Remote reading dial thermometers, version for industry

Type 313 WH, 323 TA, 333 TE and 334 KL

Measuring system
Nitrogen filled

Accuracy (EN 13190)
Class 1

Case
Crimped-on ring, stainless steel 1.4301

Degree of protection (EN 60529)
IP65

Nominal sizes
63, 80, 100, 160 mm

Mechanical design
Thermometer with capillary line
Connection position:
Bottom, central back
Mounting flange:
With wall bracket, rear mounting flange, front mounting flange, with U bracket

Capillary
Stainless steel Ø 2 mm, with spiral anti-kink sleeves at both ends
Capillary length selectable from 1 m to 15 m

Display ranges (EN 13190)
Measuring ranges 80 to 600 K

Immersion tube
Stainless steel 1.4571
Max. static working pressure: 25 bar
Connection types: A, AK, Da, DN, SN
Immersion tube diameter: 8, 10 or 12 mm
Immersion tube length: up to max. 2.50 m

Window
Instrument glass

Pointer movement
German silver / brass

Dial
Aluminium, white with black scale markings

Pointer
Aluminium, black

Display correction (±6 %)
Externally accessible screw

Type 313 WH

Special versions

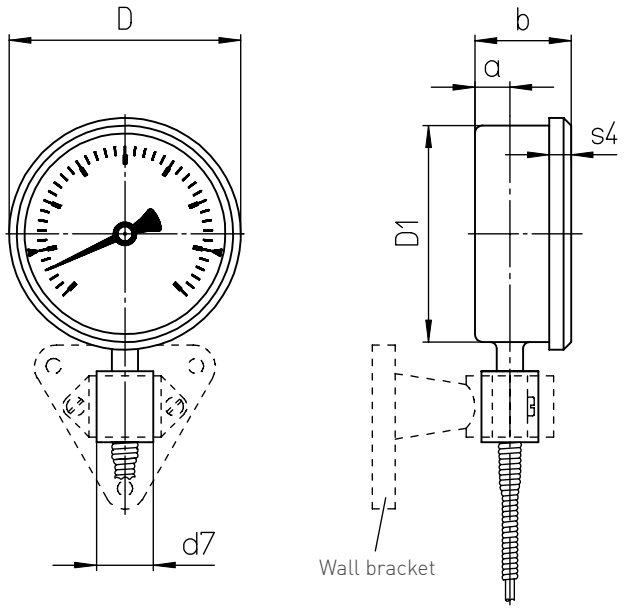
- Case filling (silicone oil)
- Other immersion tube diameters, connection types and materials available on request
- Capillary > 15 m on request
- Other scale ranges and / or special scales, e.g. dual scale °C / °F, coloured zones or ranges, dial labelling, etc.

Accessories
Mechanical: see thermometer protection tubes section

Please observe the relationship between the minimum immersion tube length and the active length (ET) and connection type.

Dimensions and weights

Type 313 WH (with wall bracket)

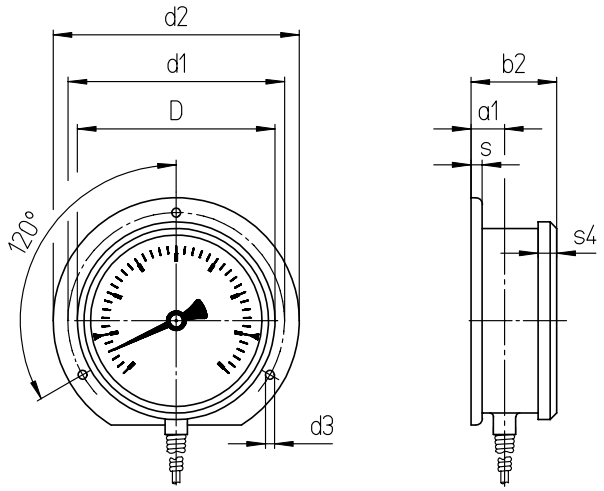


Dimensions [mm]							Weight [kg] (approx.)	
NS	a	b	D	D1	d7	s4	unfilled	filled
63	12	39	67	62	26	8	0.36	0.44
80	15	42	86	79	26	8	0.45	0.59
100	15	43	106	99	26	10	0.57	0.76
160	15	51	167	159	26	11	0.88	1.59

