

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 (3.3 ft)

TSK-G3/4

G3/4" threaded connection

Up to 2 temperature switching points

Sensor length up to 1 m (3.3 ft)

Low hysteresis

TSA

G1/2" threaded connection

1 x temperature switching point

Fixed length of 29 mm (1.1") for line installation e.g.



TSM-G1/2
TSK-G3/4



TSA



Technical Data TSM/TSE

Model	TSM-G1/2	TSE-G1/2	Dimensions
Version:	MS	VA	37 (1.5") SW 36 (1.4") 62 (2.4") 14 (0.6") G1/2 EOlasic seal NBR L = max. 1000 (39.4") Immersion depth min. 50 (2") (min. 80 (3.1") with 2 x TM)
Probe material:	Brass	1.4571	
Max. operating pressure:	5 bar (72.5 psi)	10 bar (145 psi)	
Connection:	G1/2	G1/2	
Operating temperatures:	-40 °C to +80 °C (-40 °F to 176 °F)		
Lengths:	280 (11"), 370 (14.6"), 500 (19.7") (standard) variable to max. 1000 mm (39.4")		
Temperature contact	TMxx		
Switch element:	Bi-metal		
Number of contacts:	1 or 2		
Max. voltage:	230 V		
Max. switching current:	2 A		
Max. contact load:	100 VA		
Function	NC*	NO*	
Switching point °C (°F):	50/60/70/80 (122/140/158/176)	50/60/70/80 (122/140/158/176)	
Switching point tolerance:	± 5 K (± 9 Ra)	± 5 K (± 9 Ra)	
Max. hysteresis:	18 K ± 5 K (32 Ra ± 9 Ra)	26/35/40/45 K (47/63/72/81 Ra) ± 5 K (± 9 Ra)	

Other temperatures available upon request

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

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/39.4") 280 (11") 370 (14.6") 500 (19.7") variable (please specify)							
				T2 (2nd temperature contact) NC contact NO contact TM50NC TM50NO = 50 °C (122 °F) TM60NC TM60NO = 60 °C (140 °F) TM70NC TM70NO = 70 °C (158 °F) TM80NC TM80NO = 80 °C (176 °F)			
				T1 (1st temperature contact) NC contact NO contact TM50NC TM50NO = 50 °C (122 °F) TM60NC TM60NO = 60 °C (140 °F) TM70NC TM70NO = 70 °C (158 °F) TM80NC TM80NO = 80 °C (176 °F)			

Ordering example

You need: Brass temperature switch, G1/2 connection, length L= 300 mm (11.8"), M3 plug
 2 x temperature contact: 1st Contact 50 °C (122 °F) NC, 2nd contact 70 °C (158 °F) NO

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

Technical Data TSK

Model	TSK-G3/4		Dimensions
Version:	MS	VA	
Probe material:	Brass	1.4571	
Max. operating pressure:	1 bar (14.5 psi)	5 bar (72.5 psi)	
Connection:	G3/4	G3/4	
Operating temperatures:	-40 °C to +80 °C (-40 °F to 176 °F)		
Lengths:	280 (11''), 370 (14.6''), 500 (19.7'') (standard) variable to max. 1000 mm (39.4'')		
Temperature contact	TKxx		
Switch element:	Bi-metal		
Number of contacts:	1 or 2		
Max. voltage:	230 V		
Max. switching current:	2 A		
Max. contact load:	100 VA		
Function	NC*/NO*		
Switching point °C (°F):	40/50/60/70/80 (104/122/140/158/176)		
Switching point tolerance:	± 3 K (± 5.4 Ra)		
Max. hysteresis:	10 K ± 5 K (18 Ra ± 9 Ra)		
<i>Other temperatures available upon request</i>			
<i>* NC = NC contact/NO = NO contact (all data for rising temperature)</i>			

