



Temperature sensor/switch

TF, TS, Thermolog

Installation and Operation Instructions

Original instructions





Bühler Technologies GmbH, Harkortstr. 29, D-40880 Ratingen
Tel. +49 (0) 21 02 / 49 89-0, Fax: +49 (0) 21 02 / 49 89-20
Internet: www.buehler-technologies.com
E-Mail: fluidcontrol@buehler-technologies.com

Read this instruction carefully prior to installation and/or use. Pay attention particularly to all advises and safety instructions to prevent injuries. Bühler Technologies can not be held responsible for misusing the product or unreliable function due to unauthorised modifications.

All rights reserved. Bühler Technologies GmbH 2024

Document information

Document No.....BE140006
Version..... 06/2024

Contents

1	Introduction	2
1.1	Intended Use	2
1.2	Scope of Delivery	2
1.3	Model Key MK2/EK2	2
1.4	Model Key TF with Pt100	3
1.5	Ordering Instructions TF-M-VAL with Pt100 and Spring	3
1.6	Model Key for TSM/TSE	3
1.7	Model Key for TSK	4
1.8	Ordering Instructions TSA	4
2	Safety instructions	5
2.1	Important advice	5
2.2	General hazard warnings	6
3	Transport and storage	7
4	Setup and Connection	8
5	Operation and control	9
5.1	TF-M-Pt100/TF-E-Pt100/TF-M-Pt100-VAL Temperature Sensor	9
5.2	TSM/TSK/TSA Bi-Metal Temperature Switch	9
5.3	Thermolog MK2/EK2 Temperature Sensor with 4-20mA Output	9
6	Maintenance and repair	10
7	Service and repair	11
8	Disposal	12
9	Appendix	13
9.1	Technical Data TF with Pt100	13
9.2	Technical Data MK2/EK2	13
9.3	Technical Data TF-M-VAL with Pt100 and Spring	14
9.4	Technical Data TSM/TSE	15
9.5	Technical Data TSK	15
9.6	Technical Data TSA	16
9.7	Standard Pin Assignment TF with Pt100	16
9.8	Standard Pin Assignment MK2/EK2	17
9.9	Standard Pin Assignment TF-M-VAL with Pt100 and Spring	17
9.10	Standard Pin Assignment TSM/TSE	18
9.11	Standard Pin Assignment TSK	18
9.12	Standard Pin Assignment TSA	19
10	Attached documents	20

1 Introduction

1.1 Intended Use

Temperature sensors can be used to monitor the temperature of a fluid within a tank.

These operating instructions describe several temperature switches / sensors types in one, as many descriptions identical or similar.

Please refer to the type plate to identify your model. In addition to the job number it also contains the item number and model designation.

If a model has special features, these are described separately in the operating instructions.

WARNING



All device models are solely intended for industrial applications. They are **not safety components**. The devices must not be used if failure or malfunction thereof jeopardises the safety and health of persons.
Use in explosive areas is **prohibited**.

DANGER



Explosion hazard when used in explosive areas

Use in explosive areas is prohibited.

1.2 Scope of Delivery

- Temperature switch/sensor
- Product documentation

1.3 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)

1.4 Model Key TF with Pt100

XXX - G1/2 - XX - XX - PT100 - XX / XX	
TF-M for version MS TF-E for version V	Length (max. 1000 mm) 280 370 500 variable (please specify)
Version MS Brass VA Stainless steel	Switching type 2L = 2 lead 3L = 3 lead 4L = 4 lead
Connector M3 M12 GS4 (4 lead only)	

1.5 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

1.6 Model Key for TSM/TSE

XXX - XX - XX - G1/2 - XX - XX - XX - XX	
TSM for Version MS TSE for Version V	T2 (2nd temperature contact) NC contact NO contact TM50NC TM50NO = 50 °C TM60NC TM60NO = 60 °C TM70NC TM70NO = 70 °C TM80NC TM80NO = 80 °C
Number of temperature contacts 1 or 2	T1 (1st temperature contact) NC contact NO contact TM50NC TM50NO = 50 °C TM60NC TM60NO = 60 °C TM70NC TM70NO = 70 °C TM80NC TM80NO = 80 °C
Version MS Brass VA Stainless steel	
Connector M3 M12	
Length (max. 1000 mm) 280 370 500 variable (please specify)	

1.7 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		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	
Connector M3 M12		Length (max. 1000 mm) 280 370 500 variable (please specify)		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	

