Temperature sensors

Fluidcontrol

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-G1/2

TF-M/E-G1//2

Pt100 temperature sensor
Continuous temperature measurement
Sensor length up to 1 m (3.3 ft)
Brass or stainless steel housing

MK2-G1/2

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 (3.3 ft)
Brass or stainless steel housing

TF-M-VAL

TF-M-VAL

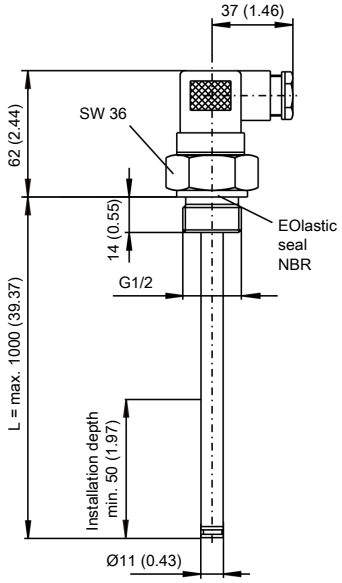
Temperature sensor Pt100 with spring
Pt100 temperature sensor
Continuous temperature measurement
Integrated spring for variable sensor length

Buhler Technologies LLC, 1030 West Hamlin Road, Rochester Hills, MI 48309
Phone: 248.652.1546, Fax: 248.652.1598
e-mail: sales@buhlertech.com
Internet: www.buhlertech.com

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 (72.5 psi)	10 bar (145 psi)
Connection:	G1/2	G1/2
Operating temperatures:	-40 °C to +100 °C (-40 °F to 212 °F)	
Lengths:	280 (11.02), 370 (14.57), 500 (19.69) (standard) variable up to max. 1000 mm (39.37 inch)	
Temperature sensor		
Sensor element:	Pt100 Class B DIN EN 60751	
Tolerance:	±0.8 °C (1.4 °F)	
Switching type:	2, 3 or 4 lead	

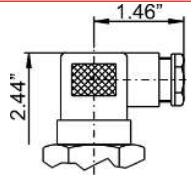
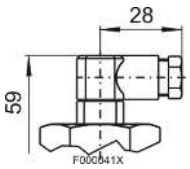
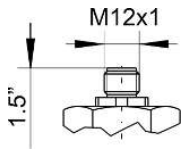
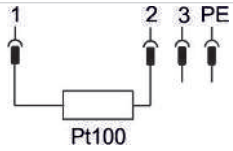
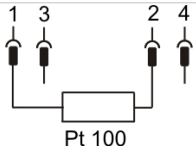
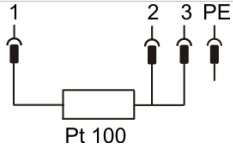
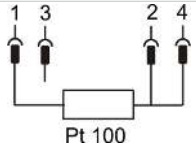
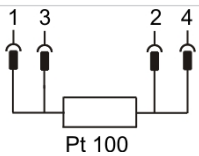
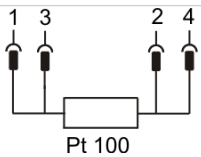
Dimensions



Pt100 measuring resistance base values

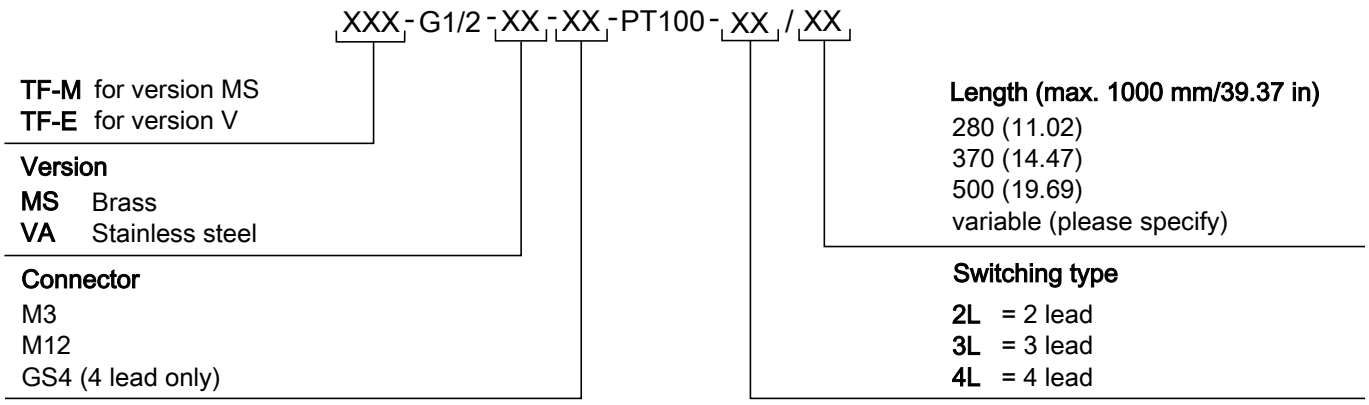
°C (°F)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)	50 (122)	60 (140)	70 (158)	80 (176)	90 (194)	100 (212)
Ohm	100.00	103.90	107.79	111.67	115.54	119.40	123.24	127.07	130.89	134.70	138.50

