

TEMPERATURE SWITCHES TSDD



DESCRIPTION AND APPLICATION

TSDD switches are built as two-state regulators (ON/OFF regulation), which compare the pre-set and actual temperature reading. The TSDD-unit enables switching galvanically isolated relay contacts when the pre-set temperature value is reached. The sensors consists of a plastic enclosure with the transparent lid. In the enclosure electronic equipment is located with LED display. The switches meet the IP 65 ingress protection requirements according to the EN 60 529 standard. Easy mounting of the switches is ensured by the unique „S head“ design.

With a choice of locations of the sensing element and typical switch applications the following TSDD-versions are available:

- TSDD A** – Temperature switch for sensing temperature in the switch ambient. The sensing element is placed in the metal stem.
- TSDD P** – Contact version switch (for pipe mounting) for surface temperature measurements. The sensing element is fitted in a metal measuring case. It is delivered with fastening strap of the length 40 cm and with clamp.
- TSDD K** – The sensing element is placed in the metal stem for use in air condition equipment or in ducts. This temperature switch version is available with a plastic mounting clip. Stainless steel thermowell or metal holder can be delivered as an accessory.
- TSDD C** – The sensing element is protected by the TG 8 case length 40 mm and provided with a cable 1 m length. Another type of enclosure or another cable length should be specified in the order.



Standard temperature ranges, in which the temperature set point can be adjusted, are given in the specifications table. For the TSDD A the maximum operating temperature is 70 °C, for the TSDD P this maximum temperature is 110 °C. For applications above 140 °C the TSDD K switch can be applied. However, in this case the switch version with the stem elongated by 60 mm and the metal centric fixing clip shall be applied. These switches are designed to be applied in a chemically non-aggressive environment.

ACCESSORIES

- The thermowell JS 130
- The metal central holder K 120
- The thermal conductive paste up to 200 °C, 5 g for TSDD P type

DECLARATION, CERTIFICATES, CALIBRATION

EC Declaration of Conformity – in accordance with Act No. 22/1997 Coll. as amended for temperature switches.

Calibration – we perform standard calibration of resistance temperature sensors in accordance with EN ISO/IEC 17025 standard in the temperature range of the stated type of sensor.

SPECIFICATIONS

BASIC DATA

Power supply	12 or 24 V DC
Maximum switched voltage / current	30 V DC / 5 A
Maximum temperature range	-50 to 300 °C
Hysteresis	1 to 15 °C
Electronics equipment error	± (0.2 % of values + 1 dig.)
Accuracy class of Pt sensor	class B according to IEC 751, $\Delta t = \pm (0,3 + 0,005 t)$ in °C
Enclosure dimension	70 x 63 x 34 mm
Material of the enclosure	POLYAMID
Ingress protection	IP 65 according to EN 60 529
Enclosure ambient temperature	-30 to 70 °C
Recommended wire cross section	0.2 to 1 mm ²
Insulation resistance	> 200 MΩ at 500 V DC, 25°C ± 3 °C

ADDITIONAL DATA FOR INDIVIDUAL SENSOR TYPES

TSDD A

Standard length of the stem L1	50 mm
Diameter of the stem	6 + 0.2 mm
Material of the stem	stainless steel 1.4301
Maximum range of measured temperature	-25 to 70 °C

TSDD K

Standard length of the stem L1	70, 120, 180, 240 mm
Diameter of the stem	6 + 0.2 mm
Material of the stem	stainless steel 1.4301
Switch installation	by means of a plastic or stainless steel holder or a stainless steel thermowell
Maximum range of measured temperature	-25 to 200 °C (using an elongated stem above 140 °C)