1.8 Ordering Instructions TSA

Switching function	NO (NO contact)		NC (NC contact)	
Temperature	Model	Item no.	Model	Item no.
25 °C	TSA-25-M3	1139699	TÖA-25-M3	1142899
40 °C	TSA-40-M3	1139599	TÖA-40-M3	1143299
50 °C	TSA-50-M3	1138599	TÖA-50-M3	1142199
60 °C	TSA-60-M3	1138699	TÖA-60-M3	1143399
70 °C	TSA-70-M3	1138799	TÖA-70-M3	1140299
80 °C	TSA-80-M3	1139299	TÖA-80-M3	1140899
25 °C	TSA-25-M12	1141199	TÖA-25-M12	1144199
40 °C	TSA-40-M12	1141299	TÖA-40-M12	1144299
50 °C	TSA-50-M12	1141399	TÖA-50-M12	1144399
60 °C	TSA-60-M12	1141499	TÖA-60-M12	1144499
70 °C	TSA-70-M12	1141599	TÖA-70-M12	1144599
80 °C	TSA-80-M12	1141699	TÖA-80-M12	1144699

2 Safety instructions

2.1 Important advice

Operation of the device is only permitted if:

- the product is used under the conditions described in the installation- and operation instruction, the intended application according to the type plate and the intended use. In case of unauthorized modifications done by the user Bühler Technologies GmbH can not be held responsible for any damage,
- when complying with the specifications and markings on the nameplates.
- the performance limits given in the datasheets and in the installation- and operation instruction are obeyed,
- monitoring devices and safety devices are installed properly,
- service and repair is carried out by Bühler Technologies GmbH,
- only original spare parts are used.

This manual is part of the equipment. The manufacturer keeps the right to modify specifications without advanced notice. Keep this manual for later use.

Signal words for warnings

DANGER	Signal word for an imminent danger with high risk, resulting in severe injuries or death if not avoided.
WARNING	Signal word for a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.
CAUTION	Signal word for a hazardous situation with low risk, resulting in damaged to the device or the property or minor or medium injuries if not avoided.
NOTICE	Signal word for important information to the product.

Warning signs

These instructions include the following warnings:

	General warning sign		Unplug from mains
	Voltage warning		Wear respiratory equipment
	Warning not to inhale toxic gases		Wear a safety mask
	Warning of corrosive substances		Wear gloves
	General mandatory sign		

2.2 General hazard warnings

The equipment must be installed by a professional familiar with the safety requirements and risks.

Be sure to observe the safety regulations and generally applicable rules of technology relevant for the installation site. Prevent malfunctions and avoid personal injuries and property damage.

The operator of the system must ensure:

- Safety notices and operating instructions are available and observed,
- The respective national accident prevention regulations are observed,
- The permissible data and operational conditions are maintained,
- Safety guards are used and mandatory maintenance is performed,
- Legal regulations are observed during disposal,
- compliance with national installation regulations.

Maintenance, Repair

Please note during maintenance and repairs:

- Repairs to the unit must be performed by Bühler authorised personnel.
- Only perform conversion-, maintenance or installation work described in these operating and installation instructions.
- Always use genuine spare parts.
- Do not install damaged or defective spare part. If necessary, visually inspect prior to installation to determine any obvious damage to the spare parts.

Always observe the applicable safety and operating regulations in the respective country of use when performing any type of maintenance.

3 Transport and storage

Only transport the product inside the original packaging or a suitable alternative.

The equipment must be protected from moisture and heat when not in use. It must be stored in a covered, dry, dust-free room at room temperature.

4 Setup and Connection

DANGER**Toxic Liquids**

Liquids can be hazardous to health.

- a) Protect yourself from toxic liquids when performing any type of work.
- b) If necessary, ensure safe discharging.
- c) Wear suitable protective equipment.



The temperature switches/sensors are delivered complete and can be screwed onto the container with the thread. The maximum torque of the screw-in thread is 25 Nm.

When installing, ensure the sealing face is clean and even. The temperature switch/sensor may only be screwed into the fitting thread. Sealed with an elastic sealing ring. No other sealants required.

5 Operation and control

DANGER
Electric voltage

Risk of electric shock



- a) Disconnect the unit from the mains when performing any maintenance.
- b) Secure the equipment from accidental restarting.
- c) The unit may only be maintained and opened by instructed, competent personnel.



The pin assignment for the respective models are listed in chapter Pin Assignment.

5.1 TF-M-Pt100/TF-E-Pt100/TF-M-Pt100-VAL Temperature Sensor

Type TF temperature sensors use a Pt100 temperature sensor per DIN/IEC 751 class B to generate a temperature-dependent resistance signal. The Pt100 sensor is installed at the lowest point of the sensor tube to always ensure sufficient contact with the medium being measured.

The temperature sensor TF-M-Pt100-VAL was designed for measuring storage temperatures and has a spring-loaded sensor tube to allow installation free of play with a constant contact pressure at the measuring point.

5.2 TSM/TSK/TSA Bi-Metal Temperature Switch

The TS temperature sensors have a bi-metal temperature switch to signal a set temperature value. Unlike the TSM standard version, the TSK and TSA versions with bi-metal switches have a lower hysteresis.

The TSA version is further specifically designed for installation in tube systems and cooling matrices.