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

Model Key TF with Pt100



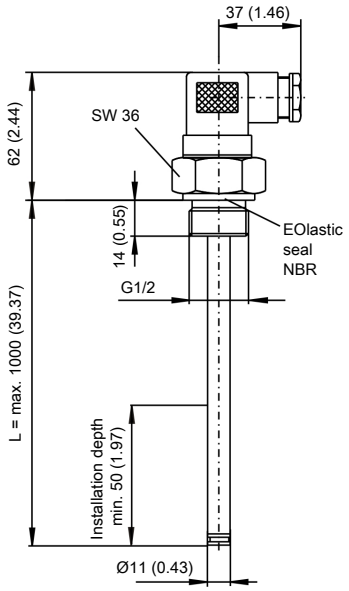
Ordering example

You need:	Brass temperature sensor, with M3 plug connection, length L = 520 mm (20.47 in), Pt100 with 2 lead circuit, operating pressure 2 bar (29 psi)
Order:	Temperature sensor TF-M-G1/2-MS-M3-PT100-2L/520

Technical Data MK2/EK2

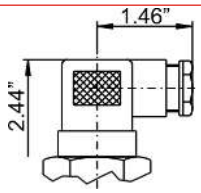
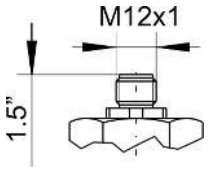
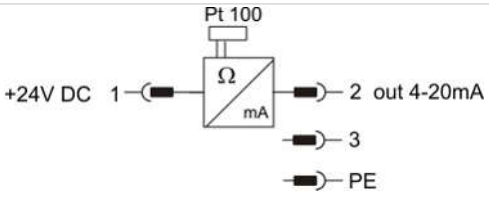
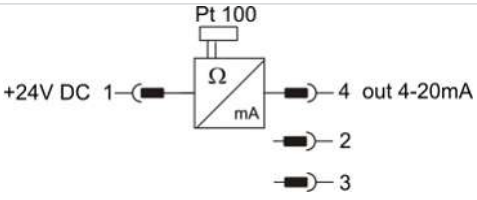
MK2/EK2 with temperature transmitter		
	MK2-G1/2	**EK2-G1/2**
Version:	MS	VA
Probe material:	Brass	1.4571
Max. operating pressure:	5 bar (72.5 psi)	10 bar (145 psi)
Connection:	G1/2	G1/2
Operating temperatures:	-20 °C to +80 °C (-4 °F to 176 °F)	
Lengths:	280 (11.02), 370 (14.57), 500 (19.69) (standard) variable up to max. 1000 mm (39.37 inch)	
Temperature transmitter		
Sensor element:	Pt100 Class B DIN EN 60751	
Tolerance Pt100:	±0.8 °C (1.4 °F)	
Operating voltage (U_B)	10 - 30 VDC	
Measuring range*	0 °C to +100 °C (32 °F to 212 °F)	
Output*	4 - 20 mA	
Load Ω max.	(U_B - 7.5 V)/0.02 A	

Dimensions



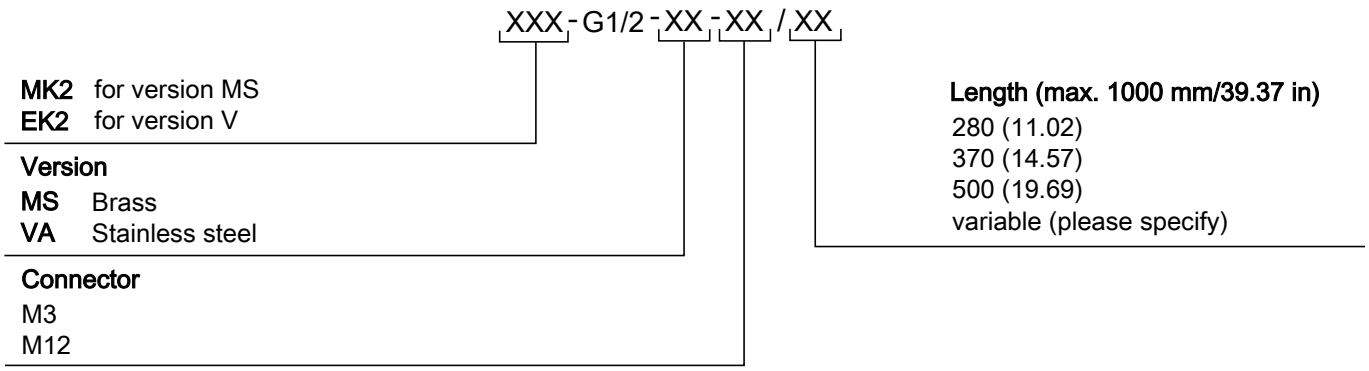
*Other measuring ranges and outputs available on request.