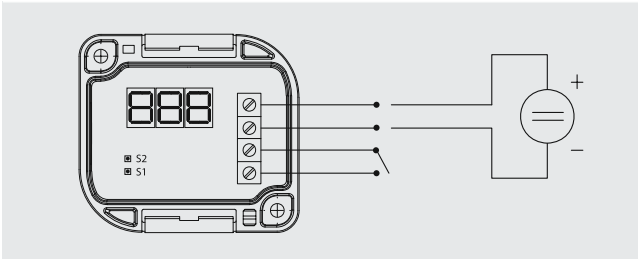
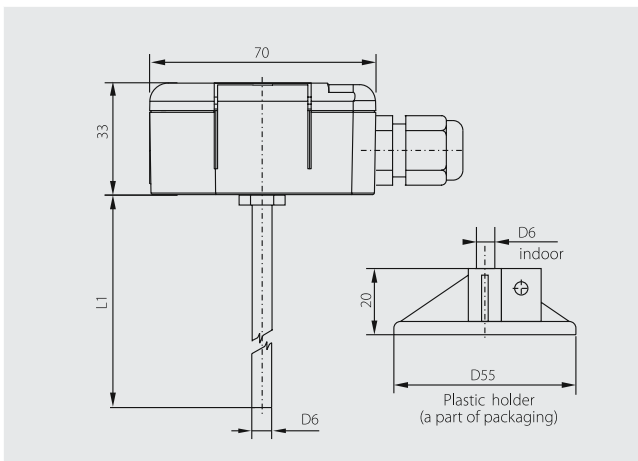
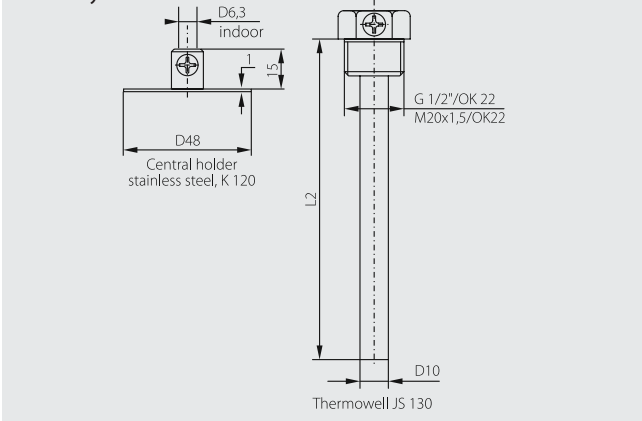
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TSDD P

Material of the measuring case	brass
Switch installation	by means of fastening band with closure
Standard length of the band	40 cm
Minimum diameter of tubing	-20 mm

TSDD C

Standard type of sensor	TG 8 – 40, cable 1 m
Diameter of the case	$5,7 \pm 0,1$ mm
Material of the case	stainless steel 1.4301
Lead-in cable	shielded silicone $2 \times 0,34$ mm ²
Sensor ingress protection	IP 67 according to EN 60 529
Maximum range of measured temperature	-30 to 200 °C

WIRING DIAGRAM

DIMENSIONAL DRAFT

Accessory

SWITCHES INSTALLATION AND SERVICING

Before connecting the supply lead-in cable, lift off the lid of the plastic enclosure by means of a flat screwdriver. The lead-in cable is connected to the terminals according to the wiring diagram through the loosened grommet. The recommended wire cross section is 0.2 to 1 mm², the outer diameter of the circular cross-section cable can vary between 4 and 6 mm. In case the lead-in cable is situated near the vicinity of high voltage conductors or equipment creating disturbing electromagnetic field (e.g. inductive load equipment), a shielded cable should be used. To ensure the ingress protection value of IP 65, the grommet has to be tightened and the lid has to be securely closed after connecting the lead-in cable. In case of using a stainless steel thermowell or a stainless steel holder these accessories should be placed first in the location where the temperature switch. Then the temperature switch is inserted into the holder, or pushed as far as the thermowell bottom, and tightened with a screw. The openings for the plastic clip installation have to be drilled according to the dimensioned sketch on which the opening diameters and the distances of their centres are illustrated.

After installing and connecting the sensor to the sequential evaluating electrical equipment the sensor is ready to use. The temperature switch type TSDD P is mounted by means of fastening band and a clamp. The temperature switch does not require any special servicing or maintenance. The device can be operated in any working position, but the grommet must not be directed upwards.

CUSTOMER SPECIFIC MODIFICATIONS

REGARDING TO SENSORS MANUFACTURED IN A STANDARD VERSION THE FOLLOWING PARAMETERS CAN BE MODIFIED:

- adding a clip for fixing the device on the DIN bar instead of the metal holder for fixing the device on the wall
- variable stem design of TSDD K type of temperature switch – L1 length, materials, diameters, option of thread design
- type and length of the case by TSDD C type of temperature switches