

Digital Thermometer Model LILLY

with rigid stem



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Application

Battery-operated digital thermometer model LILLY with precise platinum temperature sensor for local temperature indication. Instrument models LILLY 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 if these reach their limits due to difficult installation conditions, vibrations or accuracy requirements.

Standard Versions

Measuring Element

Platinum measuring resistor Pt1000 class B according to DIN EN 60 751

Measuring Ranges

TDSch 63		TDSch 100	
measuring range	resolution	measuring range	resolution
-50.0 / +199.9 °C	0.1 K	-50.0 / +250.0 °C	0.1 K
-50 / +550 °C	1 K	-99.9 / +550.0 °C	0.1 K

Ambient Temperature Ranges

Operation: -10 °C to +60 °C
Storage: -20 °C to +70 °C

Accuracy

Display: ± 0.3 % FS ± 1 digit
Sensor: class B according to DIN EN 60 751 (± 0.3 K at 0 °C)

Measuring Rate

15 s

Display	TDSch 63	TDSch 100
	LC display	LC display
Digits	3.5	4
Digit height	10 mm (0.39")	18 mm (0.71")

Battery	TDSch 63	TDSch 100
Lithium battery	1/2 AA, 1200 mAh	AA, 2600 mAh
(Li-SOCl ₂) 3.6 V		

included in the scope of delivery, replaceable by the customer
battery life approx. 5–7 years, depending on application

Error Monitoring

Battery voltage, sensor break, sensor short circuit

Error codes:

ERR1/LOBAT = battery voltage low

ERR2 = sensor short circuit or fallen below lower limit

ERR3 = sensor break or upper limit exceeded

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 (98.43")

Case

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



Nominal Case Sizes

63, 100 mm (2 1/2, 4")

Degree of Protection (DIN EN 60 529)

IP 65

Window

Instrument glass

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**), (only TDSch 100)
- lower back position (**r**), (only TDSch 63)

Mounting device:

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

Special Versions and Further Options

- Other stem models, e.g. with connection for food/bio/pharmaceutical industries
- 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
- Rugged version (IP 68) completely cast with polyurethane (only TDSch 100)

Ordering Information

See page 4

Accessory

Thermowells, see data sheets 8.8110 ff.

Stem Position, Code Letters, Dimensional Data and Weights

Vertical Bottom Stem Position

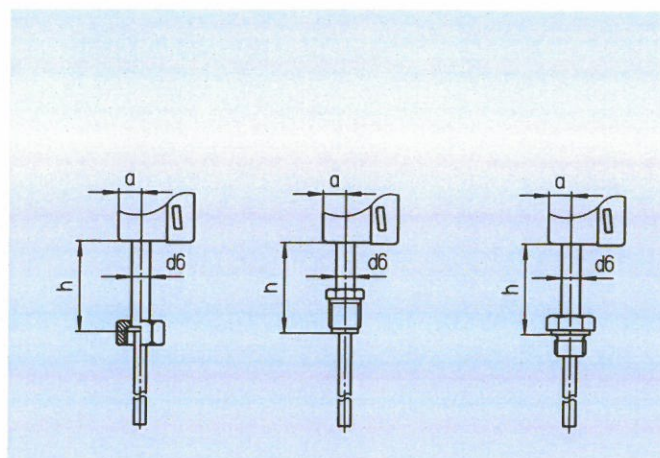
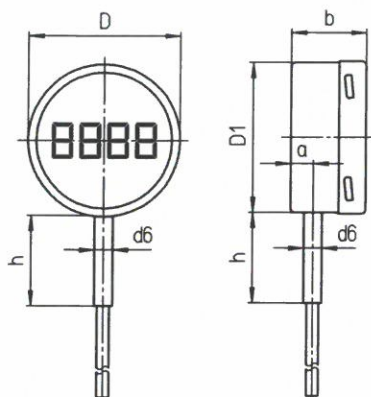
Stem model E1 (also E5)

Stem model E3 (also E6)

