

With rigid temperature sensor

## Application

The battery-operated digital thermometer models LILLY<sub>plus</sub> consist of an easy-to-read LC display and a platinum resistance thermometer built into a robust thermometer standard case made of stainless steel. They can be manufactured with the same construction types (according to DIN EN 13 190) as mechanical thermometers. They can be applied as an alternative to mechanical thermometers when these reach their limits due to difficult installation conditions, vibrations or accuracy requirements. Due to their high accuracy, the instruments of the LILLY<sub>plus</sub> series are also suitable as an alternative for mercury-in-glass thermometers.

## Standard Versions

### Measuring Element

Platinum measuring resistor Pt1000 according to DIN EN 60 751 in 4-wire connection

### Measuring Ranges

-50.0 / +250.0 °C  
-99.9 / +500.0 °C  
Resolution 0.1 K

### Unit

Switchable °C/°F

### Ambient Temperature Ranges

Operation and storage: -20 °C to +70 °C

### Accuracy

±0.1 % FS ±1 digit

### Measuring Rate

Adjustable from 1 s to 30 s

### Display

LC display  
Digit height 25 mm (0.98")

### Battery

AA, 2600 mAh (Li-SoCl<sub>2</sub>), 3.6 V  
included in the scope of delivery, replaceable by the customer  
battery life > 1 year, depending on application

### Error Monitoring

Battery voltage, sensor short circuit, sensor break

### Temperature Sensor (Stem)

Material: stainless steel 316Ti (1.4571)  
Max. static operating pressure: 25 bar  
Stem models: E1, E3, E4, E4.1, E5 or E6  
Stem Ø dF: 6, 8 or 10 mm (0.24, 0.31 or 0.39")  
Stem length L: max. 2.50 m (8.2')

### Case

With bayonet ring polished, stainless steel 1.4301, with pressure equalising element

### Nominal Case Size

100 mm (4")

### Degree of Protection (DIN EN 60 529)

IP65



### Window

Aluminum with PE membrane keypad

### Case Configuration

Connection to temperature sensor:

- rigid mount with neck tube

Stem position:

- vertical bottom position
- angular bottom position (**w**, **wst**, **wl**, **wr**)
- centre back position (**rm**)

Mounting device:

- without
- back flange for surface mounting for
- centre back connection (**rmRh**)

## Ordering Information

See page 4

## Special Versions and Further Options

- Other stem models, e.g. with connection for food/bio/ pharmaceutical industries
- Turnable and adjustable version with pivot (every angle) available upon request
- Contact stem for temperature measurement at the outside of tanks and pipe barrels
- Other stem Ø, connection threads and materials upon request
- Case parts stainless steel 316L (1.4404) upon request
- Position of the connection radial at 3 o'clock, 9 o'clock, 12 o'clock, others upon request

## Accessories

- Thermowells, see data sheet 8.8110 ff.
- Compression fittings

# Stem Position, Code Letters, Dimensional Data and Weight

## Vertical Bottom Stem Position

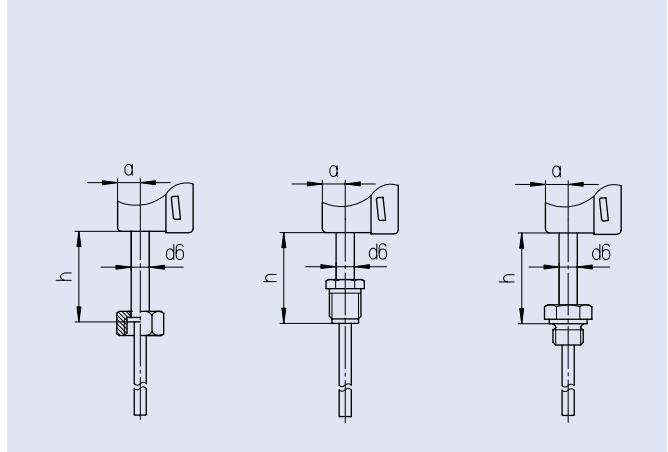
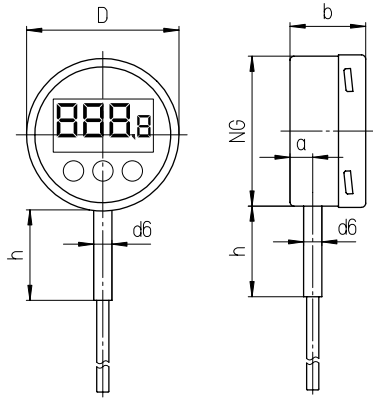
Stem model E1 (also E5)

