

TDNxx Immersion Temperature Sensor

Application

The TDNxx is used to measure the temperature in pipelines such as for recording the supply temperature of HVAC systems.

The immersion temperature sensor is used in conjunction with all loop controllers and loop controller systems that have a sensor 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 "TDN1, TDN15, TDN2, TDN3, TDN4, TDN1-S6, TDN15-S6, TDN2-S6, TDN3-S6, TDN4-S6". 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.



NOTICE

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.

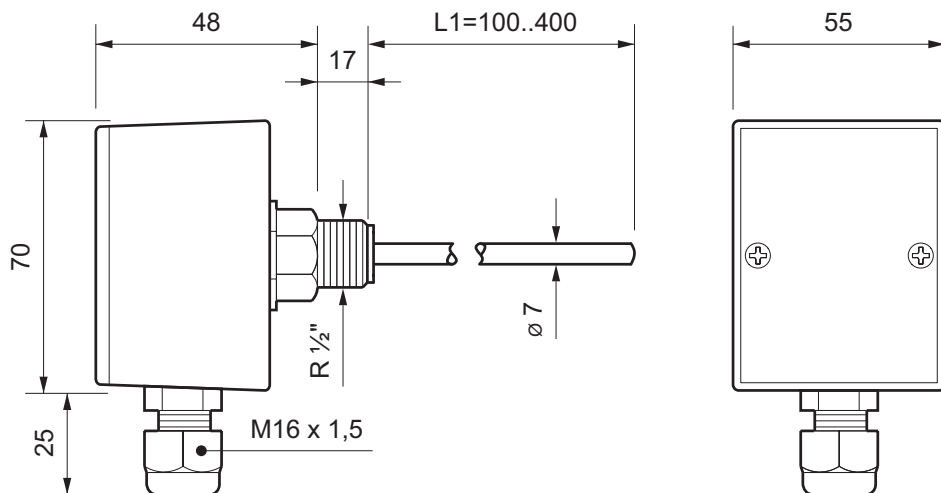
Product Description**TDNxx****Item**

TDN1	Immersion temperature sensor, stainless steel thermowell 100 mm long
TDN15	Immersion temperature sensor, stainless steel thermowell 150 mm long
TDN2	Immersion temperature sensor, stainless steel thermowell 200 mm long
TDN3	Immersion temperature sensor, stainless steel thermowell 300 mm long
TDN4	Immersion temperature sensor, stainless steel thermowell 400 mm long
TDN..-S6	Immersion temperature sensor, stainless steel thermowell 100 mm to 400 mm long, specially designed for water chillers with the risk of condensation

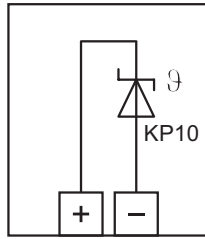
Technical Data

Function	Temperature voltage transmitter	
Measured variable	Duct temperature	
Measuring element	KP10, 2.731 V at 0 °C, TC = 10 mV/K	
Temperature range	-50 °C to +150 °C	
Measuring tolerance	Typically ±0.2 K	
Measuring range	TDN..	Minimum temperature = 0 °C/Maximum temperature = +130 °C
Ambient humidity	0 % to 95 % relative humidity, not permanently condensing	
Measuring range	TDN..-S6	Minimum temperature = -20 °C/Maximum temperature = +130 °C
Ambient humidity	0 % to 100 % r.h.	
Thermowell	Stainless steel 1.4571, PN16, Ø 7 mm, threaded connection R½"	
Length	TDN1, TDN1-S6	100 mm
	TDN15, TDN15-S6	150 mm
	TDN2, TDN2-S6	200 mm
	TDN3, TDN3-S6	300 mm
	TDN4, TDN4-S6	400 mm
Connection housing	Light gray plastic housing, cable entry M16 x 1.5	
Degree of protection	IP65	

Dimensions



Connection



Installation



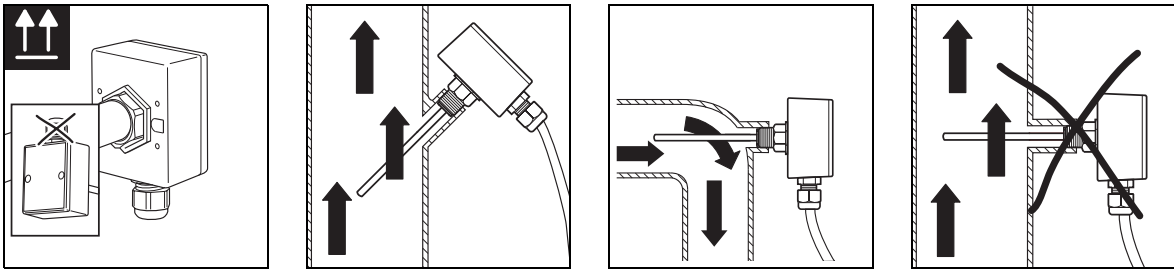
CAUTION

Mounting/demounting may only be carried out by qualified technicians when the power is switched off.