The bi-metal switch is installed at the lowest point of the sensor tube to always ensure sufficient contact with the medium being measured.

5.3 Thermolog MK2/EK2 Temperature Sensor with 4-20mA Output

Type MK2 and EK2 temperature sensors use a Pt100 temperature sensor per DIN EN/IEC 60751 Class B to generate a temperature-dependent resistance signal.

The built-in electronics convert this resistance signal into a standard 4-20 mA two-lead signal.

The Pt100 sensor is installed at the lowest point of the sensor tube to always ensure sufficient contact with the medium being measured.

6 Maintenance and repair

NOTICE



Always observe the applicable safety and operating regulations when performing any type of maintenance.

If the devices are mounted according to the instructions, a maintenance is not necessary.

7 Service and repair

This chapter contains information on troubleshooting and correction should an error occur during operation.

Repairs to the unit must be performed by Bühler authorised personnel.

Please contact our Service Department with any questions:

Tel.: +49-(0)2102-498955 or your agent

For further information about our services and customised maintenance visit <http://www.buehler-technologies.com/service>.

If the equipment is not functioning properly after correcting any malfunctions and switching on the power, it must be inspected by the manufacturer. Please send the equipment inside suitable packaging to:

Bühler Technologies GmbH

- Reparatur/Service -

Harkortstraße 29

40880 Ratingen

Germany

Please also attach the completed and signed RMA decontamination statement to the packaging. We will otherwise be unable to process your repair order.

You will find the form in the appendix of these instructions, or simply request it by e-mail:

service@buehler-technologies.com.

8 Disposal

The applicable national laws must be observed when disposing of the products. Disposal must not result in a danger to health and environment.

The crossed out wheelie bin symbol on Bühler Technologies GmbH electrical and electronic products indicates special disposal notices within the European Union (EU).



The crossed out wheelie bin symbol indicates the electric and electronic products bearing the symbol must be disposed of separate from household waste. They must be properly disposed of as waste electrical and electronic equipment.

Bühler Technologies GmbH will gladly dispose of your device bearing this mark. Please send your device to the address below for this purpose.



We are obligated by law to protect our employees from hazards posed by contaminated devices. Therefore please understand that we can only dispose of your waste equipment if the device is free from any aggressive, corrosive or other operating fluids dangerous to health or environment. **Please complete the "RMA Form and Decontamination Statement", available on our website, for every waste electrical and electronic equipment. The form must be applied to the packaging so it is visible from the outside.**

Please return waste electrical and electronic equipment to the following address:

Bühler Technologies GmbH
WEEE
Harkortstr. 29
40880 Ratingen
Germany

Please also observe data protection regulations and remember you are personally responsible for the returned waste equipment not bearing any personal data. Therefore please be sure to delete your personal data before returning your waste equipment.

9 Appendix

9.1 Technical Data TF with Pt100

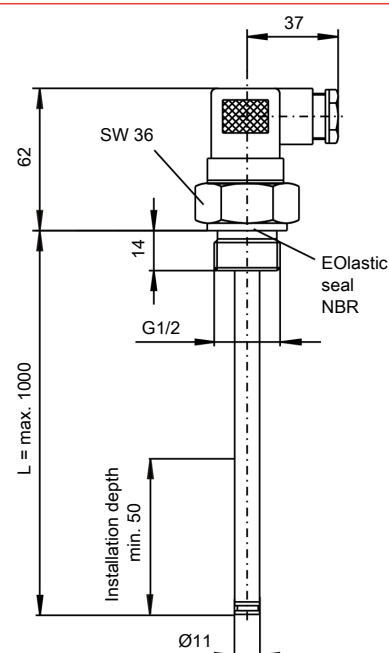
Temperature probe TF with Pt100

	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

9.2 Technical Data MK2/EK2

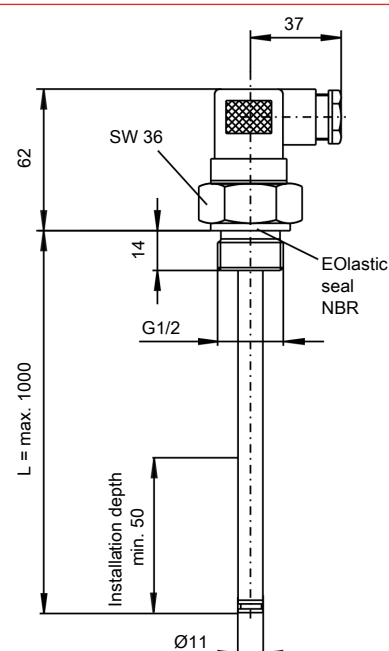
MK2/EK2 with temperature transmitter

	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 _B)	10 - 30 VDC
Measuring range*	0 °C to +100 °C
Output*	4 - 20 mA
Load Ω max.	(U _B - 7.5 V)/0.02 A

