

Device description

Immersion temperature sensor TVD

Application

The immersion temperature sensor TVD.. serves to record temperature data in pipe conduits for heating, ventilation and air conditioning systems. The immersion temperature sensor is employed in connection with all controller/closed-loop systems which have a sensor connection for the measuring system KP10.

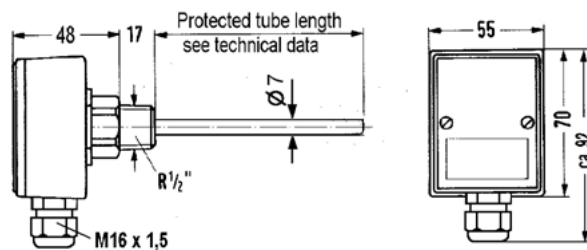
Type

TVD1	Immersion temperature sensor, Ms-protected tube 100 mm
TVD15	Immersion temperature sensor, Ms-protected tube 150 mm
TVD2	Immersion temperature sensor, Ms-protected tube 200 mm
TVD3	Immersion temperature sensor, Ms-protected tube 300 mm
TVD4	Immersion temperature sensor, Ms-protected tube 400 mm
TVD..-S6	Immersion temperature sensor, Ms-protected tube lengths as above, TV..-S6 special for cold water sets in danger of condensation Other protected tube lengths upon request

Technical data

Function	Temperature voltage source
Measured value	Feed temperature
Measuring system	KP10. 2,73 V at 0°C, TK = 10 mV/K, for temperature range -30..+150°C. TVD..-S6: Measuring system im protected tube vergossen
Limit temperatures	TVD.. Minimal: 0°C / Maximal = +130°C, Air humidity non-condensing TVD..-S6 Minimal: 0°C / Maximal: +130°C, specially for cold water sets in danger of condensation
Time constant	T = 20 s in agitated water
Protected tube	Brass, PN10. Ø 7 mm, threaded connection R1/2" Length TVD1/TVD1-S6 100 mm TVD15/TVD15-S6 150 mm TVD2/TVD2-S6 200 mm TVD3/TVD3-S6 300 mm TVD4/TVD4-S6 400 mm

Connection housing	Light gray plastic housing, cable entry M16 x 1.5
Degree of enclosure protection	IP65
Measurements	



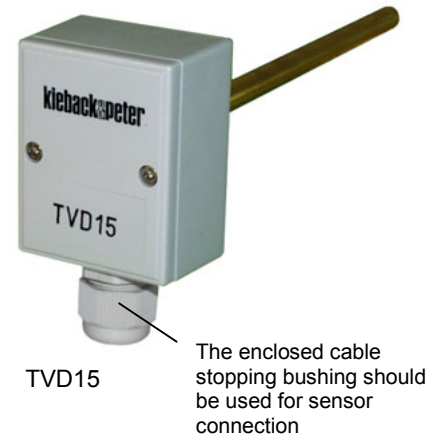
Accessories sensor cases

Brass, PN10 (max. test pressure 16 bar), Ø 10 mm, threaded connection R1/2"

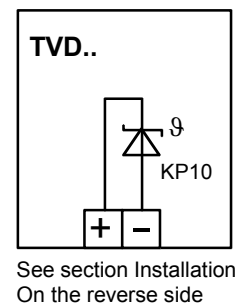
Z5/TD1	for TVD1/TVD1-S6
Z5/TD15	for TVD15/TVD15-S6
Z5/TD2	for TVD2/TVD2-S6
Z5/TD3	for TVD3/TVD3-S6
Z5/TD4	for TVD4/TVD4-S6

stainless steel 1.4571, PN16 (max. test pressure 25 bar), Ø 10 mm, threaded connection R1/2"

Z6/TD1	for TVD1/TVD1-S6
Z6/TD15	for TVD15/TVD15-S6
Z6/TD2	for TVD2/TVD2-S6
Z6/TD3	for TVD3/TVD3-S6
Z6/TD4	for TVD4/TVD4-S6



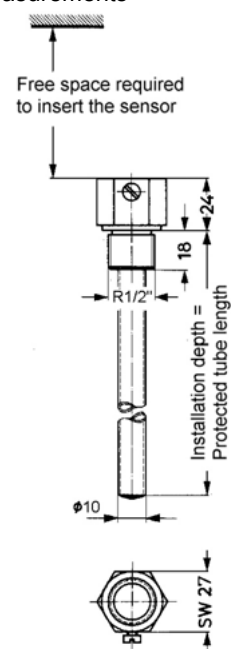
Connection



Accessories

Sensor cases Z5/TD.. and Z6/TD..

Measurements



Montage



Warning

Mounting may only be carried out by qualified personnel!

Apart from the general mounting guidelines for pipe installation, the following points should be noted:

- For more rapid data acquisition, the sensor should point against the direction of flow. A good location for installation would be a pipe bend.
- At the installation location, no temperature layers in the pipe should occur. If possible, install after pumps or after the mixing of two water streams at a distance between valve and sensor of between approx. 10 x pipe diameter.
- The protected tube with the measuring element must be awash in the medium without any hindrances. The measurement length is 15 mm from the protected tube bottom.
- The protected tube shaft (R $\frac{1}{2}$ ") sealing can be carried out with a wrench (SW27).
Warning Do not tighten at the connection housing!
If the sensor case Z5/TD.. or Z6/TD.. is employed, the sensor need only be put into the sensor case and secured with one of the fixing screws. The protected tube shaft of the sensor should in this case not be sealed!
To improve heat transfer between sensor case and the sensor protected tube, a heat conducting liquid should be filled into the sensor case. For this the sensor case should point downwards.
- To prevent humidity from entering the connection housing (condensation water/pipe leakage), the cable stopper bushing should point downward.
If this is not possible, then the connecting cable should be fitted with a loop pointing downwards.

Installation



Warning

The electrical installation of the sensor connection may only be carried out by qualified personnel.

Local regulations must be observed (Sensor connection, see page 1).

Temperature/voltage table for KP10. Temperature range 10..130°C

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