

Threaded thermometer With plug connection Model TF35

WIKA data sheet TE 67.10



for further approvals
see page 5

Applications

- Compressors and pumps
- Mobile working machines
- Refrigeration technology
- Heating, ventilation and air-conditioning
- Machine building

Special features

- Measuring ranges from $-50 \dots +250 \text{ }^{\circ}\text{C}$ [$-58 \dots +482 \text{ }^{\circ}\text{F}$]
- Very high vibration resistance
- Compact design
- Electrical connection via plug connection



Fig. left: AMP Junior Power Timer connector
Fig. right: Circular connector M12 x 1



Fig. left: Deutsch instrument connector DT04-2P
Fig. right: Rectangular connector EN 175301-803

Description

The model TF35 threaded thermometer is used for temperature measurement of liquid and gaseous media in the range $-50 \dots +250 \text{ }^{\circ}\text{C}$ [$-58 \dots +482 \text{ }^{\circ}\text{F}$].

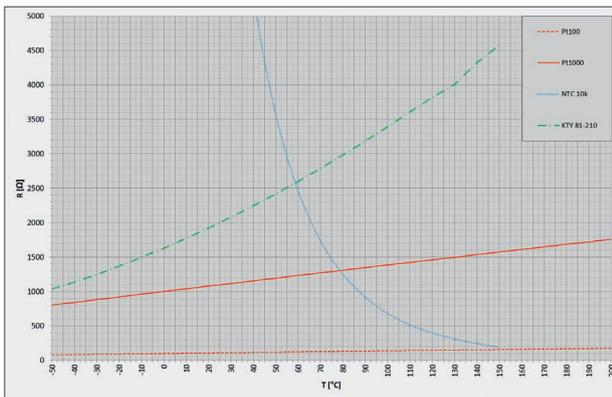
The integrated thermowell with threaded connection enables direct installation into the process. Depending on the requirements, the thermowell can be selected from brass or stainless steel. By default, the TF35 thermometer can be used for pressures up to 50 bar [725 psi]. The directly mounted coupler connector ensures simple commissioning of the thermometer.

Specifications

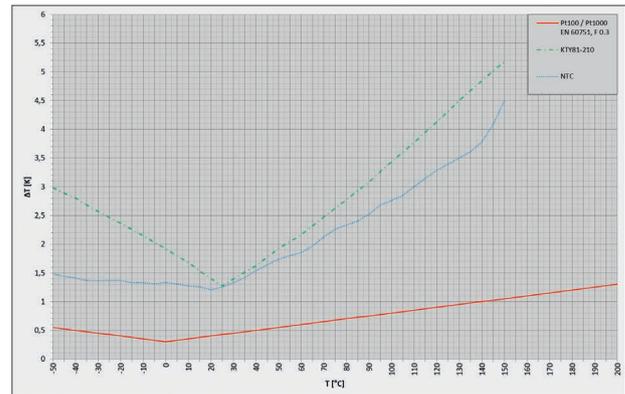
Measuring element	Version	Measuring range
Type of measuring element	Pt1000, class F 0.3 per IEC/EN 60751	-50 ... +200 °C [-58 ... +392 °F] -50 ... +250 °C [-58 ... +482 °F]
	Pt100, class F 0.3 per IEC/EN 60751	-50 ... +200 °C [-58 ... +392 °F] -50 ... +250 °C [-58 ... +482 °F]
	NTC 10 kOhm, B(25/85) = 3976	-30 ... +130 °C [-22 ... +266 °F]
	NTC 5 kOhm, B(25/85) = 3976	-30 ... +130 °C [-22 ... +266 °F]
	NTC 2.5 kOhm, B(20/85) = 3541	-30 ... +130 °C [-22 ... +266 °F]
	NTC 2.252 kOhm, B(25/85) = 3974	-30 ... +130 °C [-22 ... +266 °F]
	KTY81-210	-50 ... +150 °C [-58 ... +302 °F]
Connection method	2-wire connection	

Characteristic curves

■ Typical characteristic curves



■ Typical tolerance curves



Accuracy specifications

Lead resistance effects

With the 2-wire connection, the lead resistance of the connection lead affects the measured value and must be taken into consideration.

