

# Temperature sensors

Changes in the viscosity of hydraulic oil and lubricants due to the temperature requires precisely monitoring and stabilising the operating temperature.

Carefully monitoring the temperature further also affects the service life of the oils. The oil tank is generally accepted as the control point for the oil temperature, which will usually provide helpful averages. It may further be helpful to also monitor segments or individual units within a system.

The values determined from the measuring points must be transferred to the system control according to standards. For safety reasons, it is advisable to at a minimum display the current oil temperature on the oil tank.

The comprehensive line of system-compatible temperature sensors is tailored specifically for use in hydraulics and lubrication technology.

## TF-M/E-G1/2

Pt100 temperature sensor

Continuous temperature measurement

Sensor length up to 1 m

Brass or stainless steel housing

## MK2-G1/2 / EK2-G1/2

Analog output 4-20 mA

Continuous temperature measurement

Nearly any length of cable connection between sensor and control unit

Sensor length up to 1 m

Brass or stainless steel housing

## TF-M-VAL

Temperature sensor Pt100 with spring

Pt100 temperature sensor

Continuous temperature measurement

Integrated spring for variable sensor length



TF-M-G1/2



MK2-G1/2



TF-M-VAL



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## Technical Data TF with Pt100

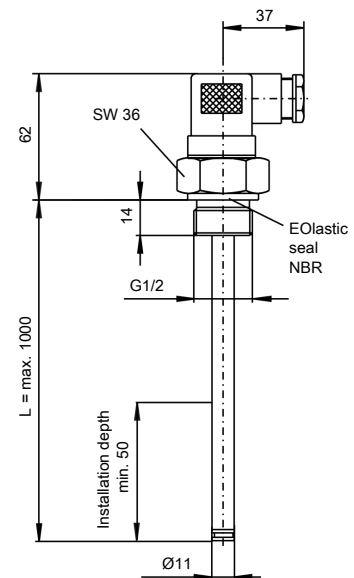
### Temperature probe TF with Pt100

	TF-M-G1/2	TF-E-G1/2
Version:	MS	VA
Probe material:	Brass	1.4571
Max. operating pressure:	5 bar	10 bar
Connection:	G1/2	G1/2
Operating temperatures:	-40 °C to +100 °C	
Lengths:	280, 370, 500 (standard) variable to max. 1000 mm	

### Temperature sensor

Sensor element:	Pt100 Class B DIN EN 60751
Tolerance:	±0.8 °C
Switching type:	2, 3 or 4 lead

### Dimensions



### Pt100 measuring resistance base values

°C	0	10	20	30	40	50	60	70	80	90	100
Ohm	100.00	103.90	107.79	111.67	115.54	119.40	123.24	127.07	130.89	134.70	138.50

### Standard Pin Assignment TF with Pt100

Connector:	M3 valve connector	GS4	M12 plug A coded
Dimensions:			
Number of pins:	3-pin + PE	4-pin	4-pin
DIN EN:	175301-803		61076-2-101
IP rating:	IP65	IP65	IP67**
Cable fitting:	PG 11	PG 7	
Standard pin assignment:			
2 lead		---	
3 lead		---	
4 lead	---		

\*\*with IP67 cable box screwed on

Other connectors available on request



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## Model Key TF with Pt100

XXX - G1/2 - XX - XX - PT100 - XX / XX

TF-M for version MS  
TF-E for version V

### Version

MS Brass  
VA Stainless steel

### Connector

M3  
M12  
GS4 (4 lead only)

### Length (max. 1000 mm)

280  
370  
500  
variable (please specify)

### Switching type

2L = 2 lead  
3L = 3 lead  
4L = 4 lead

### Ordering example

You need: Brass temperature sensor, with M3 plug connection, length L = 520 mm, Pt100 with 2 lead circuit, operating pressure 2 bar

Order: Temperature sensor TF-M-G1/2-MS-M3-PT100-2L/520



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## Technical Data MK2/EK2

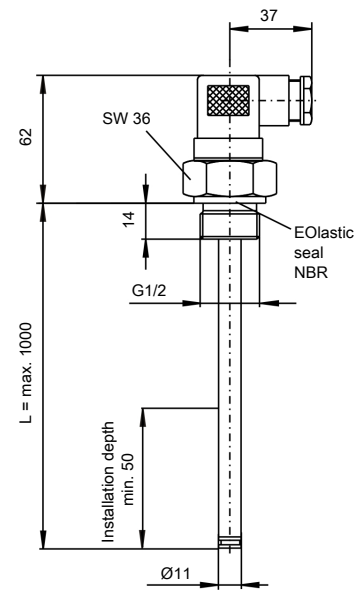
### MK2/EK2 with temperature transmitter

	MK2-G1/2	EK2-G1/2
Version:	MS	VA
Probe material:	Brass	1.4571
Max. operating pressure:	5 bar	10 bar
Connection:	G1/2	G1/2
Operating temperatures:	-20 °C to +80 °C	
Lengths:	280, 370, 500 (standard) variable to max. 1000 mm	

### Temperature transmitter

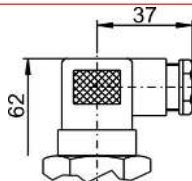
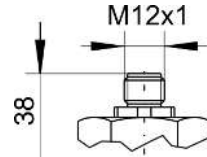
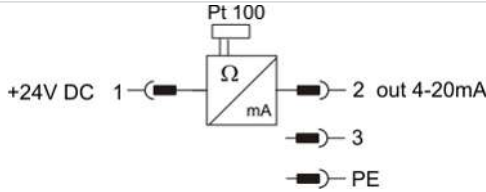
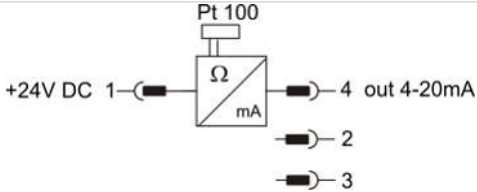
Sensor element:	Pt100 Class B DIN EN 60751
Tolerance Pt100:	±0.8 °C
Operating voltage (U <sub>B</sub> ):	10 - 30 VDC
Measuring range*	0 °C to +100 °C
Output*	4 - 20 mA
Load Ω max.	(U <sub>B</sub> - 7.5 V)/0.02 A

### Dimensions



\*Other measuring ranges and outputs available on request.

