withstand vibration.

The integrated thermowell with fixed threaded connection or adjustable compression fitting enables direct installation into the process. All wetted parts and also the case are from stainless steel.

The case and the exchangeable measuring insert are screwed together using a knurled nut. This enables the exchange of the measuring insert without having to remove the instrument from the process.

Through the integrated connector, simple installation of the transmitter is ensured.

The integrated electronics convert the temperature-dependent resistance signal of the measuring element into a linear unit signal. For the signal outputs, 4 ... 20 mA, 0 ... 10 V and also 0.5 ... 4.5 V ratiometric are available.

Specifications

Compact temperature transmitter, model TFT35			
Output signals	4 ... 20 mA	0 ... 10 V	0.5 ... 4.5 V, ratiometric
Standard measuring ranges	<ul style="list-style-type: none"> ■ 0 ... 50 °C ■ 0 ... 80 °C ■ 0 ... 100 °C ■ 0 ... 120 °C ■ 0 ... 150 °C ■ 0 ... 200 °C 		
Special measuring ranges	<ul style="list-style-type: none"> ■ Start of measuring range -50 ... +50 °C ■ End of measuring range 0 ... 200 °C ■ Minimum span 50 K 		
Accuracy	<ul style="list-style-type: none"> ■ Measuring element $\pm(0.3 + 0.005 \cdot t)$ °C (class B per IEC 60751) ■ Electronics $\pm 0.5\%$ of measuring span <p>Overall accuracy = accuracy of measuring element + accuracy of electronics</p> <p>Example: Medium temperature $t = 150$ °C, measuring range 0 ... 200 °C Accuracy: $\pm(0.3 + 0.005 \cdot 150) + 0.5/100 \cdot 200 = \pm 2.05$ °C</p>		
Power supply U_B	DC 10 ... 30 V	DC 12 ... 30 V	DC 5 V
Max. permissible residual ripple	< 10 %	< 10 %	< 10 %
Error signalling	<ul style="list-style-type: none"> ■ Sensor break > 20.5 mA ■ Sensor short-circuit < 3.8 A 		
Electromagnetic compatibility (EMC)	EN 61326 emission (group 1, class B) and immunity (industrial application) ¹⁾		

Thermowell			
Material	Stainless steel		
Diameter	<ul style="list-style-type: none"> ■ 6 mm ■ 8 mm 		
Process connection	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Mounting thread, fixed Material: Stainless steel <ul style="list-style-type: none"> ■ G ¼ ■ G ⅜ ■ G ½ ■ G ¾ ■ M12 x 1.5 ■ M14 x 1.5 ■ ¼ NPT ■ ½ NPT </td> <td style="width: 50%; vertical-align: top;"> Compression fitting, sliding Material: Stainless steel Material of ferrule: Stainless steel <ul style="list-style-type: none"> ■ G ¼ ■ G ½ ■ ¼ NPT ■ ½ NPT </td> </tr> </table>	Mounting thread, fixed Material: Stainless steel <ul style="list-style-type: none"> ■ G ¼ ■ G ⅜ ■ G ½ ■ G ¾ ■ M12 x 1.5 ■ M14 x 1.5 ■ ¼ NPT ■ ½ NPT 	Compression fitting, sliding Material: Stainless steel Material of ferrule: Stainless steel <ul style="list-style-type: none"> ■ G ¼ ■ G ½ ■ ¼ NPT ■ ½ NPT
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Insertion length U_1	25, 50, 75, 100, 150, 200, 250, 300, 400, 500 mm 100, 150, 200, 250, 300, 400, 500 mm		
Neck tube	<p>In order to protect the electronics from unacceptably high temperatures at higher temperatures and unfavourable installation situations, it is possible to separate the probe case from the process connection by means of a neck tube.</p> <p>With the version with compression fitting, the neck tube is 40 mm as standard so that the desired insertion length can be realised.</p> <p>The version with fixed mounting thread is delivered, as standard, without a neck tube. Here, a neck tube of 50 mm or 100 mm can be selected optionally.</p>		
Static operating pressure	Max. 40 bar For higher pressures, please speak to a WIKA contact person		

