

# Bi-metal-Temperature switch

## TSM, TSK, TSA

High operating temperatures significantly reduce the life of oils in the hydraulics and the lubrication. To prevent exceeding harmful limits, e.g. due to unforeseeable overloads or reduced cooling capacity, the systems must be shut off in a timely manner. In the following temperature switches this is done by a bi-metal which interrupts the flow of electricity with a temperature rise. After resolving the cause for the excess temperature, following a cooling phase (hysteresis) the bi-metal element automatically returns to operating mode. However, for safety reasons it is advisable to still display the current oil temperature on the oil tank.

### TSM-G1/2, TSE-G1/2

G1/2" threaded connection

Up to 2 temperature switching points

Sensor length up to 1 m

### TSK-G3/4

G3/4" threaded connection

Up to 2 temperature switching points

Sensor length up to 1 m

Low hysteresis

### TSA

G1/2" threaded connection

1 x temperature switching point

Fixed length of 29 mm for line installation e.g.



TSM-G1/2  
TSK-G3/4



TSA

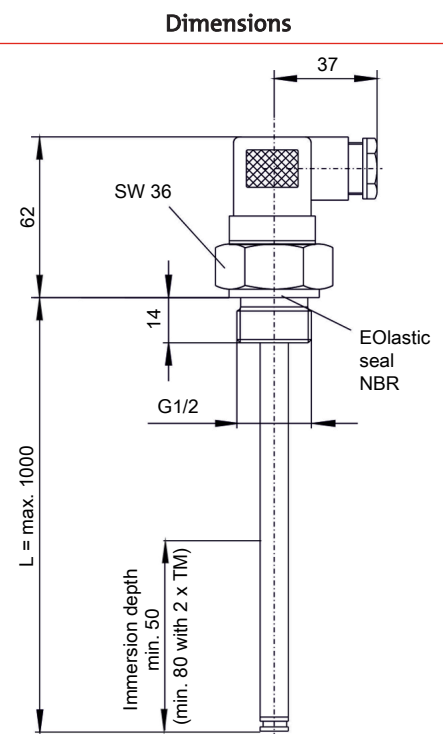


Technical Data TSM/TSE

| Model                      | TSM-G1/2   | TSE-G1/2            |
|----------------------------|--|---------------------|
| Version:                   | M5   | VA                  |
| Probe material:            | Brass  | 1.4571              |
| Max. operating pressure:   | 5 bar  | 10 bar              |
| Connection:                | G1/2   | G1/2                |
| Operating temperatures:    | -40 °C to +80 °C                                     |                     |
| Lengths:                   | 280, 370, 500 (standard)<br>variable to max. 1000 mm |                     |
| <b>Temperature contact</b> | <b>TMxx</b>  |                     |
| Switch element:            | Bi-metal   |                     |
| Number of contacts:        | 1 or 2   |                     |
| Max. voltage:              | 230 V  |                     |
| Max. switching current:    | 2 A  |                     |
| Max. contact load:         | 100 VA   |                     |
| <b>Function</b>            | <b>NC*</b>   | <b>NO*</b>          |
| Switching point °C:        | 50/60/70/80  | 50/60/70/80         |
| Switching point tolerance: | ± 5 K  | ± 5 K               |
| Max. hysteresis:           | 18 K ± 5 K   | 26/35/40/45 K ± 5 K |

Other temperatures available upon request

\* NC = NC contact/NO = NO contact (all data for rising temperature)



Standard Pin Assignment TSM/TSE

| Plug connection*:        | M3 valve connector | M12 plug A coded |
|--------------------------|--------------------|------------------|
| Dimensions:              |                    |                  |
| Connection schematic:    |                    |                  |
| Number of pins:          | 3-pin + PE         | 4-pin            |
| DIN EN:                  | 175301-803         | 61076-2-101      |
| Max. voltage:            | 230 V AC/DC        | 30 V DC          |
| IP rating:               | IP 65              | IP 67*           |
| Cable fitting:           | PG 11              |                  |
| Standard pin assignment: |                    |                  |

T1 = lower temperature/T2 upper temperature.