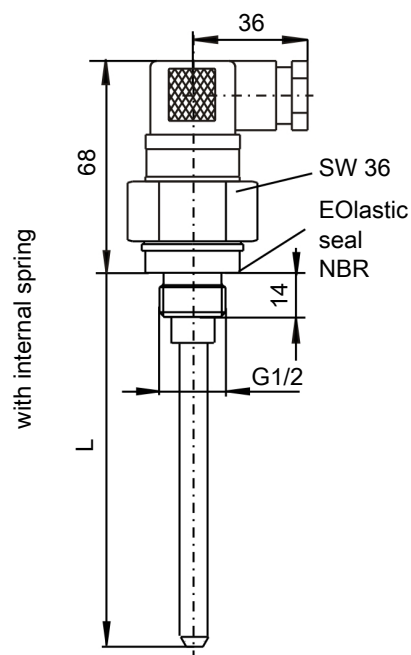
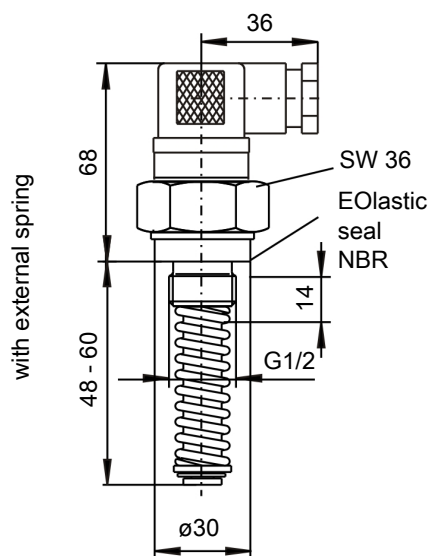
Dimensions



*Other measuring ranges and outputs available on request.

9.3 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	48 - 60 mm		210	206 - 215 mm
Fastening torque:	25 Nm			330	325 - 334 mm
Probe material:	Anodised aluminium/spring steel		Probe material:	Brass	
Seal:	NBR		Seal:	NBR	
Max. operating pressure:	1 bar		Max. operating pressure:	1 bar	
Connection:	G1/2		Connection:	G1/2	
Operating temperature	-40 °C to +100 °C		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

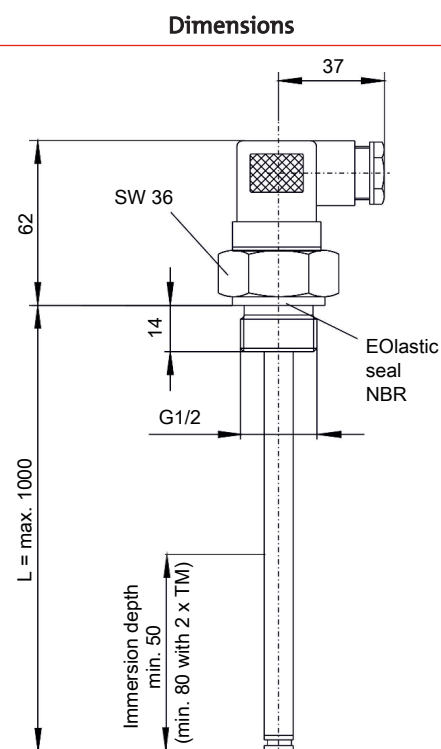
°C	0	10	20	30	40	50	60	70	80	90	100
Ohm	100.00	103.90	107.79	111.67	115.54	119.40	123.24	127.07	130.89	134.70	138.50

9.4 Technical Data TSM/TSE

Model	TSM-G1/2	TSE-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 +80 °C	
Lengths:	280, 370, 500 (standard) variable to max. 1000 mm	
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:	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)

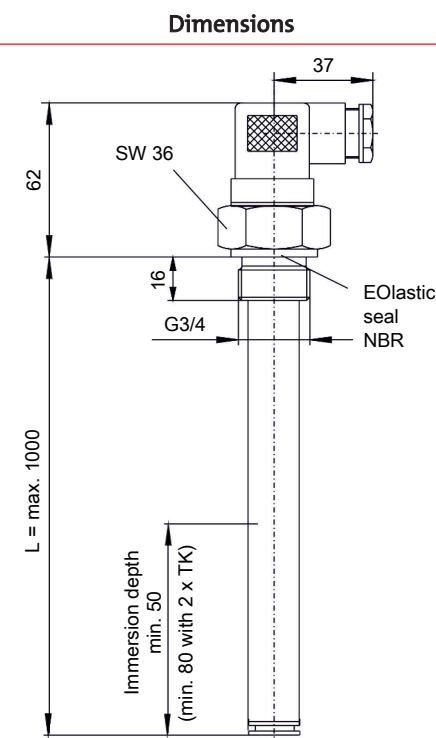


9.5 Technical Data TSK

Model	TSK-G3/4	
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) variable to max. 1000 mm	
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:	40/50/60/70/80	
Switching point tolerance:	± 3 K	
Max. hysteresis:	10 K ± 5 K	