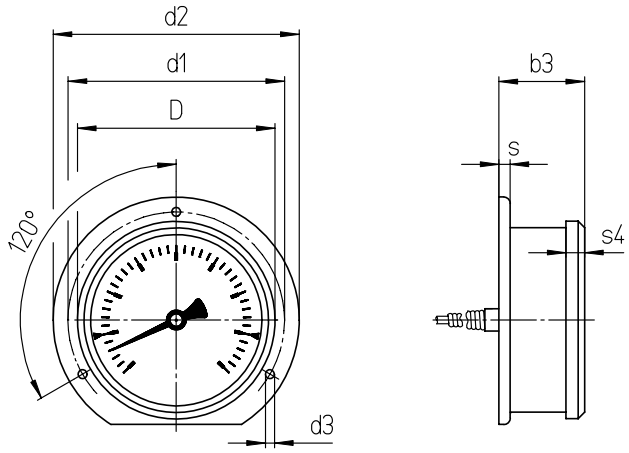
* Details concerning wall brackets can be found in the chapter „accessories".

This information is provided as an example and relates to the version with connection type A or AK, Ø 10 mm, and immersion tube length 200 mm and capillary 1 m.

Type 323 TA (rear mounting flange, capillary outlet bottom)



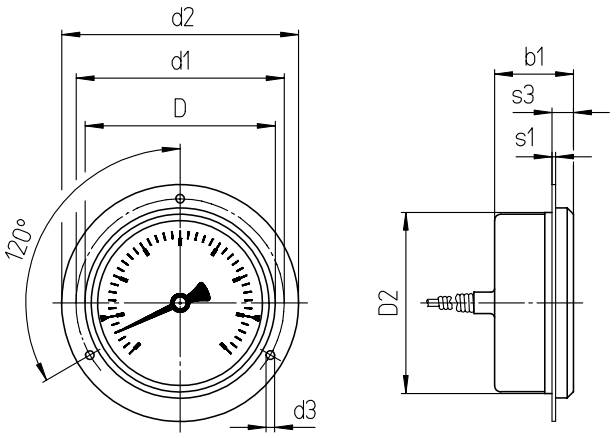
Type 323 (rear mounting flange, capillary outlet central back)*



Dimensions [mm]										Weight [kg] (approx.)	
NS	**a1**	**b2**	**b3**	**D**	**d1**	**d2**	**d3**	**s**	**s4**	**unfilled**	**filled**
63	15	42	42	67	75	85	3.6	5	8	0.36	0.44
80	18	45		86	95	110	4.8	5	8	0.45	0.59
100	18.5	46.5	46.5	106	116	132	4.8	6	10	0.57	0.76
160	18	54	54	167	178	196	5.8	6	11	0.88	1.59

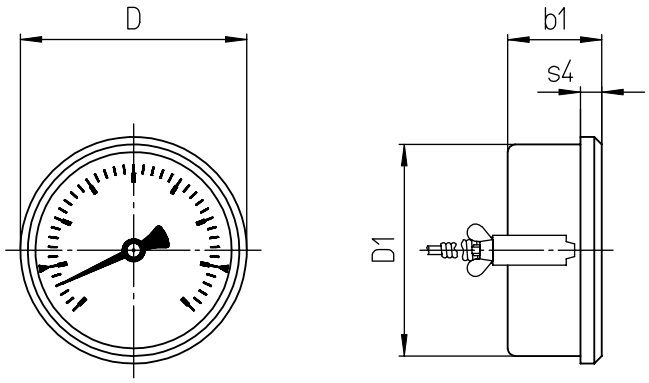
* Not available für NS 80 mm

Type 333 TE (front mounting flange, capillary outlet central back)



Dimensions [mm]									Weight [kg] (approx.)	
NS	b1	D	D2	d1	d2	d3	s1	s3	unfilled	filled
63	39	67	64	75	85	3.6	1	9	0.36	0.44
80	42	86	81	95	110	4.8	1	9	0.45	0.59
100	43	106	101	116	132	4.8	1	11.5	0.57	0.76
160	51	167		178	196	5.8			0.88	1.59

Type 334 KL (with U bracket, capillary outlet central back)



Dimensions [mm]					Weight [kg] (approx.)	
NS	b1	D	D1	s4	unfilled	filled
63	39	67	62	8	0.36	0.44
80	42	86	79	8	0.45	0.59
100	43	106	99	10	0.57	0.76
160	51	167	159	11	0.88	1.59

This information is provided as an example and relates to the version with connection type A or AK, Ø 10 mm, and immersion tube length 200 mm and capillary length 1 m.