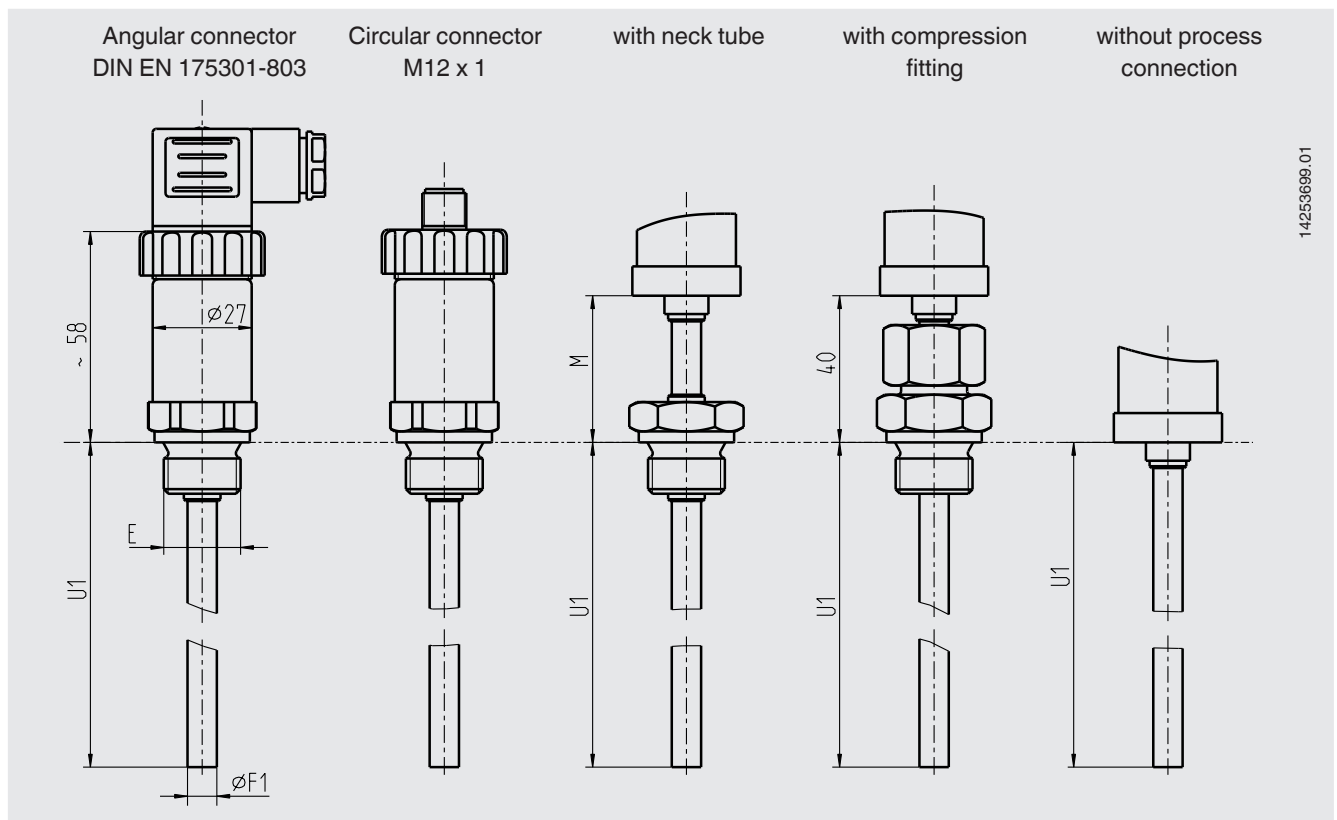
1) Use temperature transmitters with shielded cable, and, if the lines are longer than 30 m or leave the building, ground the shield on at least one end of the lead.

Ambient conditions	
Working temperature	-50 ... +200 °C (-58 ... +392 °F)
Ambient temperature	-40 ... +85 °C (-40 ... +185 °F)
Storage temperature	-20 ... +70 °C (-4 ... + 158 °F)
Vibration resistance ²⁾	To 10 g per EN 60068-2-6
Shock resistance ²⁾	To 100 g

Transmitter case	
Materials	Stainless steel
Diameter	27 mm
Electrical connection	<ul style="list-style-type: none"> ■ Angular connector DIN EN 175301-803, form A ■ Circular connector M12 x 1
Ingress protection	IP65

2) The values for vibration resistance and shock resistance apply for instruments with fixed, welded mounting threads.
Depending on the installation situation, medium, temperature and thermowell geometry, the vibration resistance and shock resistance can vary strongly.
We recommend, for increased demands, that the instrument is first tested in the application.

