# Resistance thermometer
# Model TR60-A, outdoor resistance thermometer
# Model TR60-B, indoor resistance thermometer



for further approvals
see page 5

## Applications

- Ambient temperature measurement
- Air-conditioned rooms, cold-storage rooms, storehouses, grain storages, malting floors etc.

## Special features

- Application ranges from -40 ... +80 °C (-40 ... +176 °F)
- Transmitter optionally available
- Impact-resistant plastic case
- Intrinsically safe versions (ATEX) for model TR60-A


**Fig. left: outdoor resistance thermometer model TR60-A**
**Fig. right: indoor resistance thermometer model TR60-B**

## Description

**Outdoor resistance thermometer, model TR60-A**
This model features a closed sensor tube and is intended for damp or humid rooms and outdoor applications. For application in hazardous areas, intrinsically safe versions are available.

**Indoor resistance thermometer, model TR60-B**
This model is intended for dry rooms. The sensor tube around the sensor is perforated. As a result of this perforation, the sensor is in direct contact with the ambient air. This considerably improves the response time.

The range of applications is enhanced by the addition of optional analogue or digital transmitters.

## Sensor

The sensor is located in the tip of the probe.

**Sensor connection method**

- 2-wire
- 3-wire
- 4-wire

**Sensor tolerance value per DIN EN 60751**

- Class B
- Class A
- Class AA

The combinations of a 2-wire connection with class A / class AA are not permissible, since the lead resistance of the probe negates the higher sensor accuracy.

For detailed specifications for Pt100 sensors, see Technical information IN 00.17 at www.wika.com.

## Probe

The standard probe has a 6 mm diameter and is available with 1 x Pt100 or 2 x Pt100 in 2-wire, 3-wire or 4-wire circuit.

| Specifications | Model TR60-A<br>Outdoor resistance thermometer | Model TR60-B<br>Indoor resistance thermometer |
|---|---|---|
| **Sensor** | | |
| ■ Version | Rigid tube, closed | Rigid tube, perforated in the area of the sensor |
| ■ Material | Stainless steel 1.4571 | |
| ■ Sensor length | 60 mm [1] | |
| ■ Sensor diameter | 6 mm [1] | |
| **Case** | | |
| ■ Version | For wall mounting | |
| ■ Material | ABS plastic or aluminium | |
| ■ Dimensions | see dimensions [1] | |
| **Cable outlet** | M16 x 1.5 [1] | |
| **Permissible temperature ranges** | | |
| ■ Ambient | -40 ... +80 °C [2] | |
| ■ Storage | -40 ... +80 °C | |
| **Ingress protection** | IP 65 per EN 60529 / IEC 529 | IP 20 per EN 60529 / IEC 529 |
| **Weight** | approx. 0.4 kg | |

