

Bimetal temperature switch Model TFS35

WIKA data sheet TV 35.01

Applications

- Mobile hydraulics
- Machine building
- Compressors
- Motors
- Cooling and heating circuits

Special features

- Fixed switching temperature
- Current-independent switching
- Automatic reset
- No additional voltage supply
- Simple and fast mounting



Bimetal temperature switch, model TFS35

Description

Temperature switches are generally used in industry for limiting temperature. They monitor the temperature of machinery and equipment and, for example, switch off machinery if it overheats or switch on a fan to cool the equipment.

Function

Bimetals form the basis of the WIKA TFS35 temperature switches. Temperature sensing is carried out by a bimetal disc, which snaps over when the nominal switching temperature (NST) is reached.

On cooling back down to the reset switching temperature (RST), the switch returns to its original state.

The bimetal disc in the model TFS35 bimetal temperature switch carries no current, and this eliminates the possibility of arcing.

With current-carrying bimetal discs there is also a danger of premature switching as a result of higher self-heating.

The reset switching temperature is typically 15 ... 30 K below the switching temperature.

Contact design

The model TFS35 bimetal temperature switch can be delivered in two contact designs.

A **Normally Closed (NC** = closed in the normal state) opens a circuit and shuts down the machinery.

A **Normally Open (NO** = open in the normal state) closes a circuit on reaching the switching temperature, in order that, for example, a fan or warning lamp can be switched on.

In both cases, on cooling down below the reset switching temperature, the contacts return to their original state, so that the monitored equipment can again work normally.

Max. switching voltage

Resistive load ($\cos \varphi = 1$):

- AC 48 V, 3 A
- DC 24 V, 3 A
- DC 12 V, 4 A

Contact resistance

< 50 mΩ

Dielectric strength

AC 1,500 V, 50 Hz

between electrical connections and housing

Temperature ranges

- Nominal Switching Temperature (NST)
50 ... 200 °C

Note:

The nominal switching temperature can be selected in steps of 5 K. It is preset on delivery and cannot be changed.

- Switch point accuracy
±5 K

- Reset Switching Temperature (RST)
The reset switching temperature in bimetal temperature switches is typically 15 ... 30 K below the switching temperature.
To ensure a safe reset of the switch at low switching temperatures, care must be taken that the temperature difference between the measuring point and ambient is high enough; since otherwise the switch cannot cool back down to the reset switching temperature and thus the equipment will not be able to return to its normal state.

- Ambient temperature
-50 ... +125 °C

Note:

With small insertion lengths there is a possibility that the temperature at the connector can reach impermissibly high values. This absolutely must be taken into account in the design of the measuring point.

Thermowell

Material

- Brass
- Stainless steel

Stem diameter D

- 10 mm
- Thread size (version without stem)

Process connection

Mounting thread:

- G ½ B
- G ¼ B
- G ⅜ B
- M14 x 1.5
- M22 x 1.5
- ¼ NPT

Others on request

Insertion length U

- 30 mm
- 40 mm
- 50 mm
- Thread length (version without stem)

Others on request

Response time

The response time is strongly influenced by

- the thermowell used (diameter, material)
- the heat transfer from thermowell to the switching element
- the flow-rate of the medium

Due to the design of the model TFS35 bimetal temperature switch, there is optimum heat transfer from the medium to the switching element.

Vibration resistance

Due to the specific assembly of the switching elements used, the vibration resistance of the model TFS35 bimetal temperature switch is very high.

Depending on the mounting situation, the medium, temperature and insertion length, the vibration resistance is up to 10 g.

