Threaded temperature probe
With plug connection
Model TF35

Applications

- Compressors and pumps
- Mobile working machines
- Refrigeration technology
- Hydrogen applications
- Machine building

Special features

- Measuring ranges from -50 ... +200 °C [-58 ... +392 °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 connector DT04-2P
Fig. right: rectangular connector EN 175301-803

Description

The model TF35 threaded temperature probe is used for temperature measurement of liquid and gaseous media in the range of -50 ... +200 °C [-58 ... +392 °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. As standard, the TF35 can be used for pressures up to 50 bar [725 psi]. Special versions for hydrogen applications can be used up to 1,050 bar [15,229 psi]. The directly mounted coupler connector ensures simple commissioning of the temperature probe.

Configurator

Standard article

Smart in sensing

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]
	Pt100, class F 0.3 per IEC/EN 60751	-50 … +200 °C [-58 ... +392 °F]
	PTC-2000	-50 ... +150 °C [-58 ... +302 °F]
	NTC 10 kΩ, B(25/85) = 3,976	-30 … +130 °C [-22 ... +266 °F]
	NTC 5 kΩ, B(25/85) = 3,976	-30 … +130 °C [-22 ... +266 °F]
	NTC 2.5 kΩ, B(20/85) = 3,541	-30 … +130 °C [-22 ... +266 °F]
	NTC 2.252 kΩ, B(25/85) = 3,974	-30 … +130 °C [-22 ... +266 °F]
	→ Other measuring elements on request	
Connection method	2-wire connection	

Accuracy specifications	
Influence of lead resistance	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 mm^2) 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]

Process connection	
Thermowell	
Thermowell diameter	■ 4 mm [0.16 in] ■ 6 mm [0.24 in] ■ 8 mm [0.31 in]
	→ Other thermowell diameters on request
Mounting thread	■ G ¼ B, male thread ■ G ⅜ B, male thread ■ G ½ B, male thread ■ M14 x 1.5, male thread ■ ¼ NPT, male thread ■ ½ NPT, male thread ■ 7/16" - 20 UNF SAE, O-ring Boss FPM/FKM
	→ Other mounting threads on request
Insertion length	■ 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)	■ Brass ■ Stainless steel ■ Stainless steel 1.4404/316L for hydrogen applications

Output signal		
Dynamic behaviour per IEC/EN 60751		
Response time	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.	
	Due to the design of the model TF35, there is optimum heat transfer from the medium to the measuring element.	
	Thermowell made of brass (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

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 connector DT04-2P	IP66, IP67, IP69K	-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]

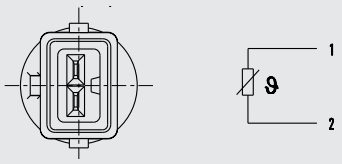
1) The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

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

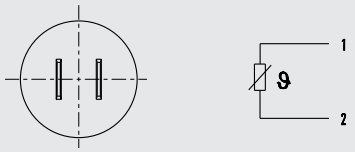
Operating conditions	
Ambient temperature range	Due to short installation length there is a risk that the temperature at the connector will rise up to an inadmissibly high value. This absolutely must be taken into account when designing the measuring location. The temperature at the connector must not exceed the mentioned temperature range.
	→ For ambient temperature ranges, see table „Electrical connection“
Static operating pressure	
Thermowell material: brass	Max. 50 bar [725 psi]
Thermowell material: stainless steel	Max. 50 bar [725 psi]
Thermowell material: stainless steel 1.4404/316L for hydrogen applications	Max. 1,050 bar [15,229 psi]
Vibration resistance per IEC 60068-2-6:2007	Depending on the design, mounting situation, medium and temperature To 30g
Shock resistance per IEC 60068-2-27:2007	Depending on the design, mounting situation, medium and temperature To 500g
Ingress protection (IP code) per IEC 60529	→ For ingress protection, see table “Electrical connection”
Humidity	50 ... 70 % relative humidity
Condensation	Condensation permissible
Mounting position	As required