Other temperatures available upon request

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



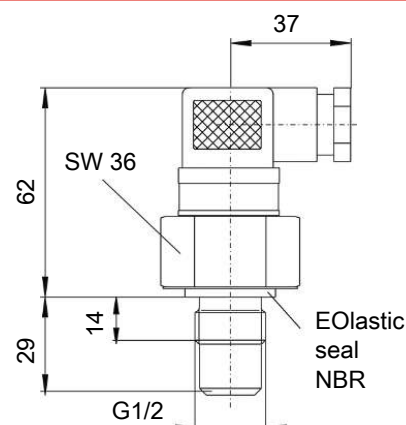
9.6 Technical Data TSA

Model	TSA
Probe length:	29 mm
Probe material:	Anodised aluminium
Max. operating pressure:	15 bars
Operating temperatures:	-40 °C to +80 °C
Temperature contacts	
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
Function	
Switching point °C:	NC*/NO*
Switching point °C:	25/40/50/60/70/80

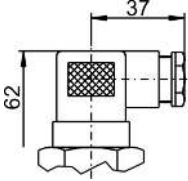
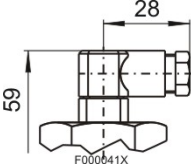
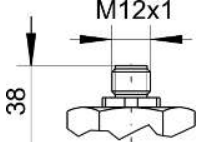
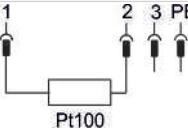
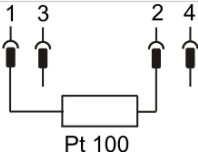
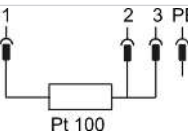
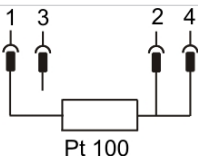
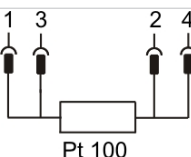
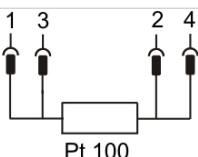
Other temperatures available upon request

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

Dimensions



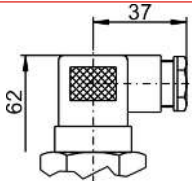
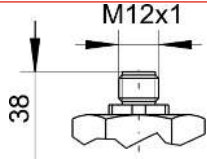
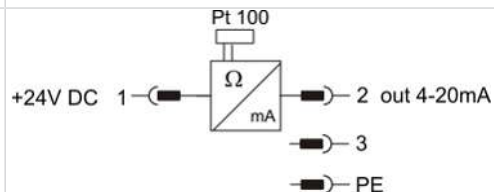
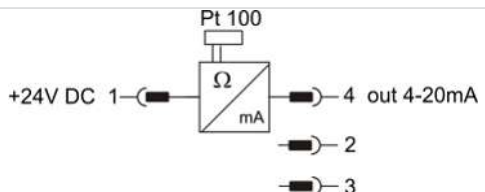
9.7 Standard Pin Assignment TF with Pt100

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	---		

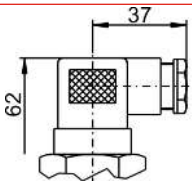
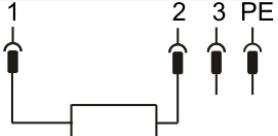
**with IP67 cable box screwed on

Other connectors available on request

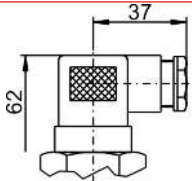
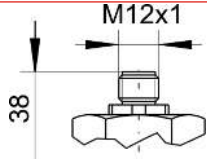
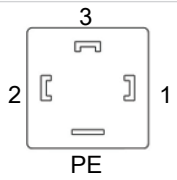
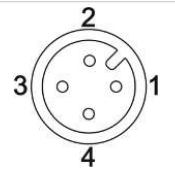
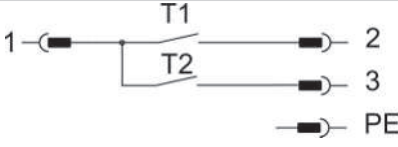
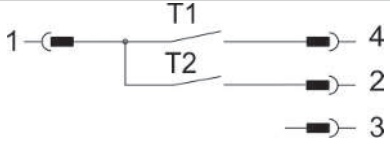
9.8 Standard Pin Assignment MK2/EK2