Only mount in the specified mounting position.

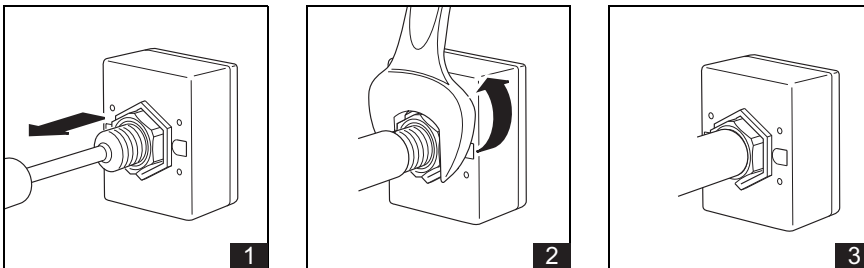
In addition to generally applicable mounting guidelines for working on pipelines, the following must be observed:

- ▶ To record measurement more quickly, the thermowell must face against the direction of flow.
- ▶ The precision of the measurements can only be guaranteed if the pipeline is free of temperature stratifications. Install downstream of pumps if possible or downstream of a mixture of two water flows with approx. 10 x the pipe diameter between valve and sensor.
- ▶ The medium must flow freely around the thermowell with the measuring element. The distance from the bottom of the thermowell is 15 mm.
- ▶ Be sure to leave enough space to connect the device.



Use a wrench (27 mm) to secure the thermowell shaft (R1½). Do not screw into the connection housing.

- ▶ In order to prevent moisture (condensate/pipe leakage) from entering the connection housing, the cable gland should point downwards. If that is not possible, make a downward-facing loop in the connection cable.

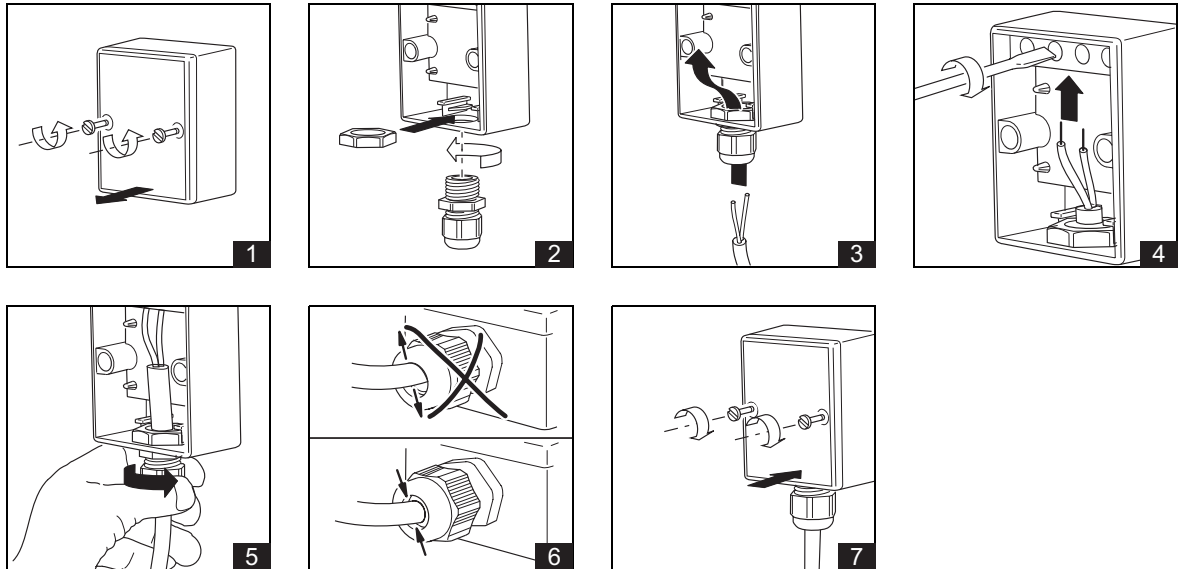


Installation



CAUTION

Electrical installation for connecting the device may only be carried out by qualified technicians. Ensure that this process complies with guidelines from the VDE (Association for Electrical, Electronic & Information Technologies) and local wiring regulations.



Temperature/voltage table for KP10, temperature range -20 °C to 130 °C

T (C)	U (V)	T (C)	U (V)	T (C)	U (V)	T (C)	U (V)	T (C)	U (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