Standard connection types

Connections and immersion tube lengths

Our precision dial thermometers are available with various connection options. The immersion tube lengths of SIKA-specific connections are based on the corresponding standardised protection tubes.

Connection type A: Plain immersion tube, general purpose.
Connection type AK: With adjustable compression fitting, for direct installation or use with protection tubes compliant with DIN 43772, Form 4, 5 and 6, or DIN 16179.
Connection type Da: Union nut, for use with protection tubes compliant with DIN 43772, Form 8 or 9, or DIN 16179 CS.

Connection type DN: Rotatable male thread with double threaded adapter, for use with protection tubes compliant with DIN 43772, Form 4, 5 and 6 or DIN 16179.
Connection type SN*: Rotatable male thread, for use with protection tubes compliant with DIN 43772, Form 4, 5 and 6 or DIN 16179.

Other connection types, immersion tubes lengths and immersion tube diameters are available on request.

Connection type AK - Dimensions [mm]

G	SW1	SW2	i	Lk
G½ B	27	22	14	42
G¾ B	32	22	16	42
½ NPT	27	22	19	42
¾ NPT	27	22	19	42
M20 x 1.5	27	22	14	42

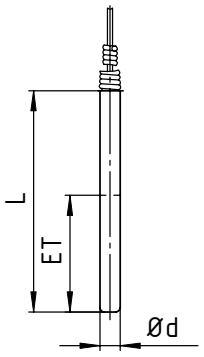
Connection type Da - Dimensions [mm]

G	SW	i
G½ B	27	10
G¾ B	32	12
M20 x 1.5	27	10
M27 x 2	32	12

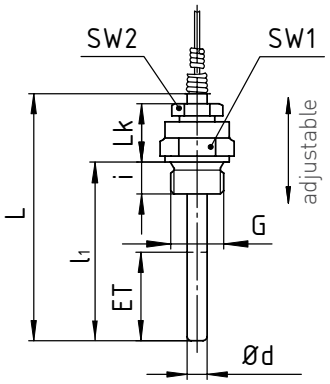
Connection type DN - Dimensions [mm]

G1	G2	SW1	SW2	i	Lv
G½ B	G½ B	27	27	14	28
G¾ B	G½ B	32	27	16	28
½ NPT	G½ B	27	27	19	28
¾ NPT	G½ B	27	27	19	28
M20 x 1.5	M20 x 1.5	27	27	14	28
M27 x 2	M20 x 1.5	32	27	16	28

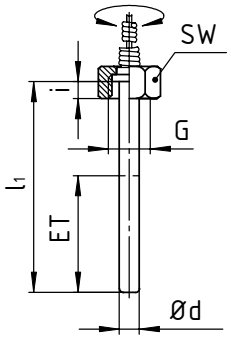
Connection type A



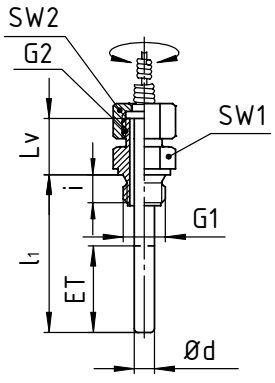
Connection type AK



Connection types Da



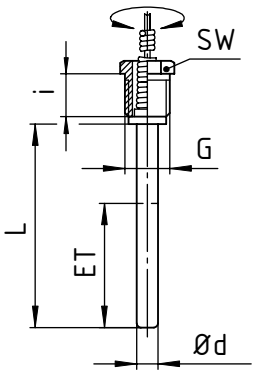
Connection type DN
Based on connection type Da, with double threaded adapter



Connection type SN* - Dimensions [mm]		
G	**SW**	**i**
G½ B	27	20
G¾ B	32	23
M20 x 1.5	27	20
M27 x 2	32	23

* * Not sealed; protection tube necessary.

Connection type SN*



Active length (ET) and minimum feasible immersion tube length

The active length ET of a precision dial thermometer must be fully immersed in the medium to be measured. It depends on the scale range and the immersion tube diameter. The active length ET and the connection type determine the minimum immersion tube length necessary for engineering purposes.