Pin assignment

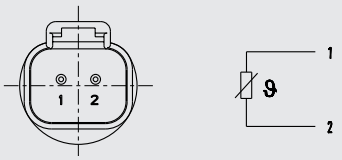
AMP Junior Power Timer connector



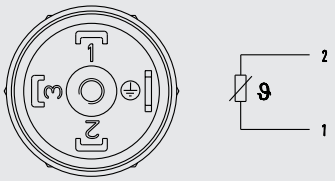
FASTON blade terminal



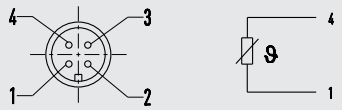
DEUTSCH connector DT04-2P



Rectangular connector per DIN EN 175301-803



Circular connector M12 x 1



Approvals

Logo	Description	Region
CE	**EU declaration of conformity**	European Union
	RoHS directive	

Optional approvals

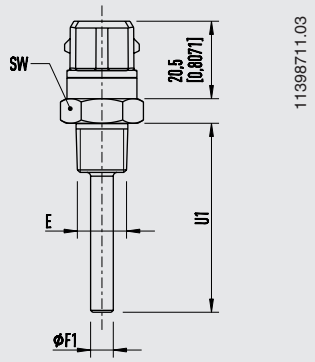
Logo	Description	Region
cULus	**UL** [1)] Component approval	USA and Canada

1) Only with Pt elements

→ For approvals and certificates, see website

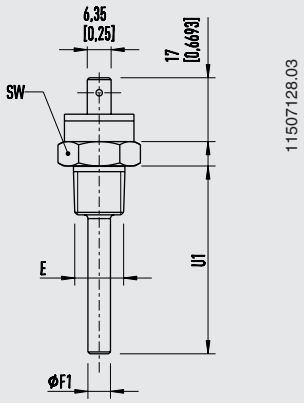
Dimensions in mm [in]

AMP Junior Power Timer connector



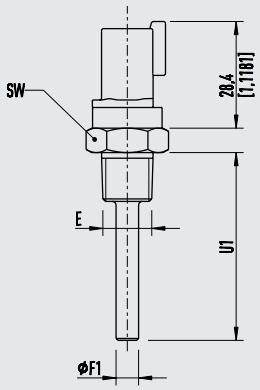
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FASTON blade terminal 6.3 x 0.8 mm



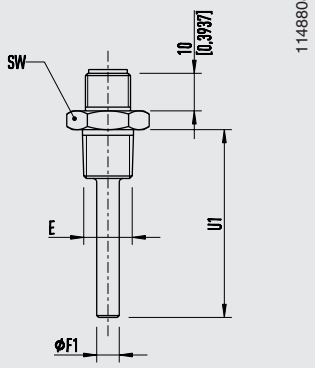
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DEUTSCH connector DT04-2P



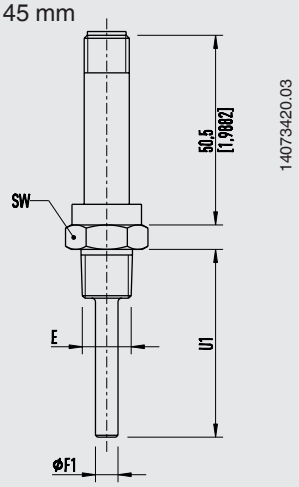
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Circular connector M12 x 1



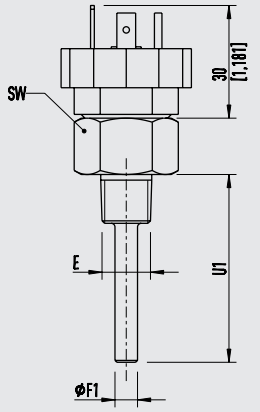
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Circular connector M12 x 1 with neck tube 45 mm



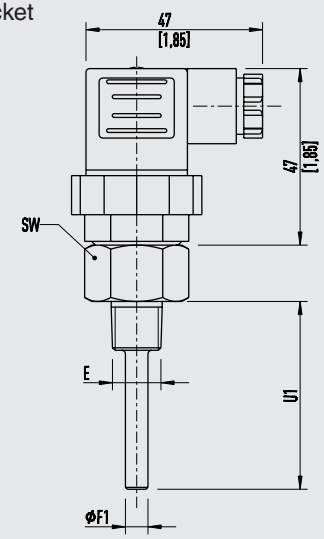
14073420.03

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



11578549.02

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



14490048.01

Legend

F_1	Thermowell diameter
E	Process connection
U_1	Insertion lengths

Accessories

Description	Order number
Mating connector	
Rectangular 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 connector DT04-2P	14050063

Ordering information

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

Standard article

Configurator

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