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		

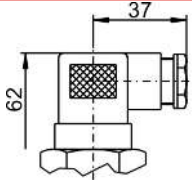
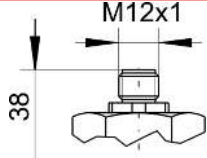
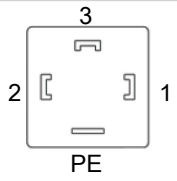
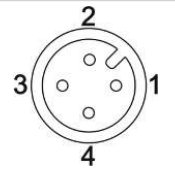
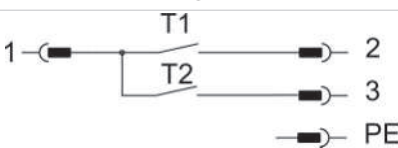
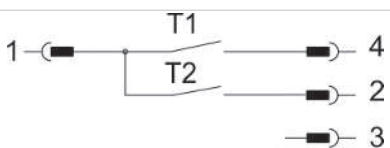
9.9 Standard Pin Assignment TF-M-VAL with Pt100 and Spring

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	

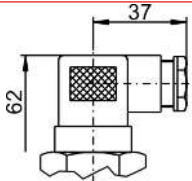
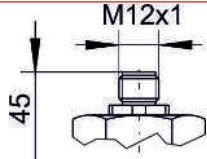
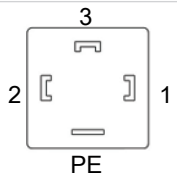
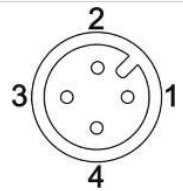
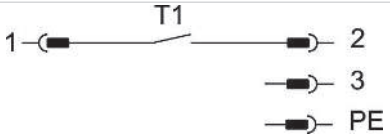
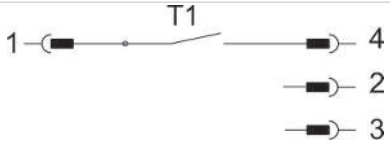
9.10 Standard Pin Assignment TSM/TSE

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.		

9.11 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.		

9.12 Standard Pin Assignment TSA

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:		
* other connectors available on request. ** with IP67 cable box screwed on.		

10 Attached documents

- Declarations of conformity: KX140002, KX110021
- RMA decontamination statement

EU-Konformitätserklärung
EU-declaration of conformity



Hiermit erklärt Bühler Technologies GmbH,
dass die nachfolgenden Produkte den
wesentlichen Anforderungen der Richtlinie

*Herewith declares Bühler Technologies GmbH
that the following products correspond to the
essential requirements of Directive*

2014/35/EU
(Niederspannungsrichtlinie / low voltage directive)

in ihrer aktuellen Fassung entsprechen.

in its actual version.

Folgende Richtlinien wurden berücksichtigt:

The following directives were regarded:

2014/30/EU (EMV/EMC)

Produkt / products: Temperaturschalter / *temperature switches*
Typ / type: TSM, TSE, TSK, TSA

Das Betriebsmittel wird mittels Einschraubgewinde auf dem Behälter befestigt und dient zur
Überwachung der Temperatur eines Fluids innerhalb eines Tanks.
*The equipment is screwed to the container with threads and is used to monitor the temperature of a
fluid in a tank.*

Das oben beschriebene Produkt der Erklärung erfüllt die einschlägigen
Harmonisierungsrechtsvorschriften der Union:
*The object of the declaration described above is in conformity with the relevant Union harmonisation
legislation:*

EN 61326-1:2013

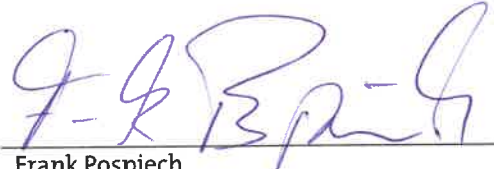
EN 61010-1:2010/A1:2019/AC:2019-04

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Dokumentationsverantwortlicher für diese Konformitätserklärung ist Herr Stefan Eschweiler mit
Anschrift am Firmensitz.
*The person authorized to compile the technical file is Mr. Stefan Eschweiler located at the company's
address*

Ratingen, den 17.02.2023


Stefan Eschweiler
Geschäftsführer – *Managing Director*


Frank Pospiech
Geschäftsführer – *Managing Director*

UK Declaration of Conformity



The manufacturer Bühler Technologies GmbH declares, under the sole responsibility, that the product complies with the requirements of the following UK legislation:

Electrical Equipment Safety Regulations 2016

The following legislation were regarded:

Electromagnetic Compatibility Regulations 2016

Product: Temperature switches
Types: TSM
TSE
TSK
TSA

The equipment is screwed to the container with threads and is used to monitor the temperature of a fluid in a tank.