### Standard Pin Assignment MK2/EK2

Connector:	M3 valve connector	M12 plug A coded
Dimensions:		
Number of pins:	3-pin + PE	4-pin
DIN EN:	175301-803	61076-2-101
Voltage max.	30 V DC	30 V DC
IP rating:	IP65	IP67**
Cable fitting:	PG 11	
Standard pin assignment:		
**with IP67 cable box screwed on Other connectors available on request		

## Model Key MK2/EK2

XXX-G1/2-XX-XX/XX

**MK2** for version MS  
**EK2** for version V

### Version

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

### Connector

M3  
M12

**Length (max. 1000 mm)**

280  
370  
500  
variable (please specify)

## Ordering example

You need: Temperature transmitter brass version, with M3 plug connection, output 0-100 °C = 4-20 mA, length L= 520 mm, operating pressure 2 bar

Order: Temperature transmitter MK2-G1/2-MS-M3/520



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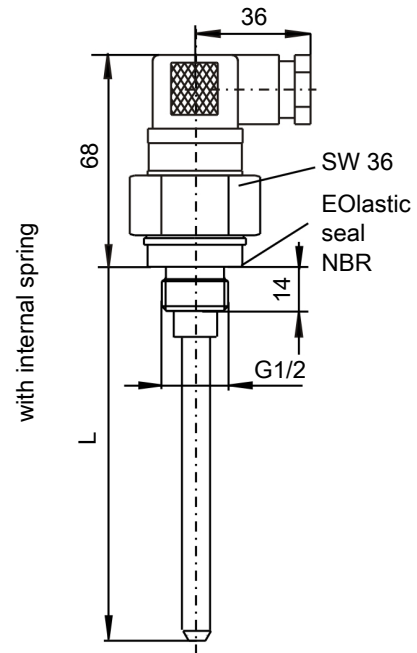
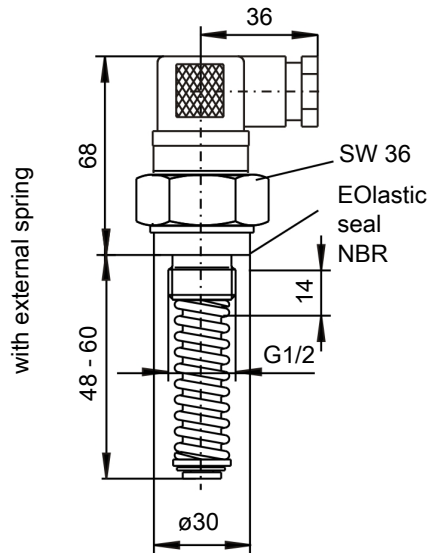
## Technical Data TF-M-VAL with Pt100 and Spring

### Version with external spring

Length:	L	Spring displacement
	55	48 - 60 mm
Fastening torque:	25 Nm	
Probe material:	Anodised aluminium/spring steel	
Seal:	NBR	
Max. operating pressure:	1 bar	
Connection:	G1/2	
Operating temperature	-40 °C to +100 °C	

### Version with internal spring

Lengths:	L	Spring displacement
	210	206 - 215 mm
	330	325 - 334 mm
Probe material:	Brass	
Seal:	NBR	
Max. operating pressure:	1 bar	
Connection:	G1/2	
Operating temperature:	-40 °C to +100 °C	



### Temperature sensor

Sensor element:	Pt100 Class B, DIN EN 60 751
Tolerance:	±0.8 °C
Switching type:	2 lead

### Pt100 measuring resistance base values

°C	0	10	20	30	40	50	60	70	80	90	100
Ohm	100.00	103.90	107.79	111.67	115.54	119.40	123.24	127.07	130.89	134.70	138.50

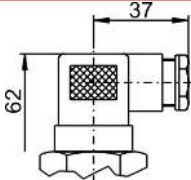
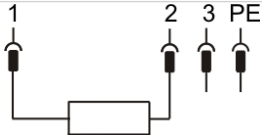


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## Standard Pin Assignment TF-M-VAL with Pt100 and Spring

Connector:	M3 valve connector
Dimensions:	
Number of pins:	3-pin + PE
DIN EN:	175301-803
IP rating:	IP65
Cable fitting:	PG 11
Standard pin assignment:	
2 lead	

## Ordering Instructions TF-M-VAL with Pt100 and Spring

Item no.:	Spring displacement	Model
18 92 599	48 - 60 mm	TF-M-PT100-VAL-M3/55
18 94 599	206 - 215 mm	TF-M-PT100-VAL-M3/210
18 95 799	325 - 334 mm	TF-M-PT100-VAL-M3/330

## Ordering example

You need: Temperature sensor with Pt100 with spring, spring deflection 48 - 60 mm

Order: Item no. 18 92 599 temperature sensor TF-M-PT100-VAL-M3/55



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