Connection type	Length	Thread	Capillary length up to 5 m Immersion tube diameter Ød						Capillary length >5 m up to 15 m Immersion tube diameter Ød					
			Up to max 0...500 °C			Over 0...500 °C			Up to max 0...500 °C			Over 0...500 °C		
			12	10	8	12	10	8	12	10	8	12	10	8
All types	ET		35	45	75	75	105	165	53	80	115	150	200	320
A	Lmin		55	65	95	95	125	185	73	100	135	170	220	340
AK	l1min	All standard threads	48	58	88	88	118	178	73	100	135	170	220	340
Da	l1min	All standard threads	55	65	95	95	125	185	73	100	135	170	220	340
DN	l1min	G½, M20 x 1.5	49	59	89	89	119	179	69	96	131	166	216	336
		G¾, M27 x 2	51	61	91	91	121	181	72	99	134	169	219	339
		½ NPT, ¾ NPT	54	64	94	94	124	184	108	135	170	205	255	375
SN*	Lmin	All standard threads	55	65	95	95	125	185	73	100	135	170	220	340

The minimum length Lmin / $l_1$min of the immersion tube is the shortest possible immersion tube length for a given active length ET (bulb) and connection type. The active length ET of the immersion tube (bulb) must be fully immersed in the substance to be measured in order to obtain measurements corresponding to the stated accuracy class.

Options

Configure a thermometer suitable for your application here

Order example		Z	313	3	2	12	275583	5	C
Thermometer type									
With wall bracket			313						
With rear mounting flange			323						
With front mounting flange			333						
With U bracket			334						
Nominal size									
63 mm	unfilled			1					
	filled			A					
80 mm	unfilled			2					
	filled			B					
100 mm	unfilled			3					
	filled			C					
160 mm	unfilled			4					
	filled			D					
Case material									
Stainless steel 1.4301					2				
Scale range									
-40...40 °C						44			
-40...60 °C						46			
-30...50 °C						35			
-20...60 °C						26			
-20...80 °C						28			
0...80 °C						08			
0...100 °C						10			
0...120 °C						12			
0...160 °C						16			
0...200 °C						20			
0...250 °C						25			
0...300 °C						30			
0...400 °C						40			
0...500 °C						50			
0...600 °C						60			
Connection type / immersion tube length									
Please see next page and insert here							xxxxxxx		
Capillary length									
Length in meter								X	
Capillary protection									
Without capillary protection (with spiral anti-kink sleeves at both ends)									B
With stainless steel spiral protection									C
With plastic protection									D

Connection types / immersion tube length

Connection types						
Connection type A, plain immersion tube Ø10 mm						
Length L [mm]	**Plain**					
108	06310B					
145	10010B					
205	16010B					
295	25010B					
445	40010B					
Connection type AK, adjustable compression fitting with immersion tube Ø10 mm						
Length l_1 [mm]	**G½**	**G¾**	**M20 x 1.5**	**½ NPT**	**¾ NPT**	
63	06392B	06393B	06397B	0639BB	0639CB	
100	10092B	10093B	10097B	1009BB	1009CB	
160	16092B	16093B	16097B	1609BB	1609CB	
250	25092B	25093B	25097B	2509BB	2509CB	
400	40092B	40093B	40097B	4009BB	4009CB	
Connection type Da, union nut with immersion tube Ø10 mm						
Length l_1 [mm]	**G½**	**G¾**	**M20 x 1.5**	**M27 x 2**		
89* / 93**	08932B	09333B	08937B	09339B		
126* / 130**	12632B	13033B	12637B	13039B		
186* / 190**	18632B	19033B	18637B	19039B		
276* / 280**	27632B	28033B	27637B	28039B		
426* / 430**	42632B	43033B	42637B	43039B		
Connection type DN, rotatable male thread with double threaded adapter and immersion tube Ø10 mm						
Length l_1 [mm]	**G½**	**G¾**	**M20 x 1.5**	**M27 x 2**	**½ NPT**	**¾ NPT**
63	06342B	06343B	06347B	0634BB	0634BB	0634CB
100	10042B	10043B	10047B	1004BB	1004BB	1004CB
160	16042B	16043B	16047B	1604BB	1604BB	1604CB
250	25042B	25043B	25047B	2504BB	2504BB	2504CB
400	40042B	40043B	40047B	4004BB	4004BB	4004CB
Connection type SN, rotatable male thread with immersion tube Ø10 mm						
Length L [mm]* **	**G½**	**G¾**	**M20 x 1.5**	**M27 x 2**		
80	08062B	08063B	08067B	08069B		
140	14062B	14063B	14067B	14069B		
230	23062B	23063B	23067B	23069B		
380	38062B	38062B	38067B	38069B		

* With G½ or M20 x 1.5 ** With G¾ or M27 x 2 *** Installation length L depends on thread

On this page mentioned lengths are subject to technical feasibility; please observe the minimum immersion tube lengths in the two-page listing of standard connection types.