0.162 Ω/m (guideline value for copper cable with cross-section 0.22 mm²)
Example Pt100: 0.42 °C/m

Reference conditions

Ambient temperature	15 ... 25 °C [59 ... 77 °F]
Air pressure	860 ... 1,060 mbar [12.47 ... 15.37 psi]
Air humidity	50 ... 70 % r. h.
Mounting position	As required

Process connection	
Thermowell/protection tube	
Thermowell diameter	<ul style="list-style-type: none"> ■ 4 mm [0.16 in] ■ 6 mm [0.24 in] ■ 8 mm [0.31 in] Other diameters on request
Mounting thread	<ul style="list-style-type: none"> ■ G ¼ B ■ G ⅜ B ■ G ½ B ■ M14 x 1.5 ■ ¼ NPT ■ ½ NPT ■ 7/16" - 20 UNF SAE, O-ring Boss FPM/FKM Other threads on request
Insertion length	<ul style="list-style-type: none"> ■ 25 mm [0.98 in] ■ 30 mm [1.18 in] ■ 35 mm [1.38 in] ■ 40 mm [1.57 in] ■ 45 mm [1.77 in] ■ 50 mm [1.97 in] ■ 60 mm [2.36 in] Other lengths on request
Material (wetted)	<ul style="list-style-type: none"> ■ Brass ■ Stainless steel

Output signal									
Dynamic behaviour per IEC/EN 60751									
Response time	<p>The response time is essentially influenced by the thermowell used (dimensions, material), the heat transfer to the measuring element and the flow rate of the medium</p> <p>Due to the design of the model TF35, there is optimum heat transfer from the medium to the measuring element</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Brass thermowell (for Ø 6 mm [0.24 in])</td> <td style="width: 30%; text-align: right;">t_{0,5}: 2.2 s</td> </tr> <tr> <td></td> <td style="text-align: right;">t_{0,9}: 6 s</td> </tr> <tr> <td>Thermowell made of stainless steel (for Ø 6 mm [0.24 in])</td> <td style="text-align: right;">t_{0,5}: 2.5 s</td> </tr> <tr> <td></td> <td style="text-align: right;">t_{0,9}: 6.5 s</td> </tr> </table>	Brass thermowell (for Ø 6 mm [0.24 in])	t _{0,5} : 2.2 s		t _{0,9} : 6 s	Thermowell made of stainless steel (for Ø 6 mm [0.24 in])	t _{0,5} : 2.5 s		t _{0,9} : 6.5 s
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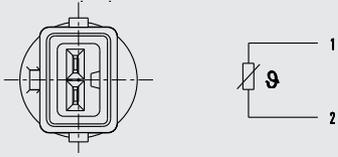
Electrical connection		
Connection type	IP code ¹⁾	Ambient temperature range
AMP Junior Power Timer connector	IP66, IP67	-40 ... +130 °C [-40 ... +266 °F]
FASTON blade terminal 6.3 x 0.8 mm	IP52	-40 ... +130 °C [-40 ... +266 °F]
Deutsch instrument connector DT04-2P	IP66, IP67, IP69K	-40 ... +130 °C [-40 ... +266 °F]
Bayonet connector DIN 72585	IP66, IP67	-40 ... +130 °C [-40 ... +266 °F]
Circular connector M12 x 1	IP66, IP67	-40 ... +90 °C [-40 ... +194 °F]
Rectangular connector EN 175301-803	IP65	-40 ... +100 °C [-40 ... +212 °F]

1) The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

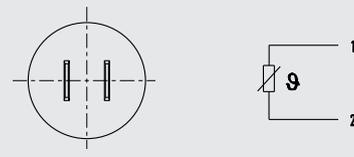
Mating connectors are not included in the delivery, but they are available as accessories.

Pin assignment

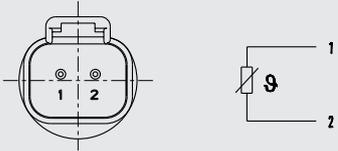
AMP Junior Power Timer connector



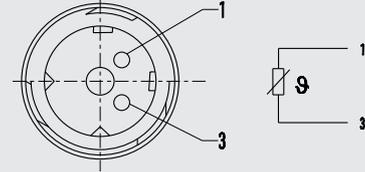
FASTON blade terminal



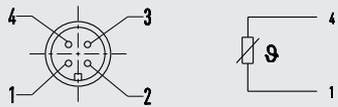
Deutsch instrument connector DT04-2P



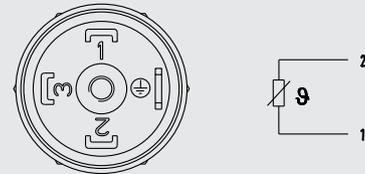
Bayonet connector per DIN 72585



Circular connector M12 x 1



Rectangular connector per DIN EN 175301-803



Operating conditions

Ambient temperature range	<p>Due to short installation length there is a risk that the temperature at the connector will rise up to an inadmissibly high value. This absolutely must be taken into account when designing the measuring location. The temperature at the connector must not exceed the mentioned temperature range.</p> <p>→ For ambient temperature ranges, see table “Electrical connection”</p>
Static operating pressure	Max. 50 bar [725 psi]
Vibration resistance per IEC 60068-2-6:2007	Depending on the design, mounting situation, the medium and temperature To 30 g
Shock resistance per IEC 60068-2-27:2007	Depending on the design, mounting situation, the medium and temperature To 500 g
Ingress protection (IP code) per IEC 60529	→ Ingress protection, see table “Electrical connection”