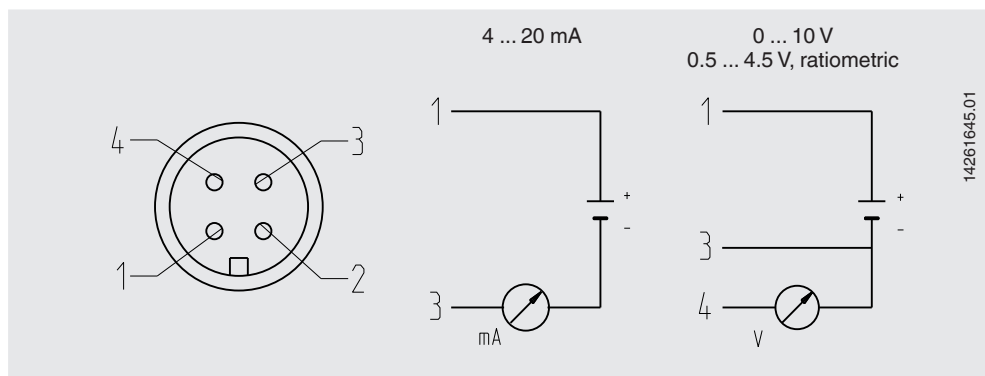
Dimensions in mm



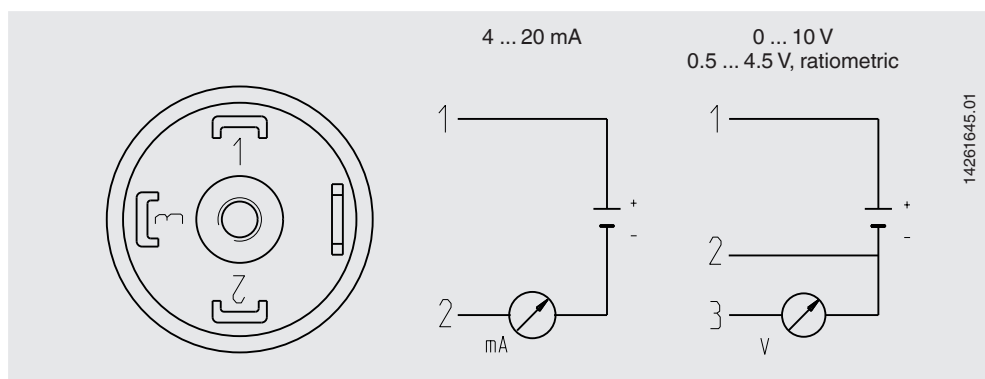
Legend:
 U_1 Insertion length
 ϕF_1 Thermowell diameter
 M Neck tube length
 E Process connection

Electrical connection

■ Circular connector M12 x 1



■ Angular connector DIN EN 175301-803, form A



Approvals

Logo	Description	Country
CE	EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive EN 61326 emission (group 1, class B) and immunity (industrial application) ■ RoHS directive 	European Union

Approvals and certificates, see website

Ordering information

When ordering choose one criterion from each category.

Output signal

- 4 ... 20 mA, 2-wire
- 0 ... 10 V, 3-wire
- 0.5 ... 4.5 V, 3-wire, ratiometric

Start of measuring range

- 0 °C
- -50 °C

End of measuring range

- 50 °C
- 80 °C
- 100 °C
- 120 °C
- 150 °C
- 200 °C

Thermowell material

- Stainless steel 1.4571

Thermowell diameter F₁

- 6.0 mm
- 8.0 mm

Process connection E

- Mounting thread G ¼
- Mounting thread G ⅜
- Mounting thread G ½
- Mounting thread G ¾
- Mounting thread M12 x 1.5
- Mounting thread M14 x 1.5
- Mounting thread ¼ NPT
- Mounting thread ½ NPT
- Adjustable compression fitting G ¼, stainless steel ferrule
- Adjustable compression fitting G ½, stainless steel ferrule
- Adjustable compression fitting ¼ NPT, stainless steel ferrule
- Adjustable compression fitting ½ NPT, stainless steel ferrule

Insertion length U₁

- 25 mm
- 50 mm
- 75 mm
- 100 mm
- 150 mm
- 200 mm
- 250 mm
- 300 mm
- 400 mm
- 500 mm

Electrical connection

- Angular connector DIN EN 175301-803, form A, connector and cable socket
- Circular connector M12 x 1

Neck tube length M

- Without neck tube
- 50 mm
- 100 mm

Ordering information

Model / Output signal / Start of measuring range / End of measuring range / Thermowell material / Thermowell diameter F_1 /
Process connection E / Insertion length U_1 / Electrical connection / Neck length N / Options

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