\* other connectors available on request.

\*\* with IP67 cable box screwed on.

Model Key for TSM/TSE

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

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

**Number of temperature contacts**  
 1 or 2

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

**Connector**  
 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

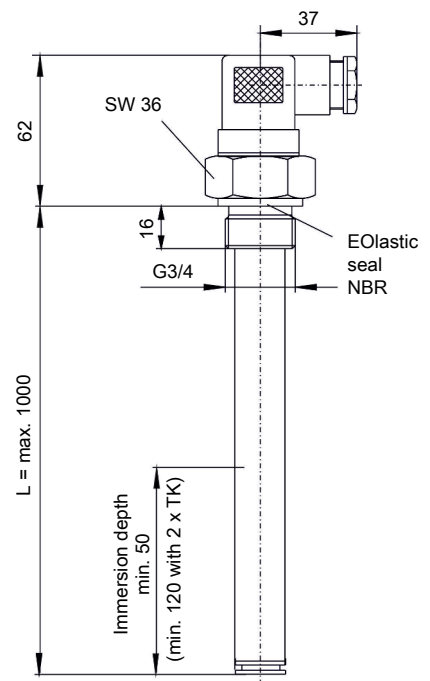
You need: Brass temperature switch, G1/2 connection, length L= 300 mm, M3 plug  
 2 x temperature contact: 1st Contact 50 °C NC, 2nd contact 70 °C NO

Order: TSM-2-M3/300 -TM50NC-TM70NO

Technical Data TSK

|  |  |        |
|--|--|--------|
| <b>Model</b>   | <b>TSK-G3/4</b>                                      |        |
| Version:   | MS   | VA     |
| Probe material:  | Brass  | 1.4571 |
| Max. operating pressure:   | 1 bar  | 5 bar  |
| Connection:  | G3/4   | G3/4   |
| Operating temperatures:  | -40 °C to +80 °C                                     |        |
| Lengths:   | 280, 370, 500 (standard)<br>variable to max. 1000 mm |        |
| <b>Temperature contact</b>   | <b>TKxx</b>  |        |
| Switch element:  | Bi-metal   |        |
| Number of contacts:  | 1 or 2   |        |
| Max. voltage:  | 230 V  |        |
| Max. switching current:  | 2 A  |        |
| Max. contact load:   | 100 VA   |        |
| <b>Function</b>  | <b>NC*/NO*</b>                                       |        |
| Switching point °C:  | 40/50/60/70/80                                       |        |
| Switching point tolerance:   | ± 3 K  |        |
| Max. hysteresis:   | 10 K ± 5 K   |        |
| <i>Other temperatures available upon request</i>                           |  |        |
| <i>* NC = NC contact/NO = NO contact (all data for rising temperature)</i> |  |        |

Dimensions



Standard Pin Assignment TSK

| Plug connection*:  | M3 valve connector | M12 plug A coded |
|--|--------------------|------------------|
| Dimensions:  |                    |                  |
| Connection schematic:  |                    |                  |
| Number of pins:  | 3-pin + PE         | 4-pin            |
| DIN EN:  | 175301-803         | 61076-2-101      |
| Max. voltage:  | 230 V AC/DC        | 30 V DC          |
| IP rating:   | IP 65              | IP 67*           |
| Cable fitting:   | PG 11              |                  |
| Standard pin assignment:   |                    |                  |
| T1 = lower temperature/T2 upper temperature.<br>* other connectors available on request.<br>** with IP67 cable box screwed on. |                    |                  |

Model Key for TSK

TSK - XX - XX - G3/4 - XX - XX - XX - XX

Number of temperature contacts

1 or 2

Version

MS Brass

VA Stainless steel

Connector

M3

M12

Length (max. 1000 mm)

280

370

500

variable (please specify)

T2 (2nd temperature contact)