Remote reading diesel engine thermometers

Type 311 WH, 321 TA, 331 KL and 332 TE

Measuring system

Nitrogen filled

Accuracy (EN 13190)

Class 1

Case

Crimped-on ring, stainless steel 1.4301
Case filling (silicone oil)

Degree of protection (EN 60529)

IP65

Nominal sizes

80, 100 mm

Mechanical design

Thermometer with capillary line
Connection position:
Bottom, central back
Mounting flange:
With wall bracket, rear mounting flange, front mounting flange, with U bracket

Capillary

Stainless steel Ø 2 mm, with spiral anti-kink sleeves at both ends
Capillary length selectable from 1 m to 15 m

Display ranges (EN 13190)

0...100 °C, 0...120 °C, 0...160 °C, 0...250 °C, 50...650 °C

Immersion tube

Stainless steel 1.4571
Max. static working pressure: 25 bar
Connection types: A, AK, Da
Immersion tube diameter: 12 mm
Immersion tube length: up to max. 400 mm

Window

Instrument glass

Pointer movement

German silver / brass

Zifferblatt

Aluminium, white with black scale markings
Aluminium, silver with black scale markings
(for scale range 50...650 °C)

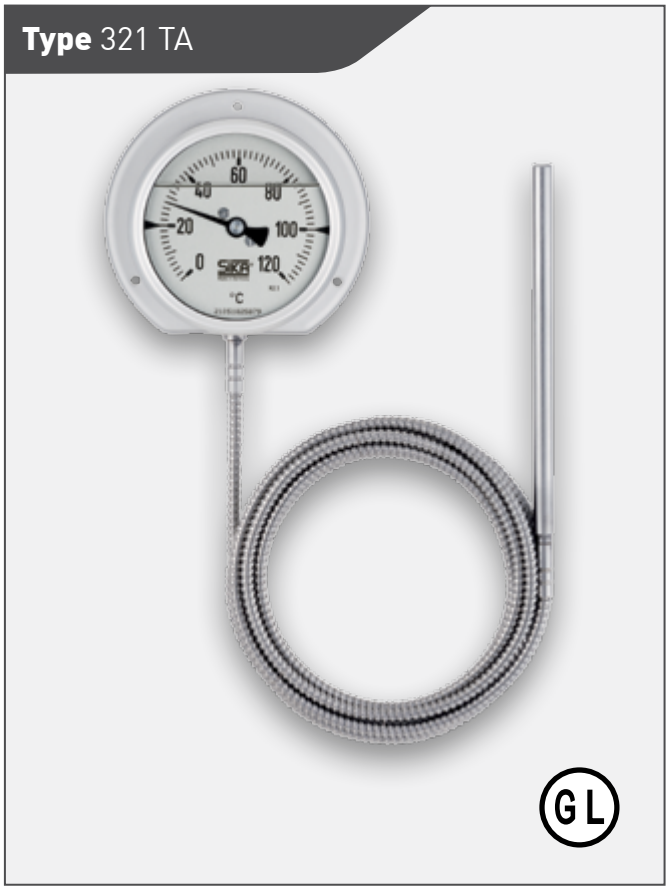
Pointer

Aluminium, black

Display correction (±6 %)

