

Bimetal temperature switches Model TFS35

WIKA data sheet TV 35.01

Applications

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

Special features

- Switching temperatures from +60 ... +200 °C
- Current-independent switching
- Automatic reset
- Very high vibration resistance
- Electrical connection via plug connection

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. The temperature sensing is carried out by a bimetallic 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 bimetallic disc in the Model TFS35 bimetallic temperature switch carries no current, and this eliminates the possibility of arcing.

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



Bimetal temperature switch model TFS35

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

Contact design

The Model TFS35 bimetallic 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.

Contact rating

Resistive load ($\cos \phi = 1$), 10.000 switching cycles:

- AC 250 V, 2 A
- AC 115 V, 3 A
- DC 24 V, 3 A
- DC 12 V, 4 A

Note:

The contact rating depends on the bimetal switching element used. Higher contact rating to AC 250 V, 10 A on request.

Contact resistance

< 50 m Ω

Dielectric strength

AC 1500 V, 50 Hz

between electrical connections and case

Temperature ranges

- Nominal Switching Temperature (NST)
+60 ... +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 temperature (RST)

The Reset Switching Temperature in bimetallic temperature switches is typically about 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 an impermissibly high value. This absolutely must be taken into account in the design of the measuring point.

Thermowell

Material

- Brass
 - Stainless steel 1.4305
- Others on request

Diameter D

- 12.0 mm
- Others on request

Process connection

Mounting thread

- G 1/2 B
- G 1/4 B
- G 3/8 B
- M14 x 1.5
- M14 x 1.5 - DIN 3852 Form E
- R 1/2 - ISO 7
- R 1/4 - ISO 7
- R 3/8 - ISO 7
- 1/2 NPT
- 1/4 NPT

Others on request

Insertion length U

- 30 mm
- 40 mm
- 50 mm
- 60 mm
- 100 mm
- 150 mm

Others on request

Response time

The response time is strongly influenced by

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

Due to the design of the Model TFS35 bimetallic temperature switch, there is optimum heat transfer from the medium.

Vibration resistance

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

Depending on the mounting situation, 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

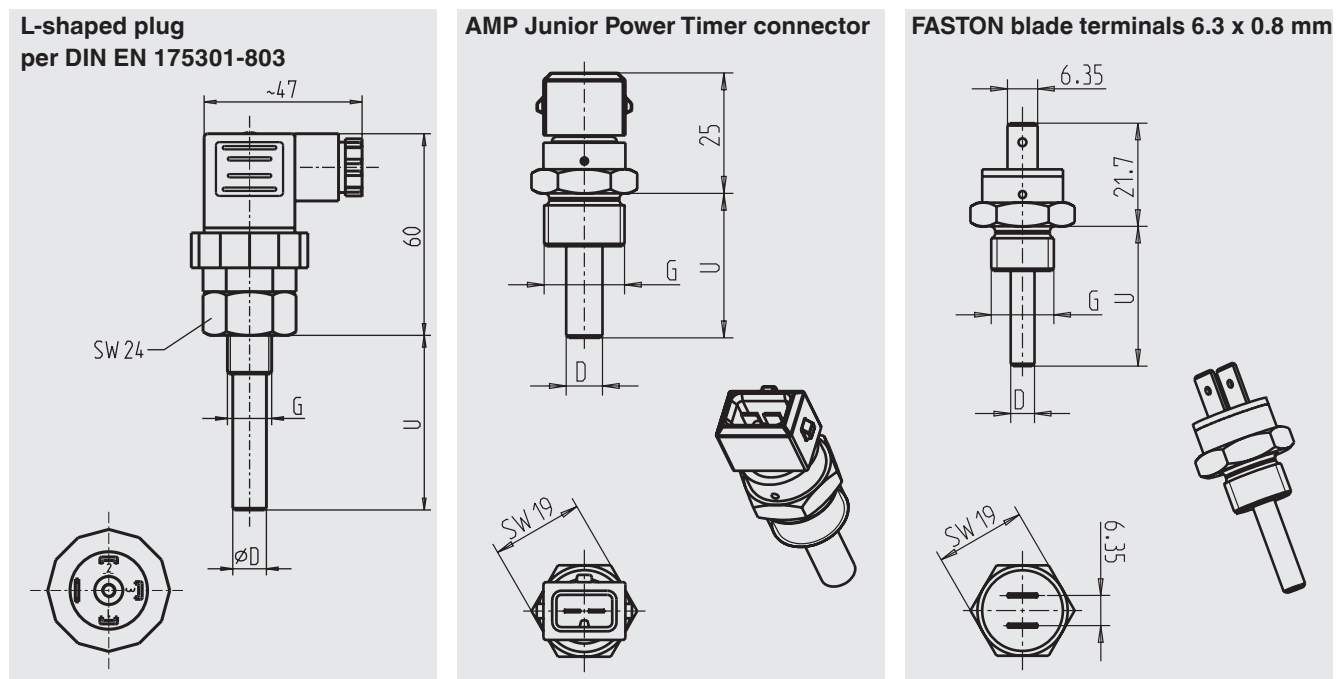
Electrical connection

- L-plug 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

Model / Contact design / Nominal Switching Temperature / Thermowell material and diameter / Process connection / Insertion length / Electrical connection

The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