Stem model E4

Stem model E4.1

without additional code letter



Angular Bottom Stem Position

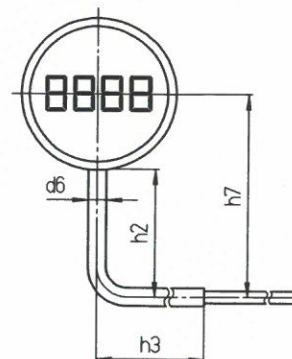
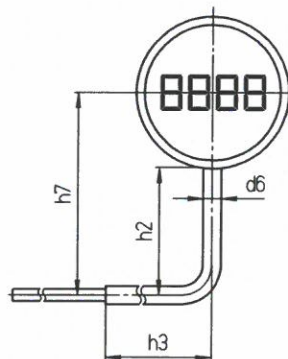
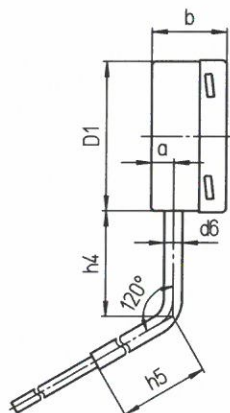
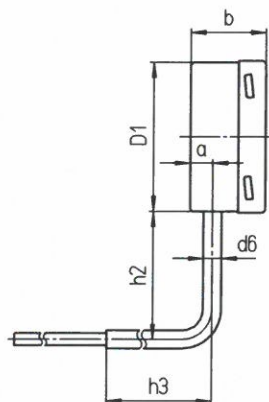
with angle:

right-angled to the back,
code letters **w**

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

lateral to the left,
code letters **wl**

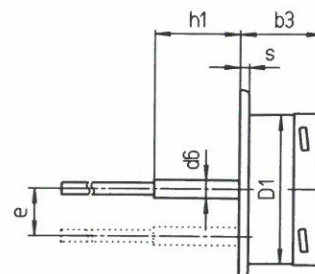
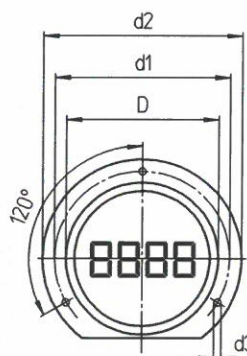
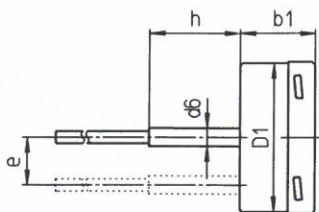
lateral to the right,
code letters **wr**



(Centre) Back Stem Position¹⁾

code letters **r(m)**

with back flange for surface mounting
code letters **r(m)Rh**



Dimensional Data (mm/inches) and Weights (kg/lb)

NCS	a	b	b1	b3	D	D1	d1	d2	d3	d6	e	h	h1	h2	h3	h4	h5	s	approx. weight ²⁾
63	12	39	39	42	64	62	75	85	3.6	12	18	60	57	85	120	70	120	5	0.24
2 1/2"	0.47	1.54	1.54	1.65	2.52	2.44	2.95	3.35	0.14	0.47	0.71	2.36	2.24	3.35	4.72	2.76	4.72	0.2	0.53
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

¹⁾ For nominal case size 100 (4"), the stem position is executed as centre back position (rm) and for nominal case size 63 (2 1/2") as lower back position (r).

²⁾ The data shall be deemed as example and apply to the version with stem E1, Ø 8 mm (0.31"), length 100 mm (4").

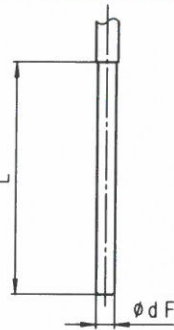
Stem Models

Stem Models

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)
 SK2 (8.8141)
 (data sheet)



Process connection:

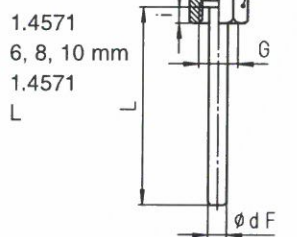
union nut

male thread, turnable

male thread, rigid

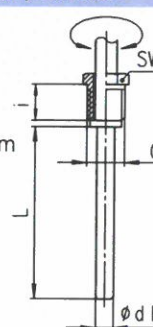
Stem model: E3
Form acc. to DIN EN 13 190: form 5

Stem material: 1.4571
Stem Ø dF: 6, 8, 10 mm
Screw fitting material: 1.4571
Order length: L

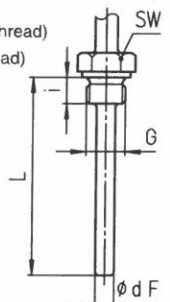


E4
form 4

1.4571
 6, 8, 10 mm
 1.4571
 L



E4.1
 form 6 (cylindrical thread)
 form 7 (conical thread)
 1.4571
 6, 8, 10 mm
 1.4571
 L



Suitable thermowell models: SF4.1 (8.8111), SF4.1F (8.8113)
 SF8 (8.8130), SF9 (8.8131)
 (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	SW	i
G 1/2	27	10
1/2" BSP	1.06	0.39
G 3/4	32	12
3/4" BSP	1.26	0.47
M 20x1.5	27	10
	1.06	0.39
M 24x1.5	32	12
	1.26	0.47
M 27x2	32	12
	1.26	0.47

G	SW	i
G 1/2 B	22	20
1/2" BSP	0.87	0.79
G 3/4 B	27	23
3/4" BSP	1.06	0.91
M 18x1.5	22	14
	0.87	0.55
M 20x1.5	22	20
	0.87	0.79

Thermowell required!