NC contact NO contact

TK40NC TK40NO = 40 °C

TK50NC TK50NO = 50 °C

TK60NC TK60NO = 60 °C

TK70NC TK70NO = 70 °C

TK80NC TK80NO = 80 °C

T1 (1st temperature contact)

NC contact NO contact

TK40NC TK40NO = 40 °C

TK50NC TK50NO = 50 °C

TK60NC TK60NO = 60 °C

TK70NC TK70NO = 70 °C

TK80NC TK80NO = 80 °C

Ordering example

You need: Brass temperature switch, G3/4 connection, length L= 300 mm, M3 plug  
2 x temperature contact: 1st Contact 50 °C NC, 2nd contact 70 °C NO,

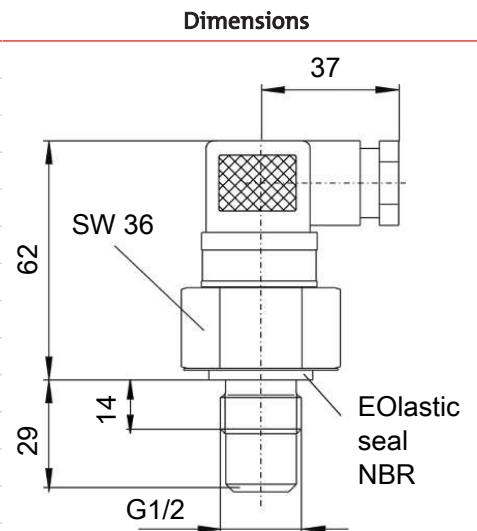
Order: TSK-2-M3/300 -TK50NC-TK70NO

**Technical Data TSA**

| Model                       | TSA                |
|-----------------------------|--------------------|
| Probe length:               | 29 mm              |
| Probe material:             | Anodised aluminium |
| Max. operating pressure:    | 15 bars            |
| Operating temperatures:     | -40 °C to +80 °C   |
| <b>Temperature contacts</b> |                    |
| Switch element:             | Bi-metal           |
| Max. voltage:               | 230 V              |
| Max. switching current:     | 2 A                |
| Max. contact load:          | 100 VA             |
| Tolerance:                  | ± 5 K              |
| Switch-back difference:     | 15 K ± 3 K         |
| <b>Function</b>             | <b>NC*/NO*</b>     |
| Switching point °C:         | 25/40/50/60/70/80  |

Other temperatures available upon request

\* NC = NC contact/NO = NO contact (all data for rising temperature)



**Standard Pin Assignment TSA**

| Plug connection*:        | M3 valve connector |
|--------------------------|--------------------|
| Dimensions:              |                    |
| Connection schematic:    |                    |
| Number of pins:          | 3-pin + PE         |
| DIN EN:                  | 175301-803         |
| Max. voltage:            | 230 V AC/DC        |
| IP rating:               | IP 65              |
| Cable fitting:           | PG 11              |
| Standard pin assignment: |                    |

\* other connectors available on request.

## Ordering Instructions TSA

| Switching function | NO (NO contact) |           | NC (NC contact) |           |
|--------------------|-----------------|-----------|-----------------|-----------|
|                    | Model           | Item no.  | Model           | Item no.  |
| Temperature        |                 |           |                 |           |
| 25 °C              | TSA-25-M3       | 11 39 699 | TÖA-25-M3       | 11 42 899 |
| 40 °C              | TSA-40-M3       | 11 39 599 | TÖA-40-M3       | 11 43 299 |
| 50 °C              | TSA-50-M3       | 11 38 599 | TÖA-50-M3       | 11 42 199 |
| 60 °C              | TSA-60-M3       | 11 38 699 | TÖA-60-M3       | 11 43 399 |
| 70 °C              | TSA-70-M3       | 11 38 799 | TÖA-70-M3       | 11 40 299 |
| 80 °C              | TSA-80-M3       | 11 39 299 | TÖA-80-M3       | 11 40 899 |

## Ordering example

You need: Temperature contact at 50 °C NO, type M3 plug

Order: Item no. 1138599 Temperature switch TSA-50-M3