

# Mini temperature switch AISI 316, IP 66 Model TXS



WIKA data sheet TV 31.70



## Applications

- Temperature monitoring and direct switching of electrical loads
- Control and regulation of industrial processes
- Universally suitable for machine building, plant, vessel, apparatus construction and food industry, chemical industry, petrochemical industry
- For measuring points with limited space

## Special features

- Case from AISI 316 (1.4401)
- Ingress protection IP 66, NEMA 4
- Ambient temperature -40 ... +85 °C
- 1 switch point, SPDT, up to 5 A/AC 220 V
- Directly connected or via capillary (up to 10 m capillary)



**Fig. left: Temperature switch model TXS**  
**Fig. right: Temperature switch model TXS with surface-mounted junction box**

## Description

These high-quality and robust mini temperature switches have been developed especially for safety-critical applications. High quality and product manufacturing ensures reliable monitoring of your plant. The manufacturer Cella is certified to ISO 9001. In production, the switches are traced by quality assurance software at every step and subsequently are 100 % tested.

All wetted parts materials are from AISI 316 stainless steel as standard. Each switch family is available in IP 66, Ex-ia or Ex-d versions.

In order to ensure as flexible operation as possible, the temperature switches are fitted with micro switches, which enable the switching of an electrical load of up to 5 A/ AC 220 V directly. For smaller contact ratings, such as for PLC applications, hermetically-sealed micro switches with gold-plated contacts can be selected as an option.

With its flexible AISI 316 spiral protection hose, the model TXS temperature switch is extremely robust and guarantees optimal operating characteristics for applications requiring particularly high corrosion protection.

## Standard version

### Case

Stainless steel AISI 316 (1.4401)

### Ingress protection

IP 66 to EN 60529 / IEC 529 (NEMA 4)

### Permissible ambient temperature

-40 ... +85 °C

### Connection to thermowell

Stainless steel, connection thread ½ NPT

### Repeatability accuracy

< 1 % of full-scale value

### Stem

AISI 316

Diameter: 9.5 mm

Length: see table "Sensor length X and immersion depth Y"

### Measuring system

Gas actuated temperature system

dependant on the temperature range, SAMA class II C or class II A

### Capillary length

Length	Code
Direct assembly	B
2 m	C
5 m	Q 1)
10 m	R 1)

1) The maximum permissible height difference between sensor and housing is 2 m.

### Immersion depth

The maximum immersion depth Y (see dimensional drawing) can be calculated as per the following equation:

Capillary length in metres x 145 mm

Example:

Capillary length 2 m

=> 2 x 145 mm = 290 mm = max. immersion depth

The length K is reduced accordingly.

### Switch contacts

Code	Design	Electrical rating (resistive load) 1)	
		AC	DC
E	<b>Silver contacts</b> hermetically sealed in air	5 A, 220 V	5 A, 24 V
J	<b>Gold contacts</b> hermetically sealed in air	0,5 A, 220 V	1 A, 24 V

### Setting ranges, working range, max. test temperature, max. switch hysteresis

Setting range	Working range	Max. test temperature	Max. switch hysteresis	SAMA class
-15 ... +20 °C	-40 ... +50 °C	+70 °C	5 °C	II C
5 ... +70 °C	-40 ... +95 °C	+120 °C	6 °C	II C
55 ... +140 °C	-40 ... +160 °C	+190 °C	6 °C	II C
130 ... +190 °C	-40 ... +215 °C	+230 °C	12 °C	II A
180 ... +250 °C	-40 ... +300 °C	+330 °C	12 °C	II A

### Switch points

- After pushing up the housing cover ring, **switch point adjustment** can be made using the spring-loaded hold-down device. The switch point is settable within the entire measuring range with the **following rules**:
- Define the value  $A = 2 \times \text{repeatability accuracy} + \text{switch hysteresis}$
- If the temperature is rising, the switch point should be set between (min. + value A) and max. of the setting range
- If the temperature is falling, the switch point should be set between min. and (max. - value A) of the setting range

### Example:

Setting range: 40 ... 100 °C with one switch contact

Repeatability: 1 % of 100 °C = 1 °C

Switch hysteresis = 1.5 °C (see table "setting ranges")

Value  $A = 2 \times 1 \text{ °C} + 1.5 \text{ °C} = 3.5 \text{ °C}$

If the temperature is rising, the switch point should be set between 43.5 °C and 100 °C.

If the temperature is falling, the switch point should be set between 40 °C and 96.5 °C ( $96.5 \text{ °C} = 100 \text{ °C} - 3.5 \text{ °C}$ ).

For optimal performance we suggest to set the switch point between 25 % and 75 % of the setting range.

### Electrical connection

Male thread ½ NPT

Cable connection: multi-core cable, 1.5 m long, 0.5 mm<sup>2</sup>

Protective earth connection: Internal and external screw terminal (option)

Earth cable cross-section: max. 4 mm<sup>2</sup>

### Temperature switch certified per:

Low voltage directive 73/23 EEC and 93/68 EEC

### Dielectric strength

Safety class I (EN 61298-2: 1997-06)

### Mounting

Direct assembly

Bracket for wall or 2" pipe mounting (option)

### Weight

Direct assembly approx. 0.8 kg

with 2 m capillary approx. 1.0 kg

with 5 m capillary approx. 1.4 kg

with 10 m capillary approx. 2.1 kg

## Options

- Other process connection
- Electrical connection ½ NPT, ¾ NPT, M20 x 1.5 (female) or M20 x 1.5 (male)
- Switch point adjustment to customer specification
- 2" pipe mounting set
- Surface-mounted junction box, IP 66, -40 ... +60 °C
- Version for offshore, geothermal or tropicalised application
- Version for applications to NACE
- Version for ammonia applications
- Design per  
GAS Ex-ia DUST Ex-iaD Gr. II Cat. 1 GD  
Electrical characteristics  $U_i = 30 \text{ V}$   
 $I_i = 100 \text{ mA}$   
 $P_i = 0.75 \text{ W}$   
 $C_i = 0 \text{ } \mu\text{F}$   
 $L_i = 0 \text{ mH}$
- Accessories:  
Thermowells

## Approvals and certificates

- GOST-R certificate
- Test certificate \*CA\* (confirmation of the switching accuracy)
- Test report \*CP\* (3-time listing of the switch point, requires switch point specification)
- Material certificate 3.1 per EN 10204