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

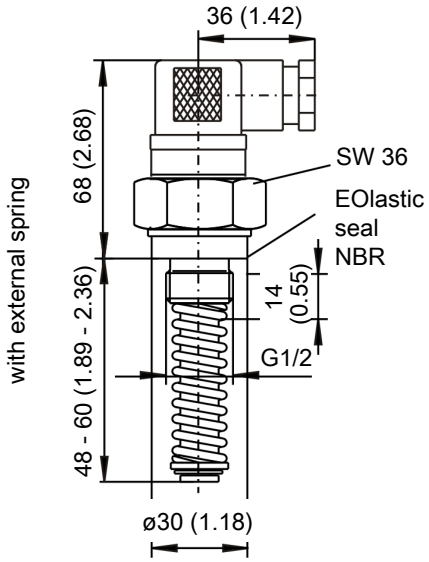


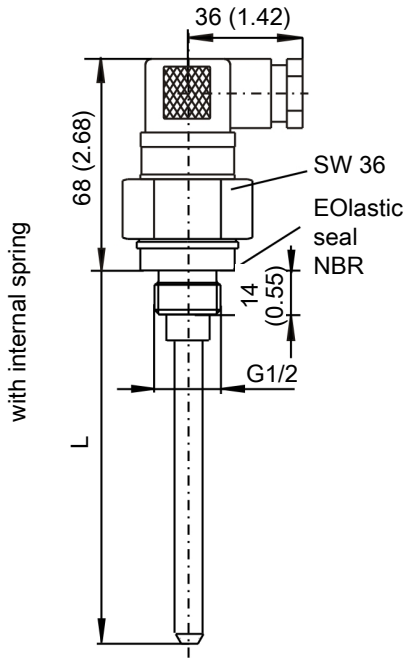
Ordering example

You need:	Temperature transmitter brass version, with M3 plug connection, output 0-100 °C (32-212 °F) = 4-20 mA, length L= 520 mm (20.47 in), operating pressure 2 bar (29 psi)
Order:	Temperature transmitter MK2-G1/2-MS-M3/520

Technical Data TF-M-VAL with Pt100 and Spring

Version with external spring			Version with internal spring		
Length:	L	Spring displacement	Lengths:	L	Spring displacement
	55 (2.17)	48 - 60 mm (1.89 - 2.36 in)		210 (8.27)	206 - 215 mm (8.11 - 8.46 in)
Fastening torque:	25 Nm (18.4 ft lb)			330 (12.99)	325 - 334 mm (12.8 - 13.15 in)
Probe material:	Anodised aluminium/spring steel		Probe material:	Brass	
Seal:	NBR		Seal:	NBR	
Max. operating pressure:	1 bar (14.5 psi)		Max. operating pressure:	1 bar (14.5 psi)	
Connection:	G1/2		Connection:	G1/2	
Operating temperature	-40 °C to +100 °C (-40 °F to 212 °F)		Operating temperature:	-40°C to +100 °C (-40 °F to 212 °F)	



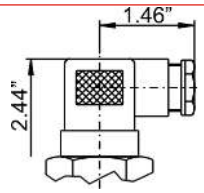
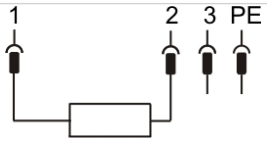


Temperature sensor	
Sensor element:	Pt100 Class B, DIN EN 60 751
Tolerance:	±0.8 °C (1.4 °F)
Switching type:	2 lead

Pt100 measuring resistance base values

°C (°F)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)	50 (122)	60 (140)	70 (158)	80 (176)	90 (194)	100 (212)
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-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 (1.89 - 2.36 in)	TF-M-PT100-VAL-M3/55
18 94 599	206 - 215 mm (8.11 - 8.46 in)	TF-M-PT100-VAL-M3/210
18 95 799	325 - 334 mm (12.8 - 13.15 in)	TF-M-PT100-VAL-M3/330

Ordering example

You need:	Temperature sensor with Pt100 with spring, spring deflection 48 - 60 mm (1.89 - 2.36 in)
Order:	Item no. 18 92 599 temperature sensor TF-M-PT100-VAL-M3/55