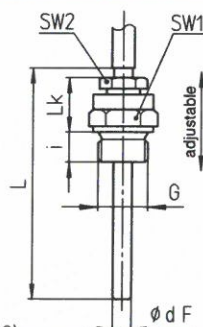
G	SW	i
G 1/2 B	27	14
1/2" BSP	1.06	0.55
G 3/4 B	32	16
3/4" BSP	1.26	0.63
1/2" NPT	27	19
	1.06	0.75
3/4" NPT	27	19
	1.06	0.75
M 18x1.5	24	14
	0.94	0.55
M 20x1.5	27	14
	1.06	0.55

Process connection:

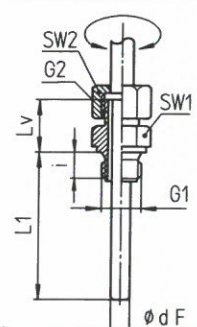
male thread/compression fitting

male thread, turnable/double male adapter

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: SF4 (8.8110), SF4F (8.8112)
 SF5 (8.8120), SF6, SF7 (8.8121)
 (data sheet)

SF4 (8.8110), SF4F (8.8112)
 SF5 (8.8120), SF6, SF7 (8.8121)

Thread
 (dimensional data in mm/inch):

G	SW1	SW2	i	Lk
G 1/2 B	27	22	14	42
1/2" BSP	1.06	0.87	0.55	1.65
G 3/4 B	32	22	16	42
3/4" BSP	1.26	0.87	0.63	1.65
1/2" NPT	27	22	19	42
	1.06	0.87	0.75	1.65
3/4" NPT	27	22	19	42
	1.06	0.87	0.75	1.65
M 20x1.5	27	22	14	42
	1.06	0.87	0.55	1.65

G1	G2	SW1	SW2	i	Lv
G 1/2 B	G 1/2 B	27	27	14	28
1/2" BSP	1/2" BSP	1.06	1.06	0.55	1.1
G 3/4 B	G 3/4 B	32	27	16	28
3/4" BSP	1/2" BSP	1.26	1.06	0.63	1.1
1/2" NPT	G 1/2 B	27	27	19	28
	1/2" BSP	1.06	1.06	0.75	1.1
3/4" NPT	G 1/2 B	27	27	19	28
	1/2" BSP	1.06	1.06	0.75	1.1
M 20x1.5	M 20x1.5	27	27	14	28
		1.06	1.06	0.55	1.1
M 24x1.5	M 20x1.5	32	27	14	28
		1.26	1.06	0.55	1.1
M 27x2	M 20x1.5	32	27	16	28
		1.26	1.06	0.63	1.1

Ordering Information

Basic Model: Digital Thermometer Model LILLY		TDSch
Nominal case size:	case Ø 63, 100 (2 ½", 4")	63, 100
Stem position / case configuration:	vertical bottom position	without code letter
	right-angled to the back	w
	obtuse angled to the back	wst
	angle lateral to the left	wl
	angle lateral to the right	wr
	lower back position ¹⁾	r
	lower back position, back flange for surface mounting ¹⁾	rRh
	centre back position ²⁾	rm
	centre back position, back flange for surface mounting ²⁾	rmRh
Temperature ranges:	–50.0 / +199.9 °C (NCS 63) or –50.0 / +250.0 °C (NCS 100)	NT
	–50 / +550 °C (NCS 63) or –99.9 / +550.0 °C (NCS 100)	HT
Stem:	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, 8 or 10 mm (0.24, 0.31, 0.39")	dF 6, 8, 10
Stem length:	L or L1 in mm	e.g. L = 100 mm
Process connection:	see page 3	e.g. G ½ B
Options:	window laminated safety glass acrylic glass (PMMA) polycarbonate (PC)	SG PMMA PC
	case polished bayonet ring polished measuring point marking	GP BP stainless steel plate 12 x 55 mm (0.47 x 2.17") or sticker upon the case
		CS
		KS

Example:

TDSch 100, NT, E4, dF 6, L = 200 mm, G ½ B

Special Versions: Please describe your requirements in cleartext!

¹⁾ Nominal case size 63 (2 ½") only.

²⁾ Nominal case size 100 (4") only.