

TDE, TDE-10M, TDE-15M, TDE-S3, TDE-S4
Temperature Sensors

The TDE, TDE-10M, TDE-15M, TDE-S3, TDE-S4 sensors are used to measure the temperature in the pipelines of heating, ventilation and air-conditioning systems.

The enclosed measuring elements can be used in existing immersion sleeves/sensor cases with an internal diameter from 6.5 mm.

The sensors are used in conjunction with all loop controllers and control systems that have a connection for the KP10 measuring element.



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Änderungen vorbehalten - Contents subject to change - Sous réserve de modifications - Reservado el derecho a modificación - Wijzigingen voorbehouden - Con riserva di modifiche - Innehåll som skall ändras - Změny vyhrazeny - Zmiany zastrzeżone - Возможны изменения - A változtatások jogát fenntartjuk - 保留未经通知而改动的权力

Important Information Regarding Product Safety

Safety Instructions

This data sheet contains information on installing and commissioning the product "TDE, TDE-10M, TDE-15M, TDE-S3, TDE-S4". Each person who carries out work on this product must have read and understood this data sheet. If you have any questions that are not resolved by this data sheet, you can obtain further information from the supplier or manufacturer.

If the product is not used in accordance with this data sheet, the protection provided will be impaired.

Applicable regulations must be observed when installing and using the device. Within the EU, these include regulations regarding occupational safety and accident prevention as well as those from the VDE (Association for Electrical, Electronic & Information Technologies). If the device is used in other countries, it is the responsibility of the system installer or operator to comply with local regulations.

Mounting, installation and commissioning work on the devices may only be carried out by qualified technicians. Qualified technicians are persons who are familiar with the described product and who can assess given tasks and recognize possible dangers due to technical training, knowledge and experience as well as knowledge of the appropriate regulations.

Legend



WARNING

Indicates a hazard of medium risk which can result in death or severe bodily injury if it is not avoided.



CAUTION

Indicates a hazard of low risk which can result in minor or medium bodily injury if it is not avoided.



CAUTION

Indicates a hazard of medium risk which can result in material damage or malfunctions if it is not avoided.



NOTE

Indicates additional information that can simplify the work with the product for you.

Notes on Disposal

For disposal, the product is considered waste from electrical and electronic equipment (electronic waste) and must not be disposed of as household waste. Special treatment for specific components may be legally binding or ecologically sensible. The local and currently applicable legislation must be observed.

Product Description**TDE, TDE-10M, TDE-15M, TDE-S3, TDE-S4****Item**

TDE	Measuring element KP10 in protective sleeve for 10 to 130 °C, IP65 around the protective sleeve, silicon connection cable
TDE-10M	Measuring element KP10 in protective sleeve for 10 to 130 °C, IP65 around the protective sleeve, silicon connection cable
TDE-15M	Measuring element KP10 in protective sleeve for 10 to 130 °C, IP65 around the protective sleeve, silicon connection cable
TDE-S3	Measuring element KP10 in protective sleeve for -20 to 130 °C, IP67 around the protective sleeve, silicon connection cable
TDE-S4	Measuring element KP10 in protective sleeve for 0 to 50 °C, IP65 around the protective sleeve, silicon connection cable

Technical Data

Measuring element	KP10, 2.731 V at 0°C, TC = 10 mV/K
Measured variable	Temperature
Measuring range	TDE, TDE-10M, TDE-15M: +10 to +130 °C TDE-S3: -20 to +130 °C TDE-S4: 0 to +50 °C
Measuring tolerance	<0.2 K
Time constant	63 s
Ambient temperature	TDE, TDE-10M, TDE-15M: +10 to +130 °C TDE-S3: -20 to +130 °C TDE-S4: 0 to +50 °C
Ambient humidity	0 to 95% r.h. non-condensing
Protective sleeve	Cu, not pressure-tight
Connection	2-wire connection, silicon connection cable TDE, TDE-S3, TDE-S4: approx. 1.5 m long TDE-10M: approx. 10 m long TDE-15M: approx. 15 m long
Degree of protection	TDE, TDE-10M, TDE-15M: IP65 around the protective sleeve TDE-S3: IP67 around the protective sleeve TDE-S4: IP65 around the protective sleeve
Weight	TDE, TDE-S3, TDE-S4: 0.06 kg TDE-10M: 0.36 kg TDE-15M: 0.51 kg

