Fluidcontrol

Temperature sensor/switch

TF, TS, Thermolog

Installation and Operation Instructions

Original instructions

BE140006
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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.

Document information
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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

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

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 - 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

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

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

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	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

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 use the following warning signs:

	Warns of a general hazard		Unplug from mains
	Voltage warning		Wear respiratory equipment
	Warns not to inhale toxic gasses		Wear a safety mask
	Warns of corrosive liquids		Wear gloves
	General information		

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, corrosive gasses**

The sample gas can be harmful to the health if inhaled or on contact.

a) Ensure harmful gases are discharged safely.

b) Switch off the gas supply before performing maintenance and repairs, and flush the gas lines with air. Secure the gas supply from accidentally being opened.

c) Protect yourself from toxic / corrosive gasses when performing maintenance. Wear suitable protective equipment.

The temperature switch / sensor come complete and can be screwed onto the container with the thread. The maximum torque of the screw-in thread is 25 Nm.

When installing, be sure the sealing face is clean and even. Only screw the temperature switch / sensor into the fitted 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

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

Dispose of parts so as not to endanger the health or environment. Follow the laws in the country of use for disposing of electronic components and devices during disposal.

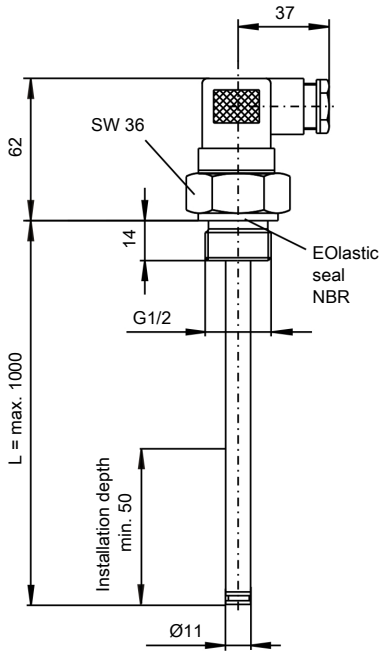
9 Appendix

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

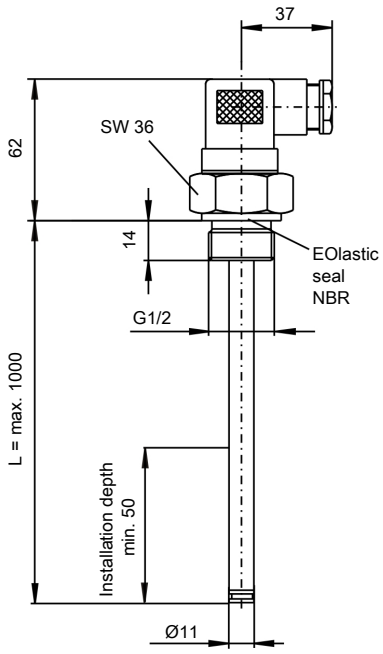
°C	0	10	20	30	40	50	60	70	80	90	100
Ohm	100.00	103.90	107.79	111.67	115.54	119.40	123.24	127.07	130.89	134.70	138.50