Externally accessible screw

Type 321 TA



Special versions

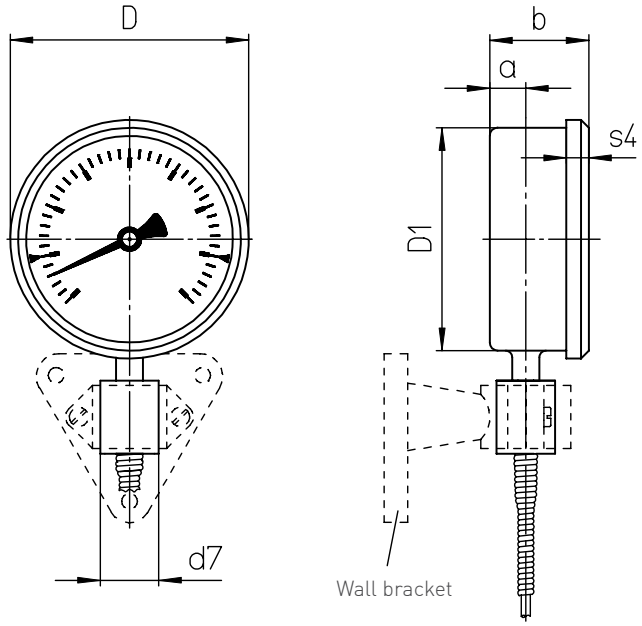
- Other immersion tube diameters and connection types on request
- Capillary > 15 m on request
- Other scale ranges and / or special scales, e.g. dual scale °C / °F, coloured zones or ranges, dial labelling, etc.

Accessories

Mechanical: see thermometer protection tubes section

Dimensions and weights

Type 311 WH (with wall bracket)

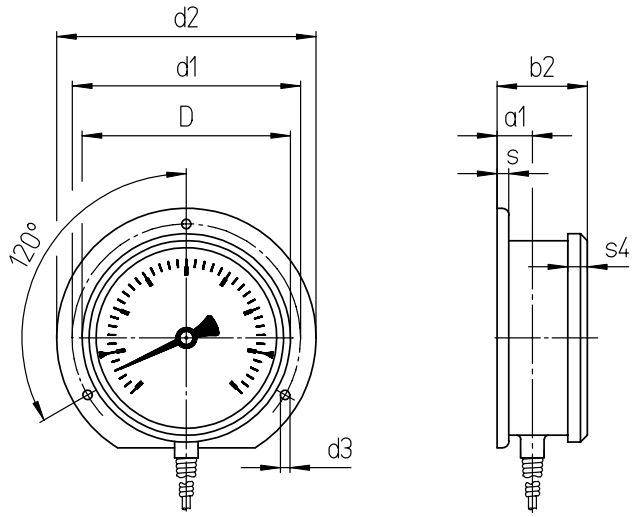


Dimensions [mm]							Weight [kg]
NS	a	b	D	D1	d7	s4	filled
80	15	42	86	79	26	8	0.60
100	15	43	106	99	26	10	0.78

* Details concerning wall brackets can be found in the chapter „accessories".

This information is provided as an example and relates to the version with connection type A, Ø 10 mm, and immersion tube length 200 mm and capillary 1 m.

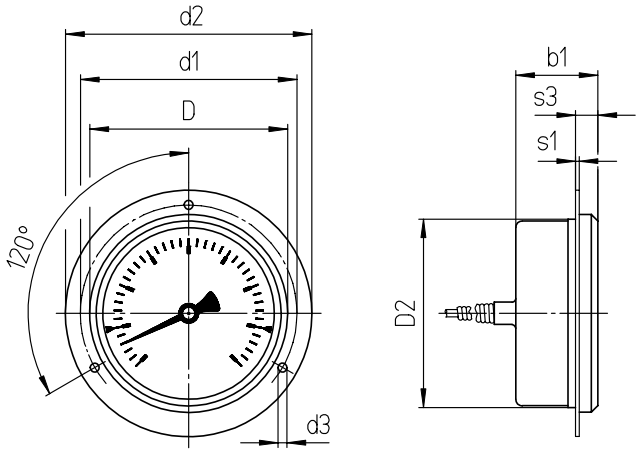
Type 321 TA (rear mounting flange, capillary outlet bottom)



Dimensions [mm]									Weight [kg]
NS	a1	b2	D	d1	d2	d3	s	s4	filled
80	18	45	86	95	110	4.8	5	8	0.60
100	18.5	46.5	106	116	132	4.8	6	10	0.78

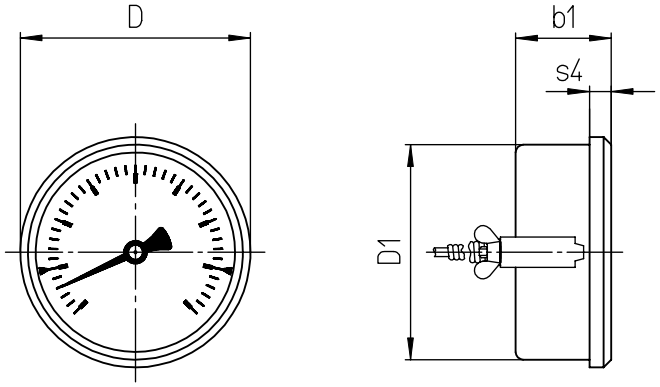
This information is provided as an example and relates to the version with connection type A, Ø 10 mm, and immersion tube length 200 mm and capillary 1 m.