Stem model E3 (also E6)

Stem model E4

Stem model E4.1

without code letters



## Angular Bottom Stem Position

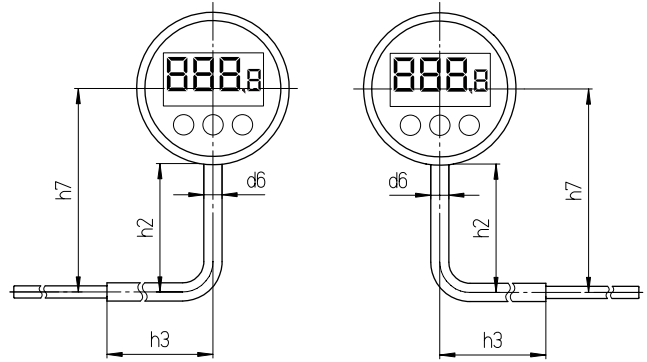
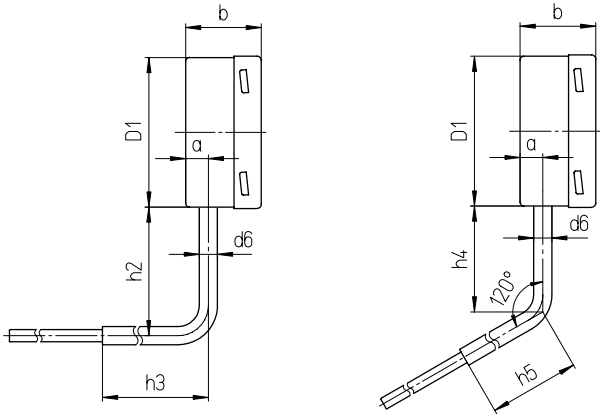
with angle:

right-angled to the back  
code letter **w**

obtuse-angled to the back  
code letters **wst**

lateral to the left  
code letters **wl**

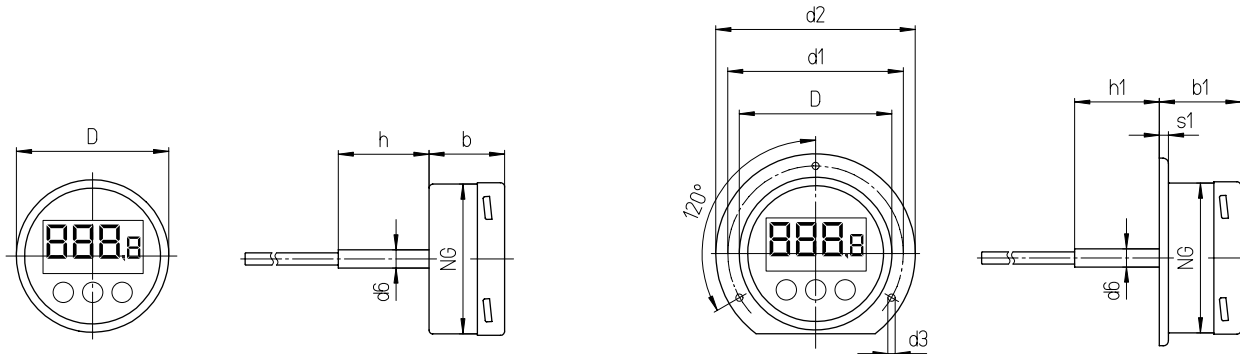
lateral to the right  
code letters **wr**