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	

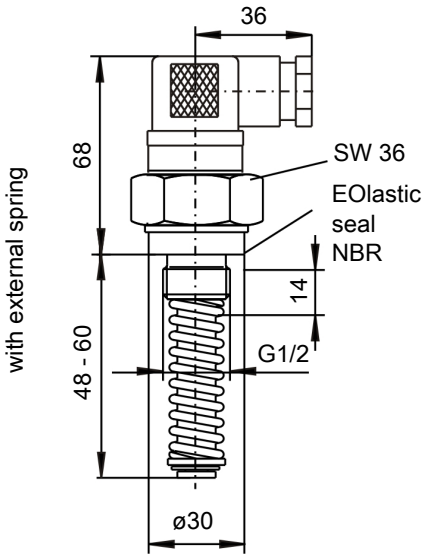
Dimensions

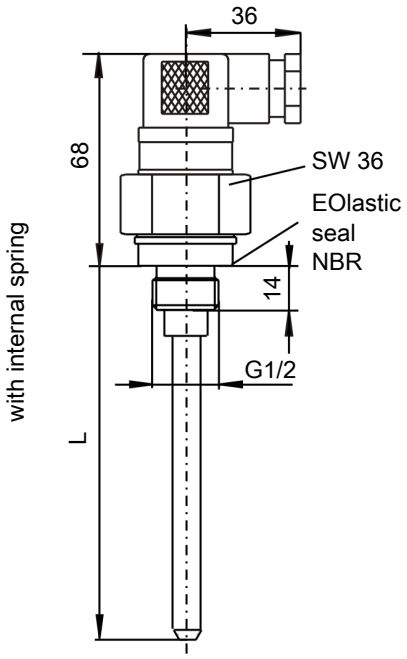


*Other measuring ranges and outputs available on request.

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

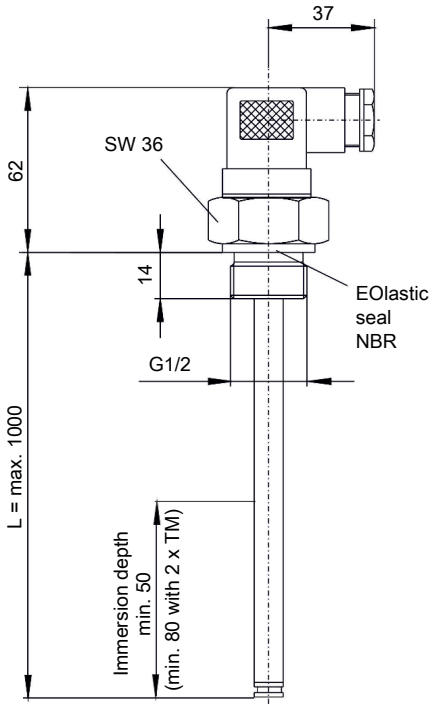
°C	0	10	20	30	40	50	60	70	80	90	100
Ohm	100.00	103.90	107.79	111.67	115.54	119.40	123.24	127.07	130.89	134.70	138.50