Shock resistance

Up to 100 g, depending on the mounting situation, medium and temperature

Working pressure

Max. 100 bar, depending on the medium, temperature and thermowell design

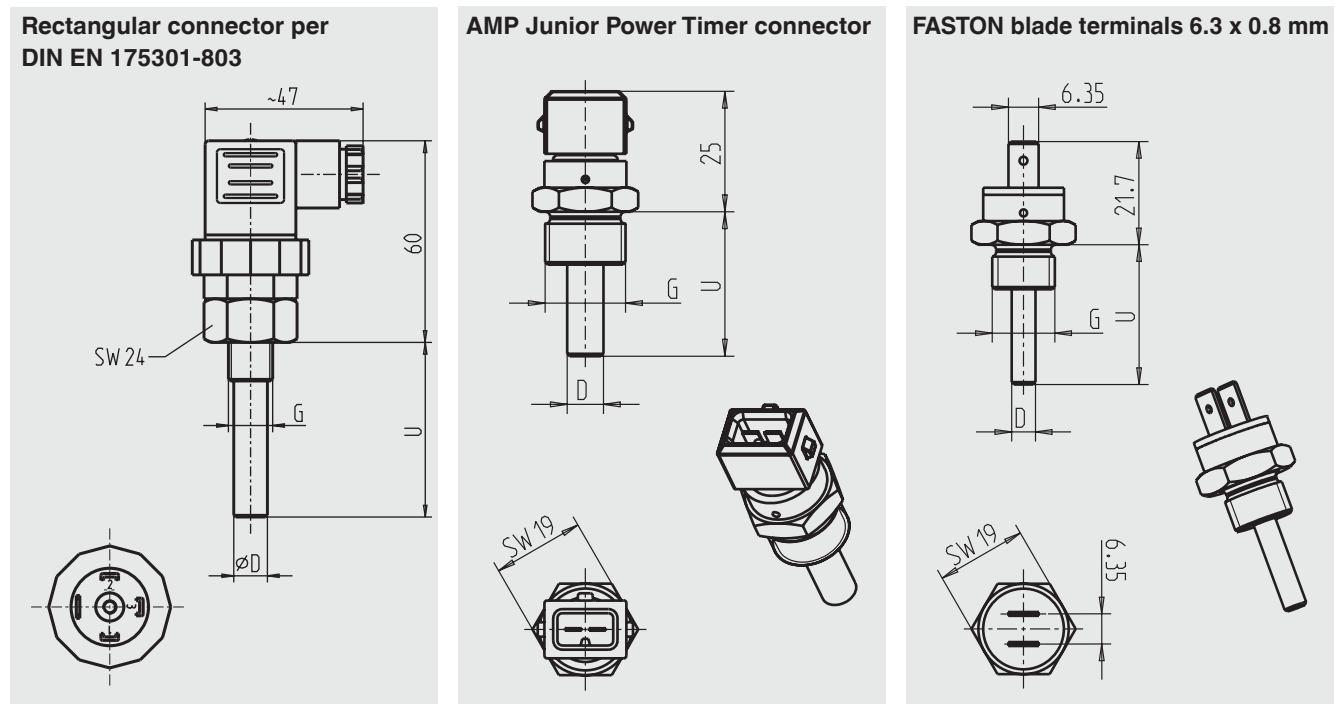
Electrical connection

- Rectangular connector per DIN EN 175301-803, Form A (replacement for DIN 43650)
 - Connector AMP Junior Power Timer, contacts gold-plated
 - FASTON blade terminals 6.3 x 0.8 mm
- Other connections on request

Ingress protection

IP 65 when connected

Dimensions in mm



Ordering information

When ordering choose one criterion from each category.

Switching temperature

- 80 °C
- 90 °C
- 100 °C
- 110 °C
- 120 °C
- 130 °C

Others on request (in 5 K steps)

Contact design

- 1 x Normally Closed (NC)
- 1 x Normally Open (NO)

Switching voltage

- AC 48 V, 3 A
- DC 24 V, 3 A
- DC 12 V, 4 A

Thermowell material

- Brass
- Stainless steel

Thermowell diameter

- 10 mm
- Thread size (version without stem)

Process connection

- G ½ B
- G ¼ B
- G ⅜ B
- M14 x 1.5
- M22 x 1.5
- ¼ NPT

Others on request

Insertion length

- 30 mm
- 40 mm
- 50 mm
- Thread length (version without stem)

Others on request

Electrical connection

- Rectangular connector per DIN EN 175301-803 (DIN 43650 A), connector and terminal box
- AMP Junior Power Timer connector
- FASTON blade terminals 6.3 x 0.8 mm

Ordering information

Model / Switching temperature / Contact design / Switching voltage / Thermowell material / Thermowell diameter / Process connection / Insertion length / Electrical connection

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