## Centre Back Stem Position

code letters **rm**

back flange for surface mounting  
code letters **rmRh**



## Dimensional Data (mm/inch) and Weight (kg/lb)

NCS	a	b	b1	b3	D	D1	d1	d2	d3	d6	h	h1	h2	h3	h4	h5	s	approx. weight <sup>1)</sup>
100	15	50	50	53.5	101	99	116	132	4.8	12	60	56.5	85	120	70	120	6	0.46
4"	0.59	1.97	1.97	2.11	3.98	3.9	4.57	5.2	0.19	0.47	2.36	2.22	3.35	4.72	2.76	4.72	0.24	1.01

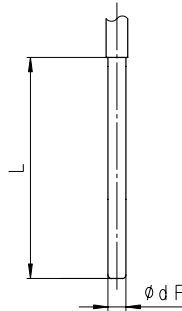
<sup>1)</sup> The data shall be deemed as example and apply to the version with stem E1, Ø 8 mm (0.31"), length 100 mm (4").

# Process Connections

## Process Connection

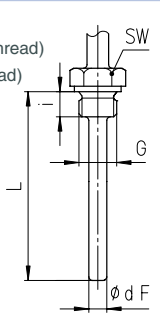
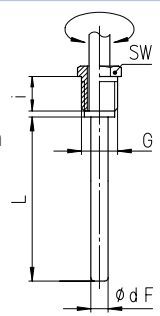
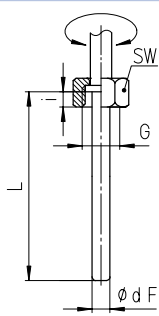
### without screw fitting, plain stem

**Stem model:** E1  
**Form acc. to DIN EN 13 190:** form 1  
**Stem material:** 1.4571  
**Stem Ø dF:** 6, 8, 10 mm  
**Order length:** L  
**Suitable thermowell models:** SK1 (8.8140)  
 (data sheet) SK2 (8.8141)



	union nut	male thread, turnable	male thread, rigid
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<b>Stem model:</b> E3 <b>Form acc. to DIN EN 13 190:</b> form 5  <b>Stem material:</b> 1.4571 <b>Stem Ø dF:</b> 6, 8, 10 mm <b>Screw fitting material:</b> 1.4571 <b>Order length:</b> L	<b>E4</b> form 4  1.4571 6, 8, 10 mm 1.4571 L	<b>E4.1</b> form 6 (cylindrical thread) form 7 (conical thread)  1.4571 6, 8, 10 mm 1.4571 L	
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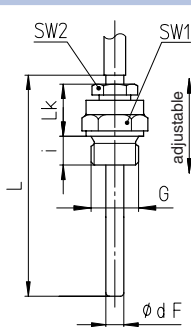
**Suitable thermowell models:** (data sheet)  
 SF4.1 (8.8111), SF4.1F (8.8113) SF8 (8.8130), SF9 (8.8131)      SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)      SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)

**Thread (dimensional data in mm/inch):**

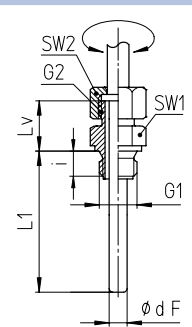
G	SW	i	G	SW	i	G	SW	i
G 1/2"	27	10	G 1/2 B	22	20	G 1/2 B	27	14
1/2" BSP	1.06	0.39	1/2" BSP	0.87	0.79	1/2" BSP	1.06	0.55
G 3/4"	32	12	G 3/4 B	27	23	G 3/4 B	32	16
3/4" BSP	1.26	0.47	3/4" BSP	1.06	0.91	3/4" BSP	1.26	0.63
M20x1.5	27	10	M18x1.5	22	14	1/2" NPT	27	19
	1.06	0.39		0.87	0.55	1/2" NPT	1.06	0.75
M24x1.5	32	12	M20x1.5	22	20	3/4" NPT	27	19
	1.26	0.47		0.87	0.79	3/4" NPT	1.06	0.75
M27x2	32	12	<b>Thermowell required!</b>			M18x1.5	24	14
	1.26	0.47				0.94	0.55	
						M20x1.5	27	14
							1.06	0.55