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.		
* other connectors available on request.		
** 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		T2 (2nd temperature contact) NC contact NO contact TK40NC TK40NO = 40 °C (104 °F) TK50NC TK50NO = 50 °C (122 °F) TK60NC TK60NO = 60 °C (140 °F) TK70NC TK70NO = 70 °C (158 °F) TK80NC TK80NO = 80 °C (176 °F)	
Length (max. 1000 mm/39.4") 280 (11") 370 (14.6") 500 (19.7") variable (please specify)				T1 (1st temperature contact) NC contact NO contact TK40NC TK40NO = 40 °C (104 °F) TK50NC TK50NO = 50 °C (122 °F) TK60NC TK60NO = 60 °C (140 °F) TK70NC TK70NO = 70 °C (158 °F) TK80NC TK80NO = 80 °C (176 °F)			

Ordering example

You need: Brass temperature switch, G3/4 connection, length L= 300 mm (11.8"), M3 plug
2 x temperature contact: 1st Contact 50 °C (122 °F) NC, 2nd contact 70 °C (158 °F) NO,

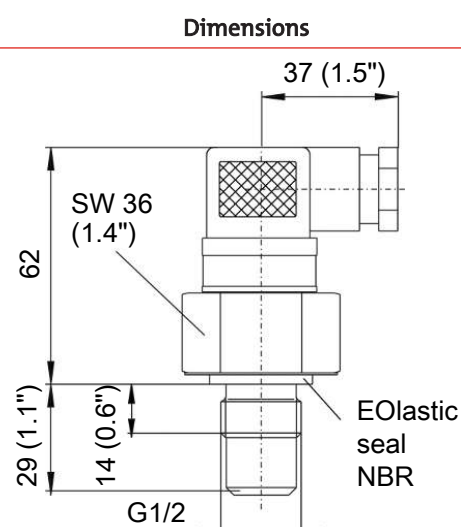
Order: TSK-2-M3/300 -TK50NC-TK70NO

Technical Data TSA

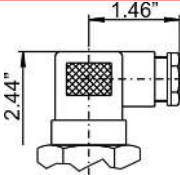
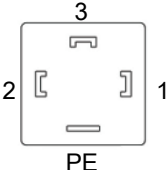
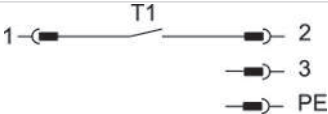
Model	TSA
Probe length:	29 mm (1.1")
Probe material:	Anodised aluminium
Max. operating pressure:	15 bars (217.5 psi)
Operating temperatures:	-40 °C to +80 °C (-40 °F to 176 °F)
Temperature contacts	
Switch element:	Bi-metal
Max. voltage:	230 V
Max. switching current:	2 A
Max. contact load:	100 VA
Tolerance:	± 5 K (± 9 Ra)
Switch-back difference:	15 K ± 3 K (27 Ra ± 5.4 Ra)
Function	NC*/NO*
Switching point °C (°F):	25/40/50/60/70/80 (77/104/122/140/158/176)

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:	
<i>* other connectors available on request.</i>	

* other connectors available on request.

Ordering Instructions TSA

Switching function	NO (NO contact)		NC (NC contact)	
Temperature	Model	Item no.	Model	Item no.
25 °C (77 °F)	TSA-25-M3	11 39 699	TÖA-25-M3	11 42 899
40 °C (104 °F)	TSA-40-M3	11 39 599	TÖA-40-M3	11 43 299
50 °C (122 °F)	TSA-50-M3	11 38 599	TÖA-50-M3	11 42 199
60 °C (140 °F)	TSA-60-M3	11 38 699	TÖA-60-M3	11 43 399
70 °C (158 °F)	TSA-70-M3	11 38 799	TÖA-70-M3	11 40 299
80 °C (176 °F)	TSA-80-M3	11 39 299	TÖA-80-M3	11 40 899

Ordering example

You need: Temperature contact at 50 °C (122 °F) NO, type M3 plug

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