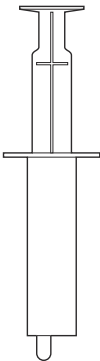
Accessories (included in delivery)

Pressure spring for thermowells with interior diameter > 7.5 mm

Accessories (not included in delivery)

A218KD

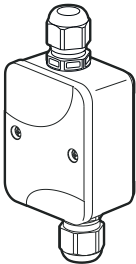
Heat-conductive paste



Z5/TD1..4
Z6/TD1..4
KTDE

Brass thermowell
Stainless steel thermowell
Connection box

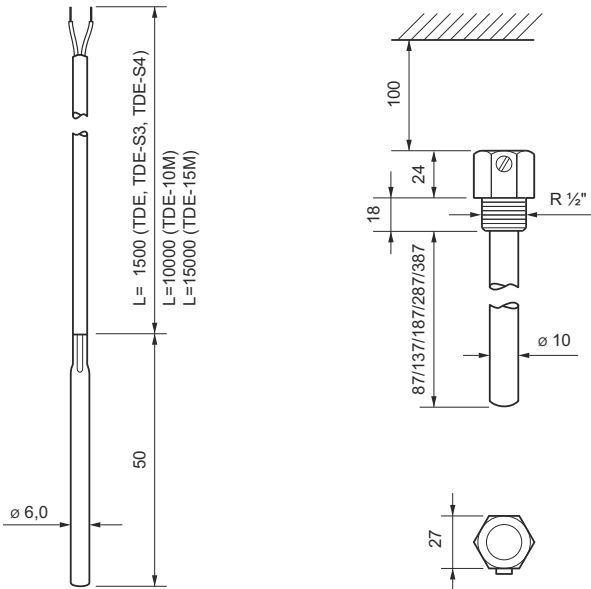
Connection thread, 1/2"
Connection thread, 1/2"

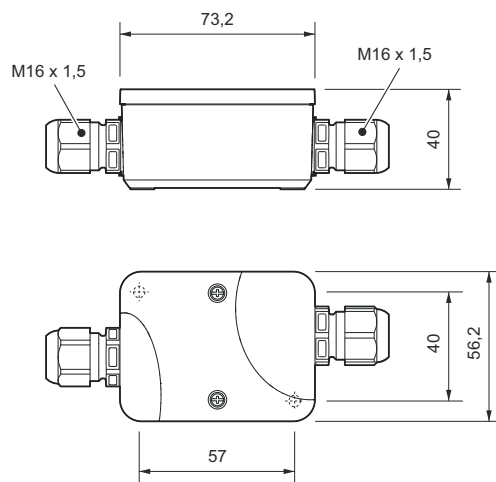
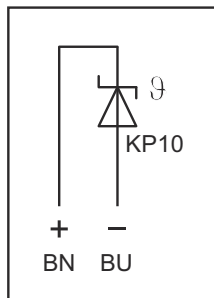


Dimensions

TDE, TDE-10M, TDE-15,
MTDE-S3, TDE-S4

Z5/TD1..4, Z6/TD1..4



Product Description**TDE, TDE-10M, TDE-15M, TDE-S3, TDE-S4****KTDE****Connection**

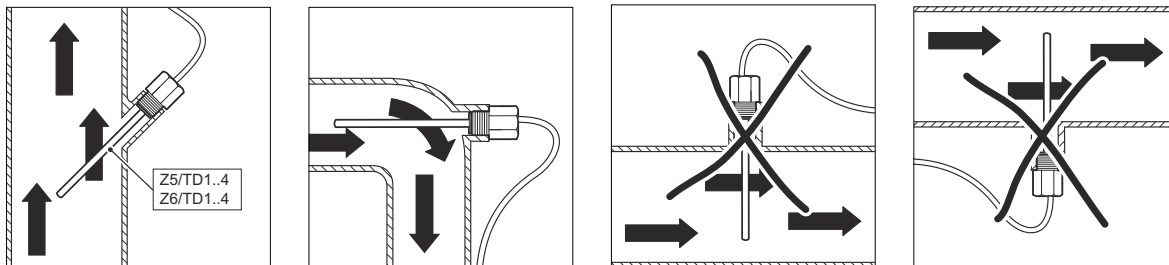
Mounting



CAUTION

Installation and removal may only be performed by qualified technicians.