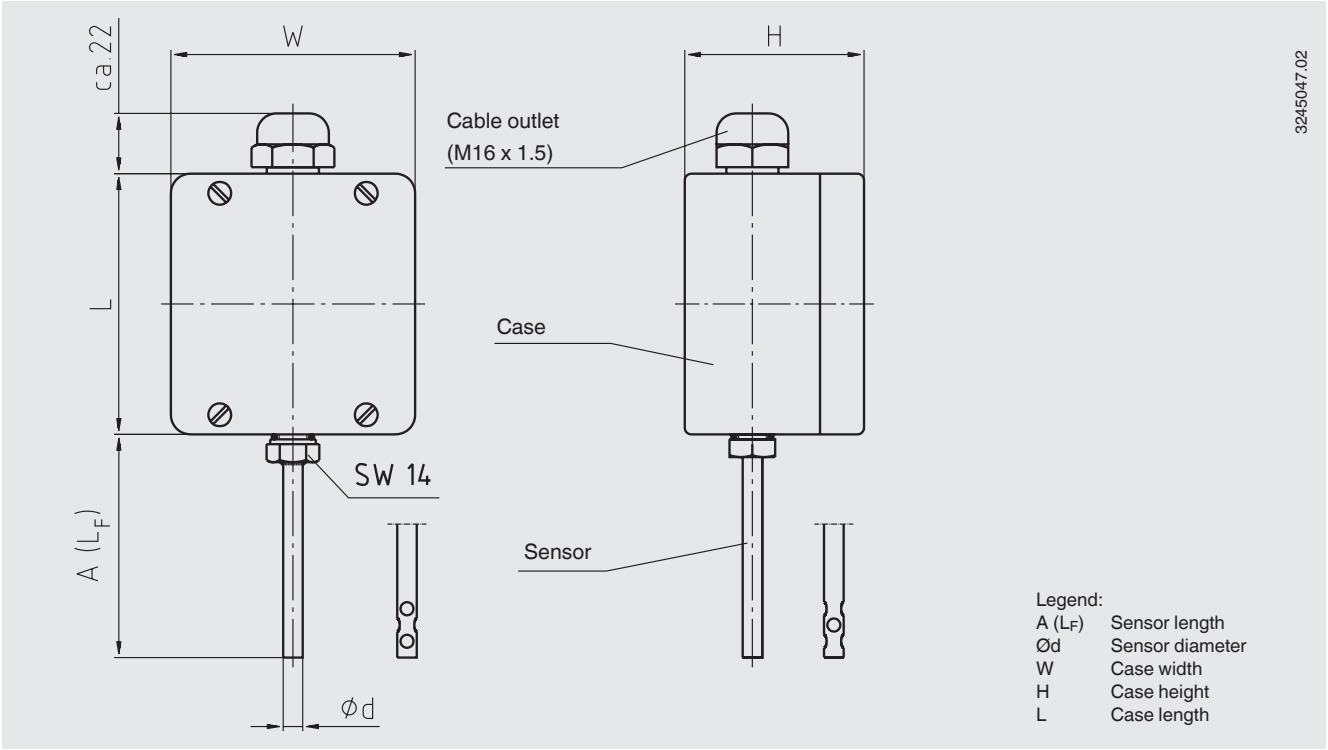
1) Others on request
2) The working temperature of the indoor resistance thermometer is limited by the permissible ambient temperature of the case.

## Transmitter (option)

A transmitter can be mounted into the case. This is done by mounting the transmitter in place of the connection terminals.

| Model | Description | Explosion protection | Data sheet |
|---|---|---|---|
| **T19** | Analogue transmitter, configurable | Without | TE 19.03 |
| **T24** | Analogue transmitter, PC configurable | Optional | TE 24.01 |
| **T12** | Digital transmitter, PC configurable | Optional | TE 12.03 |
| **T32** | Digital transmitter, HART® protocol | Optional | TE 32.04 |
| **T53** | Digital transmitter FOUNDATION™ Fieldbus and PROFIBUS® PA | Standard | TE 53.01 |