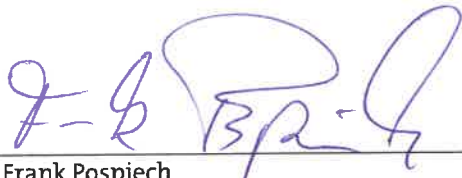
The object of the declaration described above is in conformity with the relevant designated standards:

EN 61010-1:2010/A1:2019/AC:2019-04

EN 61326-1:2013

Ratingen in Germany, 17.02.2023


Stefan Eschweiler
Managing Director


Frank Pospiech
Managing Director

EU-Konformitätserklärung
EU-declaration of conformity



Hiermit erklärt Bühler Technologies GmbH,
dass die nachfolgenden Produkte den
wesentlichen Anforderungen der Richtlinie

*Herewith declares Bühler Technologies GmbH
that the following products correspond to the
essential requirements of Directive*

2014/30/EU

(Elektromagnetische Verträglichkeit / *electromagnetic compatibility*)

in ihrer aktuellen Fassung entsprechen.

in its actual version.

Wir bestätigen die Konformität der Produkte nach **RoHS-Richtlinie**
*We confirm the conformity of the products according to the **RoHS Directive***

2011/65/EU und/and 2015/863/EU

Produkt / products: Temperatursensoren / *Temperature sensors*
Temperaturtransmitter / *Temperature transmitters*
Typ / types: TF...
MK2, EK2

Das Betriebsmittel dient zur Überwachung der Temperatur in Fluidsystemen.
The equipment is intended for monitoring the temperature in fluid systems.

Das oben beschriebene Produkt der Erklärung erfüllt die einschlägigen
Harmonisierungsrechtsvorschriften der Union:
*The object of the declaration described above is in conformity with the relevant Union harmonisation
legislation:*

EN 61326-1:2013

EN IEC 63000:2018

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Dokumentationsverantwortlicher für diese Konformitätserklärung ist Herr Stefan Eschweiler mit
Anschrift am Firmensitz.
*The person authorised to compile the technical file is Mr. Stefan Eschweiler located at the company's
address.*

Ratingen, den 27.05.2024

Stefan Eschweiler
Geschäftsführer – *Managing Director*

Frank Pospiech
Geschäftsführer – *Managing Director*

UK Declaration of Conformity



The manufacturer Bühler Technologies GmbH declares, under the sole responsibility, that the product complies with the requirements of the following UK legislation:

Electromagnetic Compatibility Regulations 2016
S.I. 2016 No. 1091

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
S.I. 2012 No. 3032

Products: Temperature sensors
Temperature transmitters
Types: TF...
MK2, EK2

The equipment is intended for monitoring the temperature in fluid systems.

The object of the declaration described above is in conformity with the relevant designated standards:

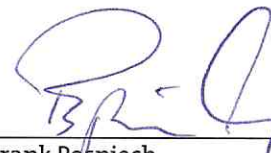
EN 61326-1:2013

EN IEC 63000:2018

Ratingen in Germany, 27.05.2024



Stefan Eschweiler
Managing Director



Frank Pospiech
Managing Director

RMA-Formular und Erklärung über Dekontaminierung

RMA-Form and explanation for decontamination



RMA-Nr./ RMA-No.

Die RMA-Nr. bekommen Sie von Ihrem Ansprechpartner im Vertrieb oder Service. Bei Rücksendung eines Altgeräts zur Entsorgung tragen Sie bitte in das Feld der RMA-Nr. "WEEE" ein./ You may obtain the RMA number from your sales or service representative. When returning an old appliance for disposal, please enter "WEEE" in the RMA number box.

Zu diesem Rücksendeschein gehört eine Dekontaminierungserklärung. Die gesetzlichen Vorschriften schreiben vor, dass Sie uns diese Dekontaminierungserklärung ausgefüllt und unterschrieben zurücksenden müssen. Bitte füllen Sie auch diese im Sinne der Gesundheit unserer Mitarbeiter vollständig aus./ This return form includes a decontamination statement. The law requires you to submit this completed and signed decontamination statement to us. Please complete the entire form, also in the interest of our employee health.

Firma/ Company

Firma/ Company

Straße/ Street

PLZ, Ort/ Zip, City

Land/ Country

Gerät/ Device

Anzahl/ Quantity

Auftragsnr./ Order No.

Ansprechpartner/ Person in charge

Name/ Name

Abt./ Dept.

Tel./ Phone

E-Mail

Serien-Nr./ Serial No.

Artikel-Nr./ Item No.

Grund der Rücksendung/ Reason for return

- ☐ Kalibrierung/ Calibration ☐ Modifikation/ Modification
☐ Reklamation/ Claim ☐ Reparatur/ Repair
☐ Elektroaltgerät/ Waste Electrical & Electronic Equipment (WEEE)
☐ andere/ other

bitte spezifizieren/ please specify

Ist das Gerät möglicherweise kontaminiert?/ Could the equipment be contaminated?