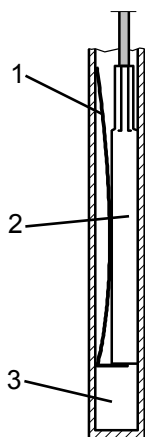
Only mount in the specified installation position.



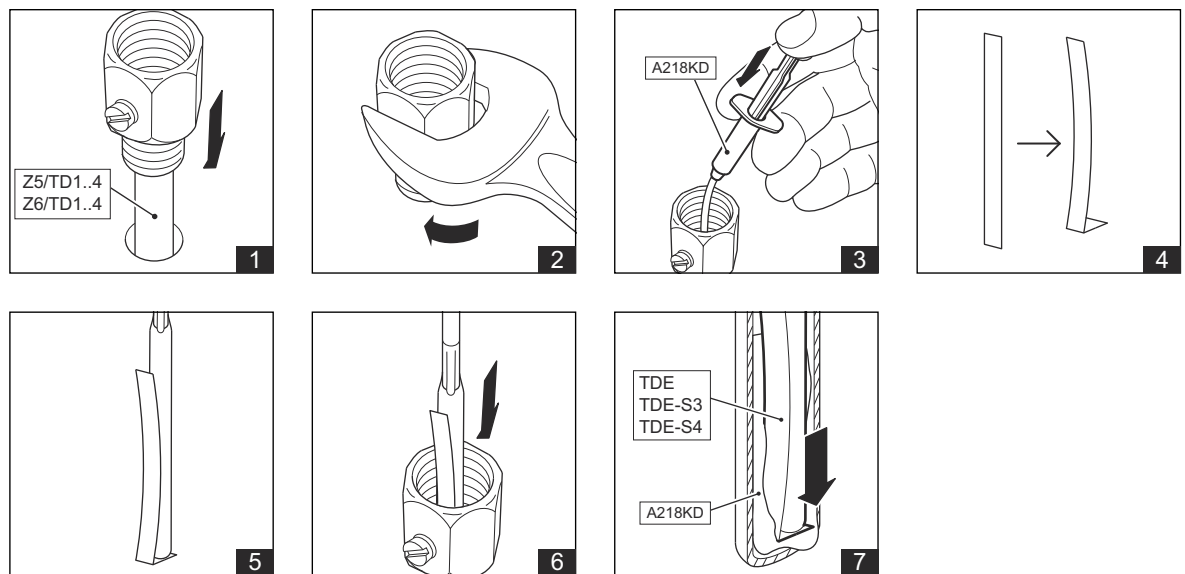
In addition to generally applicable mounting guidelines for working on pipelines, the following must be observed:

- In accordance with the installation position shown in the series of images above, the thermowell must point away from the direction of flow.
- In order to ensure accurate measurements, choose an installation location where no temperature stratifications occur. If possible, install the sensor downstream of pumps or mixture of two water flows. Ensure that there is a distance of approx. 10 x the pipe diameter between the valve and sensor.
- The temperature sensor must be pushed into the thermowell deep enough to allow for fault-free and accurate measuring of the temperature of the medium. The measuring length is approx. 14 mm measured from the bottom of the thermowell.
- For improved thermal transfer between the thermowell and the measuring element, the measuring element should be fed into the thermowell with the heat-conductive paste.
- The supplied pressure spring is to be used with thermowells with an interior diameter of > 7.5 mm so that the measuring element touches the inner wall of the thermowell (see figure).
- Be sure to leave enough space to connect the device.

For use in thermowells with interior diameter > 7.5 mm.



- 1 Pressure spring
- 2 Temperature sensor
- 3 Thermowell

Product Description**TDE, TDE-10M, TDE-15M, TDE-S3, TDE-S4**

The sensor is uninstalled in reverse order.

Installation**CAUTION**

Electrical installation and device connection may only be carried out by qualified technicians, e.g. an electrician. Ensure that this process complies with guidelines from the VDE (Association for Electrical, Electronic & Information Technologies) and local wiring regulations. The device must be connected in accordance with the applicable system wiring diagram.