male thread/compression fitting	male thread, turnable/double male adapter
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**Stem model:** E5  
 (E1 with compression fitting)  
**Form acc. to DIN EN 13 190:** form 2 (cylindrical thread)  
 form 3 (conical thread)  
**Stem material:** 1.4571  
**Stem Ø dF:** 6, 8, 10 mm  
**Screw fitting material:** 1.4571  
**Order length:** L



**E6**  
 (E3 with double male adapter)  
 —  
 1.4571  
 6, 8, 10 mm  
 1.4571  
 L1



**Suitable thermowell models:** (data sheet)  
 SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)      SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)

**Thread (dimensional data in mm/inch):**

G	SW1	SW2	i	Lk	G1	G2	SW1	SW2	i	Lv
G 1/2 B	27	22	14	42	G 1/2 B	G 1/2 B	27	27	14	28
1/2" BSP	1.06	0.87	0.55	1.65	1/2" BSP	1/2" BSP	1.06	1.06	0.55	1.1
G 3/4 B	32	22	16	42	G 3/4 B	G 3/4 B	32	27	16	28
3/4" BSP	1.26	0.87	0.63	1.65	3/4" BSP	1/2" BSP	1.26	1.06	0.63	1.1
1/2" NPT	27	22	19	42	1/2" NPT	G 1/2 B	27	27	19	28
	1.06	0.87	0.75	1.65	1/2" NPT	1/2" BSP	1.06	1.06	0.75	1.1
3/4" NPT	27	22	19	42	3/4" NPT	G 1/2 B	27	27	19	28
	1.06	0.87	0.75	1.65	3/4" NPT	1/2" BSP	1.06	1.06	0.75	1.1
M20x1.5	27	22	14	42	M20x1.5	M20x1.5	27	27	14	28
	1.06	0.87	0.55	1.65			1.06	1.06	0.55	1.1
					M24x1.5	M20x1.5	32	27	14	28
							1.26	1.06	0.55	1.1
					M27x2	M20x1.5	32	27	16	28
							1.26	1.06	0.63	1.1

## Ordering Information

Basic Model:		Digital Thermometer Model LILLYplus	TDPSch
Nominal case size:	case Ø 100 mm (4")		100
Stem position/ case configuration:	vertical bottom position	without mounting device	without code letters
	angular bottom position	right-angled to the back	w
		obtuse angled to the back	wst
		angle lateral to the left	wl
		angle lateral to the right	wr
	centre back position	without mounting device	rm
	back flange for surface mounting	rmRh	
Temperature ranges:	-50.0 / +250.0 °C		NT
	-99.9 / +500.0 °C		HT
Process connection:	without screw fitting, plain stem		E1
	union nut		E3
	male thread, turnable		E4
	male thread, rigid		E4.1
	male thread/compression fitting		E5
	male thread, turnable/double male adapter		E6
Stem Ø dF:	6 mm (0.24")		dF = 6 mm
	8 mm (0.31")		dF = 8 mm
	10 mm (0.39")		dF = 10 mm
Stem length:	L or L1 in mm	e.g.	L = 100 mm
Connection thread:	see page 3	e.g.	G½B
Options:	case polished		
	instrument tag	stainless steel plate 12 x 55 mm (0.47 x 2.17")	
		sticker on the case	

**Example:** TDPSch 100, NT, E4.1, dF = 6 mm, L = 100 mm, G½B

**Special Versions:** Please describe your requirements in cleartext!