

Outdoor thermometer Model TF41

WIKA data sheet TE 67.17



Applications

- Heat pumps
- Combined heat and power plants
- Heating, ventilation and air-conditioning
- Refrigeration technology

Special features

- Smallest case design
- Protected against dust and water jets, IP65
- UV-resistant
- Clip-on sun protector
- Temperature ranges from -40 ... +100 °C



Fig. top: Outdoor thermometer with integrated measuring element

Fig. bottom: Outdoor thermometer with external probe sleeve and sun protector

Description

Model TF41 outdoor thermometers are used for temperature measurement in external areas as well as in cold rooms and production and storage facilities. The extremely small case even enables mounting in locations where there is very little space available.

The model TF41 outdoor thermometers are delivered as standard with the measuring element integrated within the case. For faster temperature measurement, the TF41 can alternatively be delivered with an external probe sleeve. To prevent erroneous measurements through strong radiation from sunlight, we offer a clip-on sun cover as an accessory. By selecting the appropriate measuring elements, the TF41 models are compatible with all commonly used control systems.

Measuring element

As standard, WIKA uses the following measuring elements for the model TF41 outdoor thermometer:

- Pt1000, class B per DIN EN 60751
- Pt100, class B per DIN EN 60751
- NTC 5 k $\pm 5\%$ / B (25/85) = 3976
- NTC 10 k $\pm 5\%$ / B (25/85) = 3435

Others on request

Platinum elements offer the advantage of meeting international standards (IEC/EN 60751).

Due to material- and production-specific criteria, a standardisation of semiconductor elements such as NTCs is not possible. For this reason their interchangeability is limited.

Further advantages of platinum elements are: better long-term stability and better behaviour over temperature cycles as well as a wider temperature range. High measurement accuracy and linearity are also possible with NTCs, but only in a limited temperature range.

This is set against the lower temperature sensitivity of platinum elements.

Strengths and weaknesses of the different measuring elements

	NTC	Pt100	Pt1000
Temperature range	-	++	++
Accuracy	-	++	++
Linearity	-	++	++
Long-term stability	+	++	++
International standards	-	++	++
Temperature sensitivity [dR/dT]	++	-	+
Impact of the connection lead	++	-	+

Connection method

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

For copper cable with cross-section 0.22 mm² the following standard value applies: 0.162 Ω /m \rightarrow 0.42 $^{\circ}\text{C}/\text{m}$ for Pt100

Outdoor thermometers are generally used in applications where a high-accuracy temperature measurement is not required. To keep the costs of the measuring point low, we offer our outdoor thermometers with a 2-wire connection.

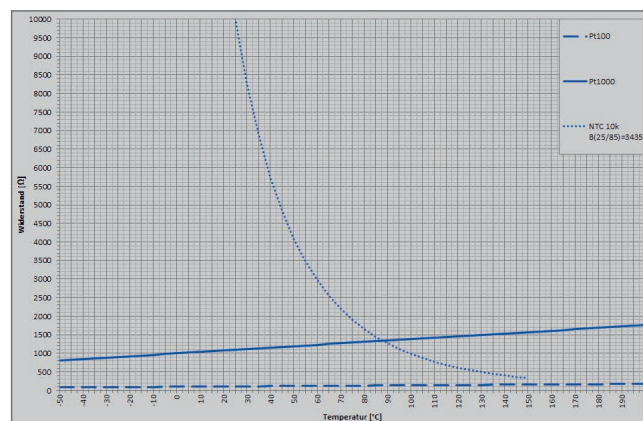
We recommend selecting a design with Pt1000, with which, on the one hand, the influence of the wires, at 0.04 $^{\circ}\text{C}/\text{m}$, is a factor of 10 lower, and on the other, the international standardisation of platinum measuring resistors guarantees a higher market availability. The lead resistance, however, is noticeable just as little with an NTC element.

If the wire from the temperature probe to the controller is designed with a cross-section of 0.5 mm², then the influence of the wires is also reduced here to under 0.04 $^{\circ}\text{C}/\text{m}$ with Pt100 and 0.004 $^{\circ}\text{C}/\text{m}$ with Pt1000.

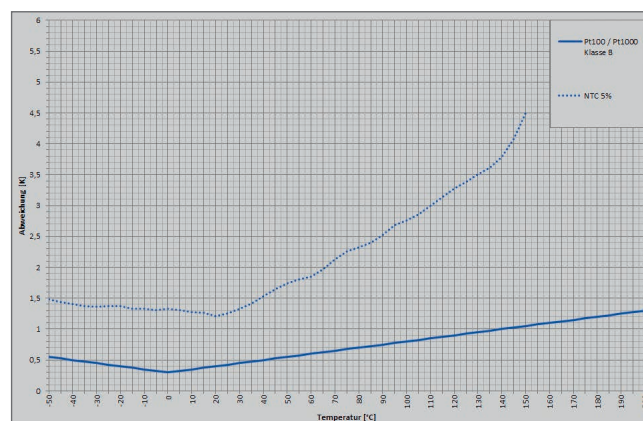
Characteristic curves

The following characteristic curves show the typical curve shapes for the standard WIKA measuring elements, depending on the temperature and the typical tolerance curves.