**NOTE**

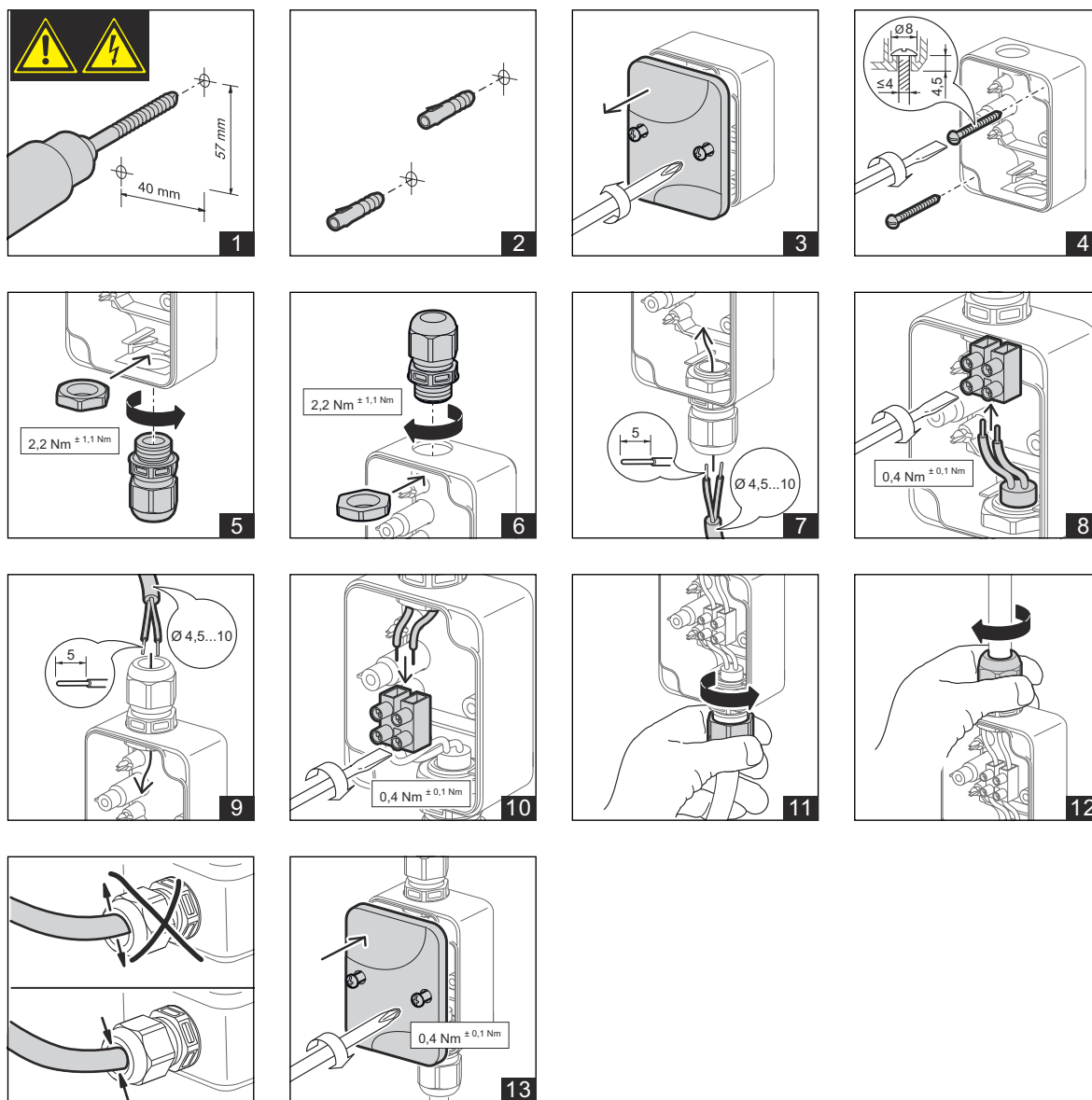
When connecting temperature sensors of type TDE, TDE-10M, TDE-15M, TDE-S3, TDE-S4 to the control system, be sure to observe the correct polarity.