- ☐ Nein, da das Gerät nicht mit gesundheitsgefährdenden Stoffen betrieben wurde./ No, because the device was not operated with hazardous substances.
☐ Nein, da das Gerät ordnungsgemäß gereinigt und dekontaminiert wurde./ No, because the device has been properly cleaned and decontaminated.
☐ Ja, kontaminiert mit:/ Yes, contaminated with:



☐
explosiv/
explosive



☐
entzündlich/
flammable



☐
brandfördernd/
oxidizing



☐
komprimierte
Gase/
compressed
gases



☐
ätzend/
caustic



☐
giftig,
Lebensgefahr/
poisonous, risk
of death



☐
gesundheitsge-
fährdend/
harmful to
health



☐
gesund-
heitsschädlich/
health hazard



☐
umweltge-
fährdend/
environmental
hazard

Bitte Sicherheitsdatenblatt beilegen! / Please enclose safety data sheet!

Das Gerät wurde gespült mit:/ The equipment was purged with:

Diese Erklärung wurde korrekt und vollständig ausgefüllt und von einer dazu befugten Person unterschrieben. Der Versand der (dekontaminierten) Geräte und Komponenten erfolgt gemäß den gesetzlichen Bestimmungen.

This declaration has been filled out correctly and completely, and signed by an authorized person. The dispatch of the (decontaminated) devices and components takes place according to the legal regulations.

Falls die Ware nicht gereinigt, also kontaminiert bei uns eintrifft, muss die Firma Bühler sich vorbehalten, diese durch einen externen Dienstleister reinigen zu lassen und Ihnen dies in Rechnung zu stellen.

Should the goods not arrive clean, but contaminated, Bühler reserves the right, to commission an external service provider to clean the goods and invoice it to your account.

Firmenstempel/ Company Sign

Datum/ Date

rechtsverbindliche Unterschrift/ Legally binding signature



Vermeiden von Veränderung und Beschädigung der einzusendenden Baugruppe

Die Analyse defekter Baugruppen ist ein wesentlicher Bestandteil der Qualitätssicherung der Firma Bühler Technologies GmbH. Um eine aussagekräftige Analyse zu gewährleisten muss die Ware möglichst unverändert untersucht werden. Es dürfen keine Veränderungen oder weitere Beschädigungen auftreten, die Ursachen verdecken oder eine Analyse unmöglich machen.

Umgang mit elektrostatisch sensiblen Baugruppen

Bei elektronischen Baugruppen kann es sich um elektrostatisch sensible Baugruppen handeln. Es ist darauf zu achten, diese Baugruppen ESD-gerecht zu behandeln. Nach Möglichkeit sollten die Baugruppen an einem ESD-gerechten Arbeitsplatz getauscht werden. Ist dies nicht möglich sollten ESD-gerechte Maßnahmen beim Austausch getroffen werden. Der Transport darf nur in ESD-gerechten Behältnissen durchgeführt werden. Die Verpackung der Baugruppen muss ESD-konform sein. Verwenden Sie nach Möglichkeit die Verpackung des Ersatzteils oder wählen Sie selber eine ESD-gerechte Verpackung.

Einbau von Ersatzteilen

Beachten Sie beim Einbau des Ersatzteils die gleichen Vorgaben wie oben beschrieben. Achten Sie auf die ordnungsgemäße Montage des Bauteils und aller Komponenten. Versetzen Sie vor der Inbetriebnahme die Verkabelung wieder in den ursprünglichen Zustand. Fragen Sie im Zweifel beim Hersteller nach weiteren Informationen.

Einsenden von Elektroaltgeräten zur Entsorgung

Wollen Sie ein von Bühler Technologies GmbH stammendes Elektroprodukt zur fachgerechten Entsorgung einsenden, dann tragen Sie bitte in das Feld der RMA-Nr. „WEEE“ ein. Legen Sie dem Altgerät die vollständig ausgefüllte Dekontaminierungserklärung für den Transport von außen sichtbar bei. Weitere Informationen zur Entsorgung von Elektroaltgeräten finden Sie auf der Webseite unseres Unternehmens.

Avoiding alterations and damage to the components to be returned

Analysing defective assemblies is an essential part of quality assurance at Bühler Technologies GmbH. To ensure conclusive analysis the goods must be inspected unaltered, if possible. Modifications or other damages which may hide the cause or render it impossible to analyse are prohibited.

Handling electrostatically conductive components

Electronic assemblies may be sensitive to static electricity. Be sure to handle these assemblies in an ESD-safe manner. Where possible, the assemblies should be replaced in an ESD-safe location. If unable to do so, take ESD-safe precautions when replacing these. Must be transported in ESD-safe containers. The packaging of the assemblies must be ESD-safe. If possible, use the packaging of the spare part or use ESD-safe packaging.

Fitting of spare parts

Observe the above specifications when installing the spare part. Ensure the part and all components are properly installed. Return the cables to the original state before putting into service. When in doubt, contact the manufacturer for additional information.

Returning old electrical appliances for disposal

If you wish to return an electrical product from Bühler Technologies GmbH for proper disposal, please enter "WEEE" in the RMA number box. Please attach the fully completed decontamination declaration form for transport to the old appliance so that it is visible from the outside. You can find more information on the disposal of old electrical appliances on our company's website.