Type 332 TE (front mounting flange, capillary outlet central back)



Dimensions [mm]									Weight [kg]
NS	b1	D	D2	d1	d2	d3	s1	s3	filled
80	42	86	81	95	110	4.8	1	9	0.60
100	43	106	101	116	132	4.8	1	11.5	0.78

Type 331 KL (with U bracket, capillary outlet central back)



Dimensions [mm]					Weight [kg]
NG	b1	D	D1	s4	filled
80	42	86	79	8	0.60
100	43	106	99	10	0.78

This information is provided as an example and relates to the version with connection type A, Ø 10 mm, and immersion tube length 200 mm and capillary length 1 m.

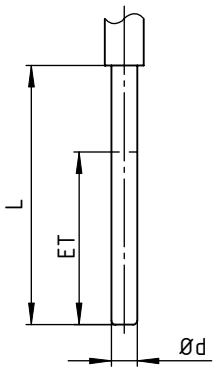
Standard connection types

Connections and immersion tube lengths

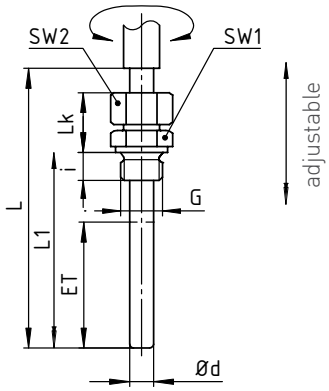
Connection type A: Plain immersion tube, general purpose.
Connection type AK: With adjustable compression fitting, for direct installation or use with protection tubes.

Connection type AK [mm]				
G	**SW1**	**SW2**	**i**	**Lk**
G½ B	27	22	14	42
G¾ B	32	22	16	42
½ NPT	27	22	19	42
¾ NPT	27	22	19	42
M20 x 1.5	27	22	14	42

Connection type A



Connection type AK



Other connection types, immersion tubes lengths and immersion tube diameters are available on request.

The minimum length Lmin / $l_1$min of the immersion tube is the shortest possible immersion tube length for a given active length ET (bulb) and connection type. The active length ET of the immersion tube (bulb) must be fully immersed in the substance to be measured in order to obtain measurements corresponding to the stated accuracy class.

Active length (ET) and minimum feasible immersion tube length

The active length ET of a precision dial thermometer must be fully immersed in the medium to be measured. It depends on the scale range and the immersion tube diameter. The active length ET and the connection type determine the minimum immersion tube length necessary for engineering purposes.

	Capillary length < 5 m		Capillary length > 5 m	
Connection type	**Length**		**Length**	
	ET	**Lmin**	**ET**	**Lmin**
A	80	150	120	175
AK	80	150	120	175

Options

Configure a thermometer suitable for your application here

Order example	Z	311	B2	10	135	1	0	1	0	10
Type										
311 WH		311								
321 TA		321								
331 KL		331								
332 TE		332								
Nominal size										
80 mm			B2							
100 mm			C2							
Scale range										
0...100 °C				10						
0...120 °C				12						
0...160 °C				16						
0...250 °C				25						
50...650 °C				56						
Immersion tube length l_1 and L										
Immersion tube length l_1	**Immersion tube length L**									
135 mm	180 mm				135					
160 mm	205 mm				160					
200 mm	245 mm				200					
250 mm	295 mm				250					
300 mm	345 mm				300					
400 mm	445 mm				400					
Connection type										
Connection type A, plain immersion tube						1				
Connection type AK, adjustable compression fitting						9				
Connection thread										
Without - plain immersion tube							0			
G½							2			
G¾							3			
½ NPT							B			
¾ NPT							C			
M20 x 1.5							7			
Immersion tube diameter										
Ø 12 mm								2		
Capillary length										
1 m									1	
2 m									3	
5 m									5	
Length in meter									X	
Capillary material, protection										
Stainless steel, stainless steel spiral protection										C

* Double scale °C and °F available on request.