Mounting of Accessory KTDE



CAUTION

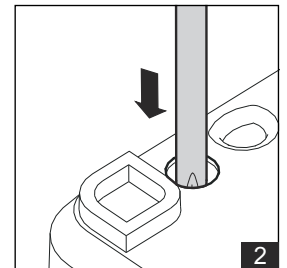
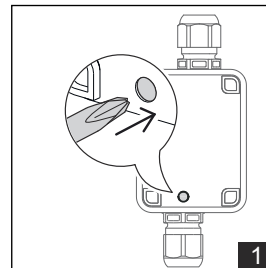
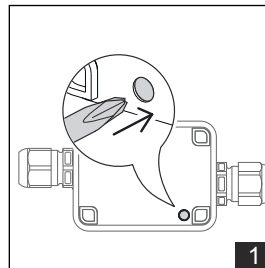
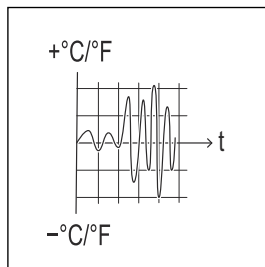
Installation and removal may only be performed by qualified technicians.



The sensor is uninstalled in reverse order.

**CAUTION**

In order to prevent temperature rises or accumulation of condensation in the connection box when the temperature in the outside environment fluctuates dramatically, press in the drainage hole on the connection box depending on the installation position as shown in the following series of images.



TDE, TDE-10M, TDE-15M, TDE-S3, TDE-S4**Product Description****Temperature/voltage table for KP10**

Temperature range +10..+130 °C for TDE, TDE-10M, TDE-15M,

temperature range -20..+130 °C for TDE-S3,

temperature range 0..+50 °C for TDE-S4

T (°C)	V (V)	T (°C)	V (V)	T (°C)	V (V)	T (°C)	V (V)	T (°C)	V (V)
-20	2.53	10	2.83	40	3.13	70	3.43	100	3.73
-19	2.54	11	2.84	41	3.14	71	3.44	101	3.74
-18	2.55	12	2.85	42	3.15	72	3.45	102	3.75
-17	2.56	13	2.86	43	3.16	73	3.46	103	3.76
-16	2.57	14	2.87	44	3.17	74	3.47	104	3.77
-15	2.58	15	2.88	45	3.18	75	3.48	105	3.78
-14	2.59	16	2.89	46	3.19	76	3.49	106	3.79
-13	2.60	17	2.90	47	3.20	77	3.50	107	3.80
-12	2.61	18	2.91	48	3.21	78	3.51	108	3.81
-11	2.62	19	2.92	49	3.22	79	3.52	109	3.82
-10	2.63	20	2.93	50	3.23	80	3.53	110	3.83
-9	2.64	21	2.94	51	3.24	81	3.54	111	3.84
-8	2.65	22	2.95	52	3.25	82	3.55	112	3.85
-7	2.66	23	2.96	53	3.26	83	3.56	113	3.86
-6	2.67	24	2.97	54	3.27	84	3.57	114	3.87
-5	2.68	25	2.98	55	3.28	85	3.58	115	3.88
-4	2.69	26	2.99	56	3.29	86	3.59	116	3.89
-3	2.70	27	3.00	57	3.30	87	3.60	117	3.90
-2	2.71	28	3.01	58	3.31	88	3.61	118	3.91
-1	2.72	29	3.02	59	3.32	89	3.62	119	3.92
0	2.73	30	3.03	60	3.33	90	3.63	120	3.93
1	2.74	31	3.04	61	3.34	91	3.64	121	3.94
2	2.75	32	3.05	62	3.35	92	3.65	122	3.95
3	2.76	33	3.06	63	3.36	93	3.66	123	3.96
4	2.77	34	3.07	64	3.37	94	3.67	124	3.97
5	2.78	35	3.08	65	3.38	95	3.68	125	3.98
6	2.79	36	3.09	66	3.39	96	3.69	126	3.99
7	2.80	37	3.10	67	3.40	97	3.70	127	4.00
8	2.81	38	3.11	68	3.41	98	3.71	128	4.01
9	2.82	39	3.12	69	3.42	99	3.72	129	4.02
10	2.83	40	3.13	70	3.43	100	3.73	130	4.03