■ Typical characteristic curves



■ Typical tolerance curves



Temperature ranges

Medium temperature (measuring range)

The measuring range is dependent, essentially, on the material of the case and the measuring element. The case is designed for a temperature range of -40 ... +100 °C. In conjunction with the measuring element, the following measuring ranges are available:

Measuring element	Measuring range
NTC	-30 ... +100 °C
Pt100	-40 ... +100 °C
Pt1000	-40 ... +100 °C

Ambient temperature

The permissible ambient temperature range is identical to the measuring range.

Probe case

To enable the most unobtrusive mounting possible for the TF41 outdoor thermometer, we have adopted extremely small dimensions for the case. The case is made from PA66 GK30 UV-resistant plastic.

Colour: Pure white, RAL 9010
Cable gland: M16
Electrical connection: 2 screw terminals, max. 1.5 mm²
Case ingress protection: IP65

Probe version

As standard, the measuring elements are integrated into the case of the outdoor thermometer. If a faster response is desired, it is possible to fit the TF41 with an external probe sleeve, in the tip of which the measuring element is installed.

Material: Stainless steel 1.4571
Diameter: 6 mm
Length: 30 mm

Ingress protection

IP65
The connection housing is protected from dust and water jets.

Sun protector

Generally, with the mounting of outdoor thermometers, it must be ensured that these are not placed in direct sunlight. It is therefore recommended that they are mounted on the north side of buildings.

If this is not possible, we offer a protective sun cover as an accessory. It is from the same material as the case and is easily attached to it.

Accessories

To protect the model TF41 outdoor thermometer from radiation from direct sunlight, there is the possibility of using a clip-on protective sun cover. The protective sun cover for retrofitting is available as an accessory item.

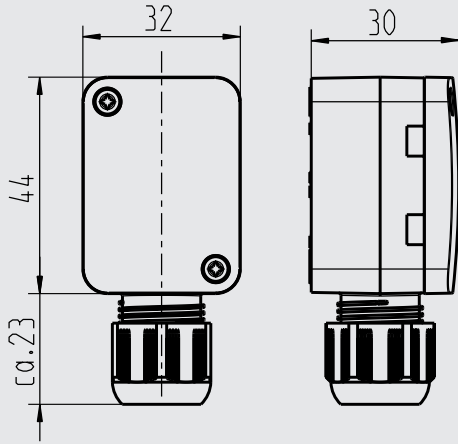
To affix the outdoor thermometer to the building wall, a wall-mounting kit is available. It consists of two dowels (Ø 6 x 30 mm) and the appropriate screws.

On ordering, please give the order number!

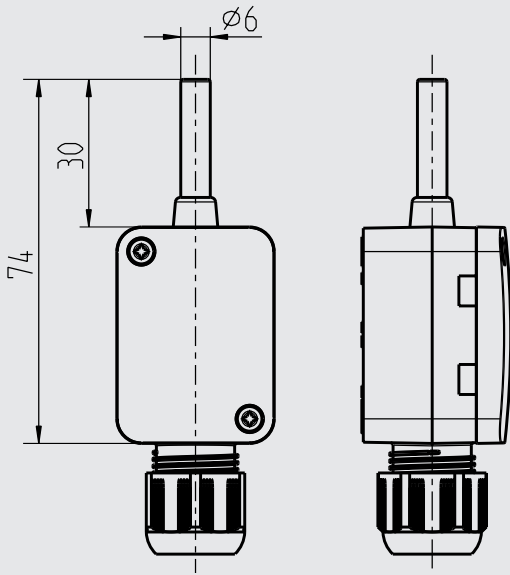
Description	Order number
Protective sun cover	14067113
Wall-mounting kit	14069467

Dimensions in mm

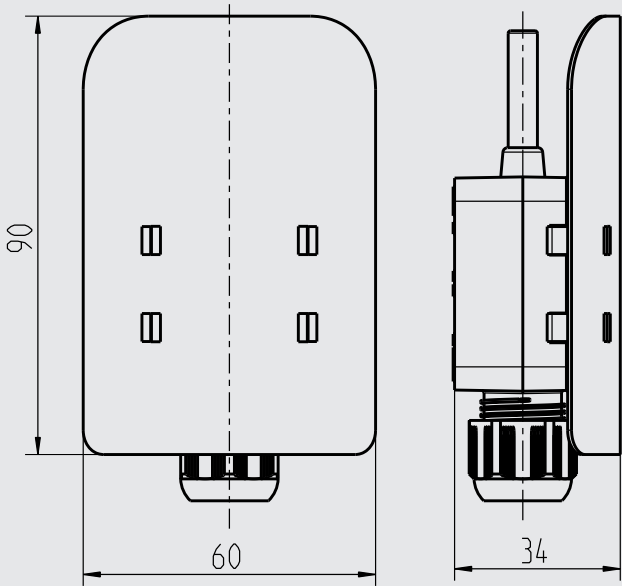
Model TF41



Model TF41 with probe sleeve







Model TF41 with probe sleeve and sun protector



14070965.00

Approvals

Logo	Description	Country
	EU declaration of conformity RoHS directive	European Union
	GOST (option) Metrology, measurement technology	Russia
	KazInMetr (option) Metrology, measurement technology	Kazakhstan
	UkrSEPRO (option) Metrology, measurement technology	Ukraine

Approvals and certificates, see website

Ordering information

Model / Measuring element / Accessories / Options

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