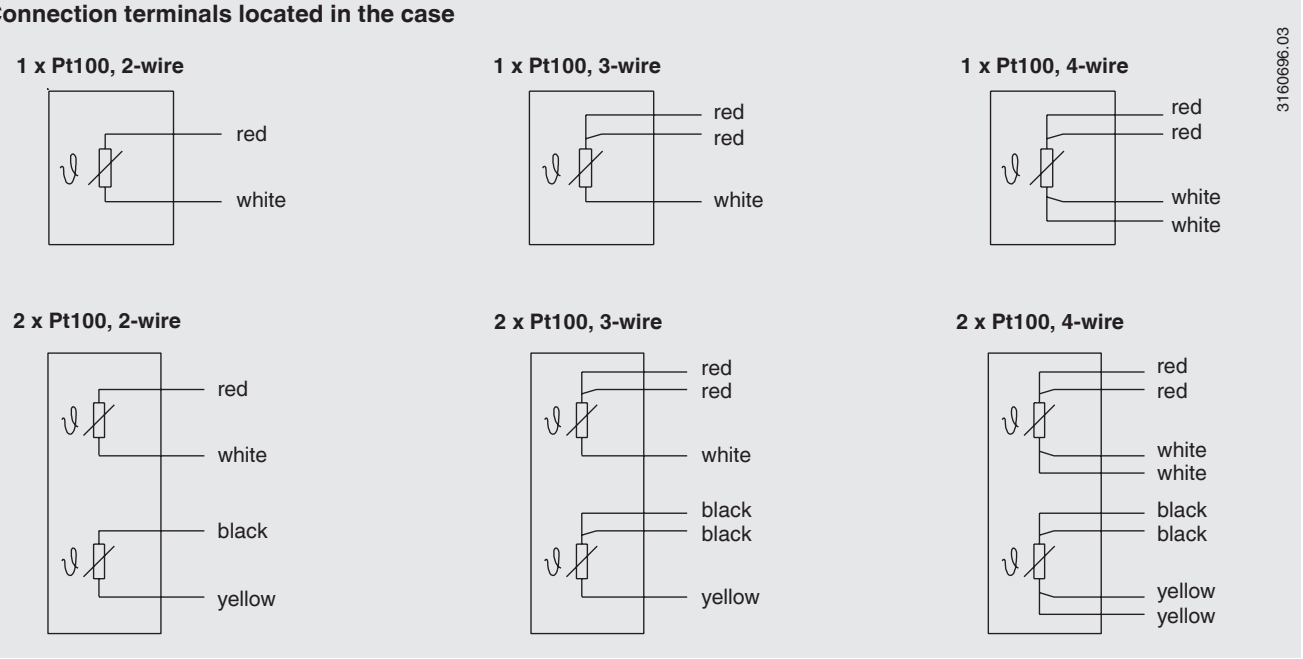
## Dimensions in mm




| Case | Dimensions in mm | | | | |
|---|---|---|---|---|---|
| | L | W | H | A ($L_F$) | Ød |
| **Plastic (ABS)** | 82 | 80 | 55 | 60 | 6 |
| **Aluminium** | 80 | 75 | 57 | 60 | 6 |

## Electrical connection

**Connection terminals located in the case**




For the electrical connections of built-in temperature transmitters see the corresponding transmitter data sheets or operating instructions.

## Explosion protection (option, only for model TR60-A)

Model TR60-A resistance thermometers are available with an EC-type examination certificate for “intrinsically safe”, Ex i, ignition protection.
These instruments comply with the requirements of 94/9/EC (ATEX) directive for gas and dust.

The permissible power $P_{max}$ as well as the permissible ambient temperature for the respective category can be seen in the EC-type examination certificate and operating instructions.

Built-in transmitters have their own EC-type examination certificate. The permissible ambient temperature ranges of the built-in transmitters can be taken from the corresponding transmitter approval. The system operator is responsible for using suitable thermowells.

## CE conformity

**EMC directive**
2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application) [1)]

**ATEX directive**
94/9/EC, II 2G Ex ia IIC

1) Only for built-in transmitter

## Approvals

- **IECEx**, ignition protection type “i” - intrinsic safety, international certification for the Ex area
- **NEPSI**, ignition protection type “i” - intrinsic safety, ignition protection type “iD” - dust protection through intrinsic safety, China
- **EAC**, import certificate, ignition protection type “i” - intrinsic safety, ignition protection type “iD” - dust protection through intrinsic safety, customs union Russia/Belarus/Kazakhstan
- **GOST**, metrology/measurement technology, Russia
- **INMETRO**, ignition protection type “i” - intrinsic safety, Institute of Metrology, Brazil
- **KOSHA**, ignition protection type “i” - intrinsic safety, ignition protection type “iD” - dust protection through intrinsic safety, South Korea
- **PESO (CCOE)**, ignition protection type “i” - intrinsic safety, ignition protection type “iD” - dust protection through intrinsic safety, India

## Certificates (option)

- 2.2 test report
- 3.1 inspection certificate
- DKD/DAkkS calibration certificate

Approvals and certificates, see website

**Ordering information**
Model / Sensor version / Explosion protection / Case / Cable outlet / Terminal block, Transmitter / Sensor material / Sensor diameter / Insertion length / Measuring element / Connection method / Temperature range / Certificates / Options





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