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)*

Dimensions

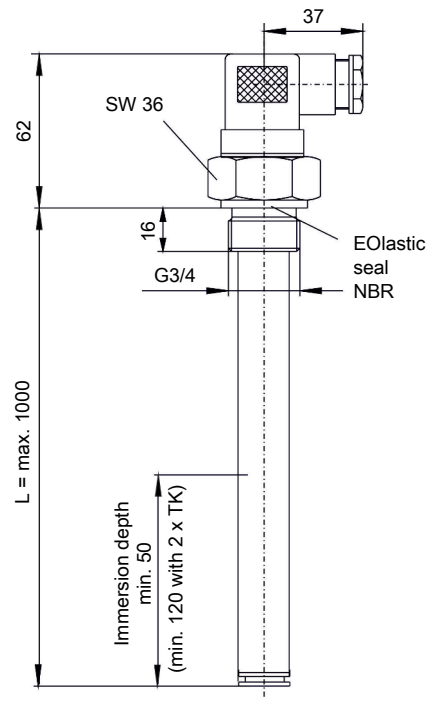


9.5 Technical Data TSK

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)*

Dimensions

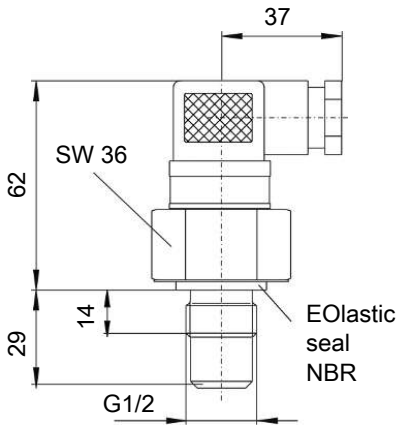


9.6 Technical Data TSA

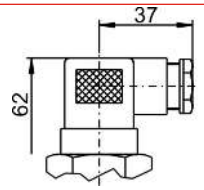
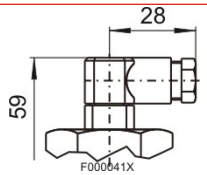
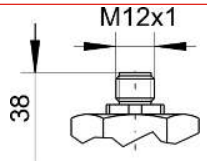
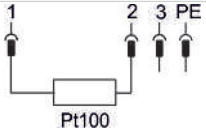
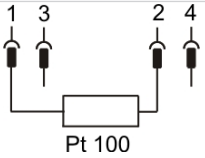
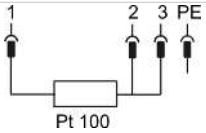
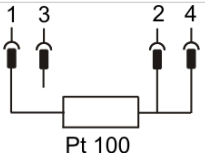
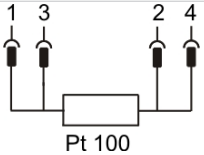
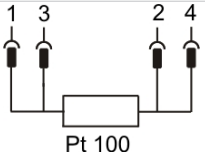
Model	TSA
Probe length:	29 mm
Probe material:	Anodised aluminium
Max. operating pressure:	15 bars
Operating temperatures:	-40 °C to +80 °C
Temperature contacts	
Switch element:	Bi-metal
Max. voltage:	230 V
Max. switching current:	2 A
Max. contact load:	100 VA
Tolerance:	± 5 K
Switch-back difference:	15 K ± 3 K
Function	**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

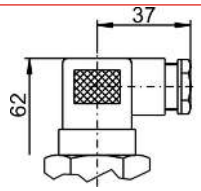
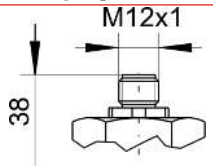
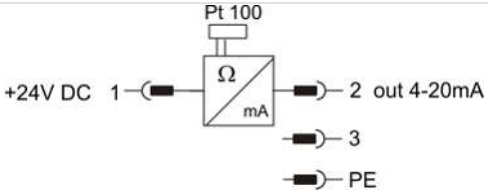
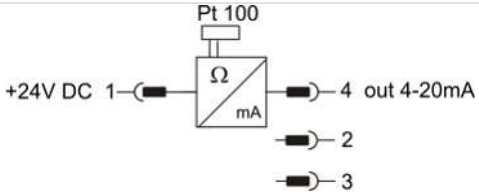


9.7 Standard Pin Assignment TF with Pt100

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	---		

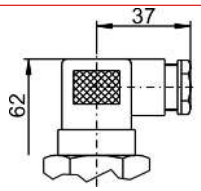
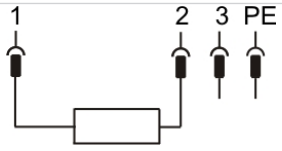
**with IP67 cable box screwed on
Other connectors available on request

9.8 Standard Pin Assignment MK2/EK2

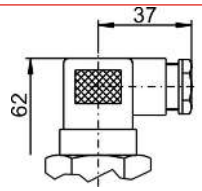
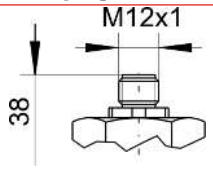
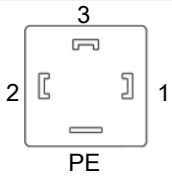
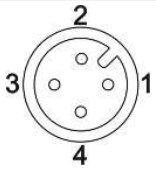
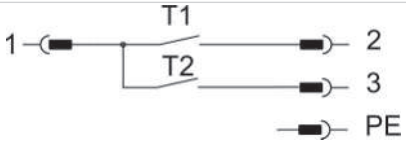
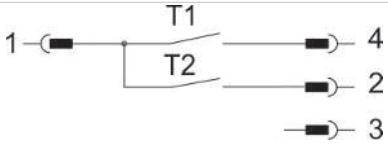
Connector:	M3 valve connector	M12 plug A coded
Dimensions:		
Number of pins:	3-pin + PE	4-pin
DIN EN:	175301-803	61076-2-101
Voltage max.	30 V DC	30 V DC
IP rating:	IP65	IP67**
Cable fitting:	PG 11	
Standard pin assignment:		

