

# Bimetal temperature switch

## TSM-Atex, TSE-Atex



Since the viscosity of oil changes based on the temperature, operating temperatures must be monitored. Depending on the requirements, monitoring by means of indicating the minimum temperature to warning points and ending with shut down, will suffice. The warning or shut-off points are implemented using a bimetallic switch and in the process, hysteresis can also be used as a reset point.

The TSM/TSE series consists of simple electrical equipment. In the case of intrinsically safe connections as per EN 60079-14, the TSM/TSE can be used in Zone 1 (group IIC, device category 2G) explosive areas; this also applies to the inner zone of the tank. The temperature switches are classified as temperature class T4.

These temperature switches are designed in a manner, which allows the internal electrical components to be replaced without having to remove the switching tube from the tank. This is convenient if the temperature switch is installed laterally inside oil.

ATEX applications: Zone 1 (cat. 2G), simple electrical equipment according to EN 60079-11

Simple, robust design

Electrical inner part, easy to remove

Optionally DIN connector or M12 base connector

DIN connector cable outlet direction adjustable in 90° steps

Elastic sealing ring



Technical Data TSM-Atex/TSE-Atex

TSM-Atex, TSE-Atex

Versions: TSM-1/TSE1 = with one temperature contact  
TSM-2/TSE-2 = with two temperature contacts

Switch element: bi-metal  
Switching function: NC = NC contact/NO = NO contact  
Switching temperature: 50 to 80 °C (also see chart)  
Probe length L max.: 1000 mm

	TSM	TSE
Probe material:	Brass	1.4571
Max. operating pressure:	5 bar	10 bar
Operating temperature:	max. +80 °C	
Ambient temperature:	-20 to +80 °C	

Temperature contacts

Switch-back difference for TMÖ-50 to TMÖ-80:	18 K ± 5 K	
Switch-back difference for TSM-60:	53 K ± 5 K	
Switch-back difference for TSM-70:	40 K ± 5 K	
Switching point:	NC*	NO*
50 °C	TMÖ-50	-
60 °C	TMÖ-60	TMS-60
70 °C	TMÖ-70	TMS70
80 °C	TMÖ-80	-

Other temperatures available upon request

\*NC = NC contact/NO = NO contact All data for rising temperature

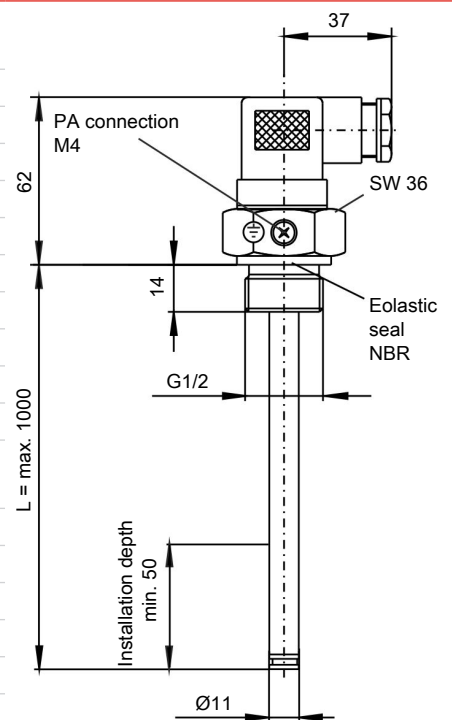
Accessories

Connection cable M12x1 (5-pin) 3.0 m long, item no.: 9144050018  
Switch amplifier for temperature switches see data sheet no. 18 0003

The device is suitable for use in ATEX category II 2 G Ex ib IIC T4.

**The temperature switch may only be operated on intrinsically-safe circuits!**

Dimensions



Temperature contacts

$P_i$	100 mW
$U_i$	30 V
$I_i$	50 mA
$L_i; C_i$	Negligible

Plug connection

Dimensions:	M3	M12 (base)
Number of pins:	3-pin + PE	4-pin+PE
DIN EN:	175301-803	
Protection class:	IP65	IP 67**
Cable fitting:	PG 11	PG 7**

\*\*with respective plug top

Other plug connections available upon request

Model key for TSM/TSE temperature switches

XXX-XX-XX-G1/2-XX/XX-XX-XX-ATEX

**TSM** for Version MS  
**TSE** for Version V

**Number of temperature contacts**  
 1 or 2

**Version**  
**MS** Brass  
**VA** Stainless steel

**Plug connection**  
 M3  
 M12

**Length (max. 1000 mm)**  
 280  
 370  
 500  
 variable (please specify)

**T2 (2nd temperature contact)**

NC contact NO contact  
 TM50NC TM50NO = 50 °C  
 TM60NC TM60NO = 60 °C  
 TM70NC TM70NO = 70 °C  
 TM80NC TM80NO = 80 °C

**T1 (1st temperature contact)**

NC contact NO contact  
 TM50NC TM50NO = 50 °C  
 TM60NC TM60NO = 60 °C  
 TM70NC TM70NO = 70 °C  
 TM80NC TM80NO = 80 °C

**Ordering example**

You require: Pressure 5 bar, M3 plug connection, length L= 300 mm, 2 temperature contacts, 1st contact (T1) NC contact at 50 °C, 2nd contact (T2) NO contact at 70 °C

Order: TSM-2-MS-G1/2-M3/300-TM50NC-TM70NO-ATEX