Cable temperature probe
For heating and refrigeration technology
Model TF-2000

Applications

- Heating technology incl. heat pumps
- Refrigeration technology incl. cooling systems
- Ventilation and air-conditioning

Special features

- Permanently protected against condensation
- Cost savings thanks to quick assembly
- Delivery reliability, even for large orders

Cable temperature probe, model TF-2000

Description

The TF-2000 cable temperature probe provides reliable temperature values for refrigeration technology, heating and heat pumps. Frequent changes between the dew point and the freezing point are not a problem – thanks to a measuring element that is completely overmoulded with plastic and is thus dust-tight and waterproof in accordance with IP68. Quick-mounting brackets enable time-saving installation. In addition, the thermometer can be mechanically stabilised using a stainless steel sleeve.

Permanently protected against condensation
The model TF-2000 is completely leak-tight in accordance with IP68. Even without an optional probe sleeve, no condensate gets close to the measuring element. This minimises the risk of failures, ensures data quality, optimises service life and ensures investment security.

Cost savings thanks to quick assembly
Minimum installation costs: The model TF-2000 with a square brass sleeve can be fastened in seconds, without any copper tubes being soldered on. Instruments, which have several temperature measuring locations, can be equipped in a time-saving and cost-effective manner. In the brass design, the square sleeve also ensures good heat conduction and prevents contact corrosion. There is no need to apply thermal compound with no subsequent sacrifice of accuracy or response time.

Delivery reliability, even for large orders
Our decentralised purchasing structure can react flexibly to material and delivery bottlenecks. This guarantees reliable delivery times at all times. Thanks to many years of OEM experience, even short-term increases in volume are no problem. If desired, WIKA can use Vendor Managed Inventory (VMI) to view real-time customer inventories and - for highest comfort - arrange automated deliveries.

Data sheets showing similar products and accessories:
Strap-on temperature sensor model TF44; see data sheet TE 67.14
Insertion thermometer model TF45; see data sheet TE 67.15

Specifications

Measuring element	Version
Type of measuring element	Pt1000, class F 0.3 per IEC/EN 60751
	Pt100, class F 0.3 per IEC/EN 60751
	NTC, R_{25} = 10 kΩ, B(25/85) = 3977
	NTC, R_{25} = 10 kΩ, B(25/85) = 3435
	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]
Air humidity	50 ... 70 % r. h.

Output signal	
Dynamic behaviour per IEC/EN 60751	
Response time	The response time is essentially influenced by the probe design, the heat transfer to the measuring element and the flow rate of the medium.
	Due to the design of the model TF-2000, there is optimum heat transfer from the medium to the measuring element.
	t0,5 < 8 s
	t0,63 < 11 s
	t0,9 < 21 s

Probe design	
Probe tip	■ Plastic moulded (TPE), Ø 5 mm [0.2 in] ■ Plastic moulded (TPE) with stainless steel probe sleeve, Ø 6,1 mm [0.24 in] ■ Plastic moulded (TPE) with brass probe sleeve, square bar 6 x 6 mm [0.24 x 0.24 in]

Electrical connection		
Connection type	■ Blank bare wires ■ End splices	
	→ Others on request	
Insulation material of the connection lead	TPE	■ Double-insulated round cable ■ Single-insulated ribbon cable
	The connection lead and the measuring element are moulded together as one single unit. The TPE variant is halogen-free and has been designed as a double-insulated round cable or single-insulated ribbon cable.	
Length of connection lead	500 ... 10,000 mm [19,7 ... 393.7 in], in 500 mm [19,7 in] increments	
	→ Others on request	

Operating conditions	
Medium temperature limit	
Single insulated cable	-40 ... +90 °C [-40 ... +194 °F] (120 h at +105 °C [+221 °F], 12 h at +120 °C [+248 °F])
Double insulated cable	-50 ... +105 °C [-58 ... +221 °F] (120 h at +120 °C [+248 °F], 12 h at +150 °C [+302 °F])
Ambient temperature limit [1)]	-40 ... +90 °C [-40 ... +194 °F]
Storage temperature limit	-25 ... +85 °C [-13 ... +185 °F]
Static operating pressure	Atmospheric pressure
Ingress protection (IP code) per IEC 60529	IP68
Mounting position	As required

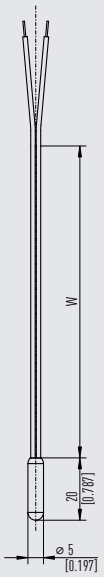
1) With a mounted connector, the permissible ambient temperature differs from the temperature specified here in accordance with the specification of the connector.

Dimensions in mm [in]

Probe tip TPE

Double-insulated round cable

Single-insulated ribbon cable



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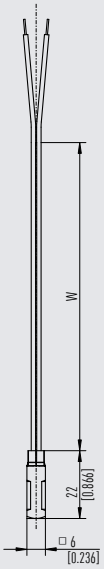
Probe tip TPE with brass probe sleeve

Double-insulated round cable

Single-insulated ribbon cable



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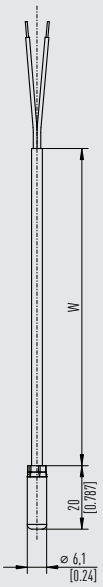
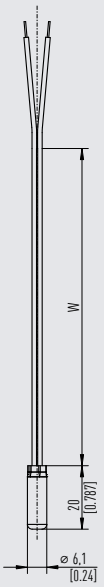
Probe tip TPE with stainless steel probe sleeve

Double-insulated round cable



Single-insulated ribbon cable



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Approvals

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

→ For approvals and certificates, see website

Accessories

Model		Order number
Quick-mounting bracket, galvanised steel		
	for pipe diameters 12 … 16 mm [0.47 ... 0.63 in]	14145991
	for pipe diameters 18 … 22 mm [0.71 ... 0.87 in]	14100349
	for pipe diameters 25 … 28 mm [0.98 ... 1.1 in]	14100347
	for pipe diameters 32 … 35 mm [1.26 ... 1.38 in]	14149603
	for pipe diameters 39 … 42 mm [1.54 ... 1.65 in]	14149604

Ordering information
Model / Probe design / Measuring element / Connection lead / Cable length / Electrical connection / Accessories

To order the described product the order number is sufficient.

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