**with IP67 cable box screwed on
Other connectors available on request

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

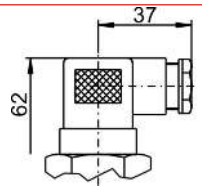
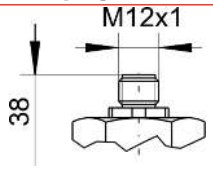
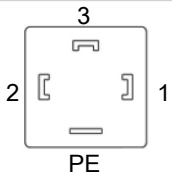
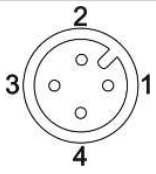
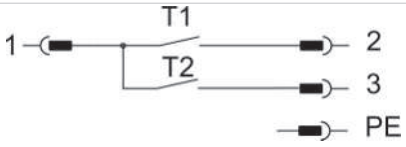
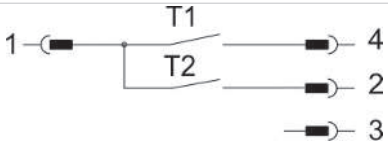
Connector:	M3 valve connector
Dimensions:	
Number of pins:	3-pin + PE
DIN EN:	175301-803
IP rating:	IP65
Cable fitting:	PG 11
Standard pin assignment:	
2 lead	

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:		

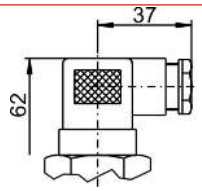
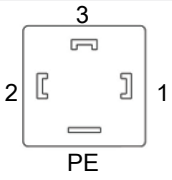
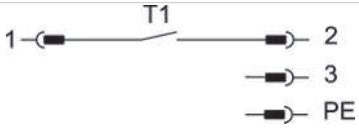
T1 = lower temperature/T2 upper temperature.
** other connectors available on request.*
*** with IP67 cable box screwed on.*

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**
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.*	

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 61010-1:2010 **EN 61326-1:2013**

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 20.04.2016

Stefan Eschweiler
Geschäftsführer – *Managing Director*

Frank Pospiech
Geschäftsführer – *Managing Director*

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

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.

Produkt / products: Temperatursensoren / *Temperature sensors*
Typ / type: TF-M und TF-M-VAL

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

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
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~~Geschäftsführer~~ – *Managing Director*

Frank Pospiech
Geschäftsführer – *Managing Director*

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RMA-Formular und Erklärung über Dekontaminierung
RMA-Form and explanation for decontamination

RMA-Nr./ RMA-No.

Die RMA-Nummer bekommen Sie von Ihrem Ansprechpartner im Vertrieb oder Service./ You may obtain the RMA number from your sales or service representative.

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

Ansprechpartner/ Person in charge

Name/ Name
Abt./ Dept.
Tel./ Phone
E-Mail

Gerät/ Device
Anzahl/ Quantity
Auftragsnr./ Order No.

Serien-Nr./ Serial No.
Artikel-Nr./ Item No.

Grund der Rücksendung/ Reason for return

- ☐ Kalibrierung/ Calibration
- ☐ Modifikation/ Modification
- ☐ Reklamation/ Claim
- ☐ Reparatur/ Repair
- ☐ 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	☐ gesundheitsgefährdend/ harmful to health	☐ gesundheitsschädlich/ health hazard	☐ umweltgefährdend/ 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 comission an external service provider to clean the goods and invoice it to your account.

Firmenstempel/ Company Sign

Datum/ Date

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

rechtsverbindliche Unterschrift/ Legally binding signature

Die Analyse defekter Baugruppen ist ein wesentlicher Bestandteil der Qualitätssicherung der Firma Bühler Technologies.

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.

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.

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.

Analysing defective assemblies is an essential part of quality assurance at Bühler Technologies.

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.

Electronic assemblies may be sensitive to static electricity. Be sure to handle these assemblies in an ESD-safe manner. Where possible, the assembles 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.

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.

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