Approvals

Logo	Description	Country
	EU declaration of conformity RoHS directive	European Union

Optional approvals

Logo	Description	Country
	UL ¹⁾ Component certification	USA and Canada
	GOST Metrology, measurement technology	Russia
	KazInMetr Metrology, measurement technology	Kazakhstan
	Uzstandard Metrology, measurement technology	Uzbekistan

1) Only with Pt elements

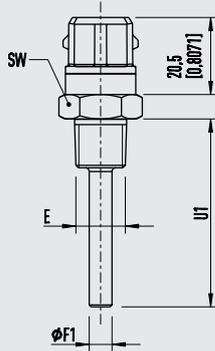
Manufacturer's information and certificates

Logo	Description
-	China RoHS directive

→ Approvals and certificates, see website

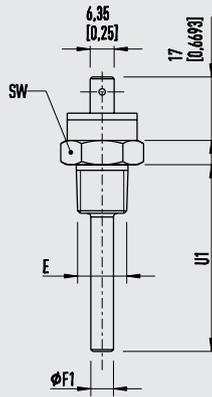
Dimensions in mm [in]

AMP Junior Power Timer connector



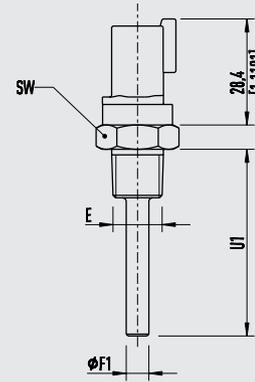
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FASTON blade terminal 6.3 x 0.8 mm



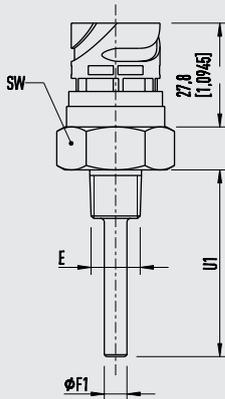
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Deutsch instrument connector DT04-2P



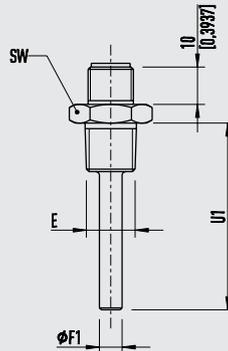
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Bayonet connector, DIN 72585



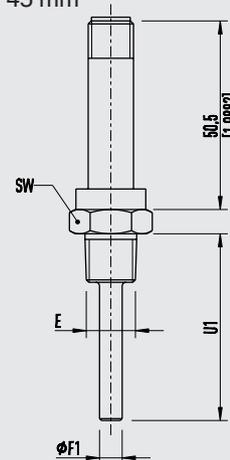
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Circular connector M12 x 1



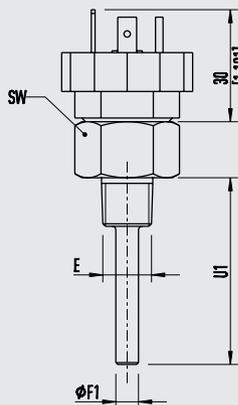
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Circular connector M12 x 1 with neck tube 45 mm



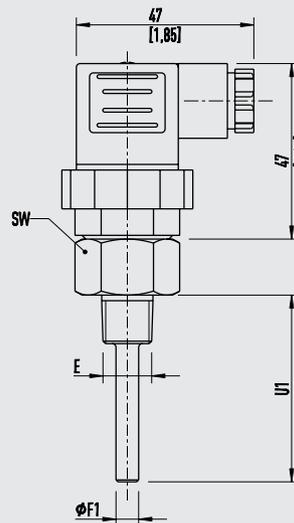
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Rectangular connector EN 175301-803, form A, connector without cable socket



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Rectangular connector EN 175301-803, form A, connector and cable socket



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Legend

- F₁ Thermowell diameter
- E Process connection
- U₁ Insertion lengths

Accessories

Description	Order number
Mating connector	
Angular connector DIN 175301-803 A	11427567
Circular connector M12 x 1, 4-pin, straight	2421262
Circular connector M12 x 1, 4-pin, angled	2421270
AMP Junior Power Timer connector	14039250
Deutsch instrument connector DT04-2P	14050063
Bayonet connector DIN 72585	14037547

Ordering information

Model / Measuring element / Thermowell material and diameter / Process connection / Insertion length / Electrical connection

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