

Gas Actuated Thermometers

Process Industry Series, Distant Reading with Capillary • Model 73

Thermometers

Service intended

All stainless steel thermometer. Suitable for corrosive media and environments in chemical process, petroleum and food industry. The instruments meet the highest standards of measurement technique.

Nominal size

100 and 160 mm

Temperature element

Inert gas expansion system (non-toxic)

Accuracy

Class 1 per DIN 16 203

Working range

Permanent: measuring range per DIN 16 203
Short time (≤ 1 h): 1.2 x measuring range per DIN 16 203,
> 500 °C 1.1 x measuring range per DIN 16 203

Pressure rating of stem

25 bar maximum (without thermowell)

Nominal use

See DIN 16 203

Ingress protection

IP 56 per EN 60 529 / IEC 529

Standard features

Distant reading capillary entry

Centre back or radial bottom

Case material

Stainless steel

Bezel

Cam ring (bayonet type) bezel, natural finish stainless steel

Connection

Plain stem, stainless steel 1.4571

Capillary

Length to user specifications, 2 mm diameter, stainless steel 1.4571, bending radius no less than 6 mm

Stem

8 mm diameter, stainless steel 1.4571
The active length of the stem depends upon the diameter, the scale range and the length of capillary.

Dial

White aluminium with black lettering per DIN 16 203

Pointer

Adjustable black aluminium pointer

Window

Instrument glass

Mounting provisions

- 3-hole surface mounting flange (code H)
- Surface mounting bracket made of die cast aluminium (code M)
- 3-hole panel mounting flange (code V)
- Triangular bezel with clamp (code D)



Scale-, measuring ranges¹⁾, limits of error per DIN 16 203, class 1

Scale range °C	Scale spacing °C	Measuring range ¹⁾ °C	Limit of error °C
- 80 ... + 60	2	- 60 ... + 40	2
- 60 ... + 40	1	- 50 ... + 30	1
- 40 ... + 60		- 30 ... + 50	
- 30 ... + 50		- 20 ... + 40	
- 20 ... + 60		- 10 ... + 50	
- 20 ... + 80		- 10 ... + 70	
0 ... 60		+10 ... + 50	
0 ... 80		+10 ... + 70	
0 ... 100	+10 ... + 90	2	
0 ... 120	+ 20 ... + 100		
0 ... 160	+ 20 ... + 140		
0 ... 200	+ 20 ... + 180	2.5	
0 ... 250	+ 30 ... + 220		
0 ... 300	+ 30 ... + 270		
0 ... 400	+ 50 ... + 350	5	
0 ... 500	+ 50 ... + 450		
0 ... 600	+100 ... + 500	10	
0 ... 700	+100 ... + 600		

1) The measuring range is indicated on the dial by two triangular marks.
Within this range the stated limit of error is valid according to DIN 16 203.

Models

Model	Nominal size	Capillary entry
H 7308	100	Radial bottom
H 7309	160	
M 7310	100	
M 7311	160	
V 7312	100	Back
V 7313	160	
D 7340 ¹⁾	100	
D 7350 ¹⁾	160	

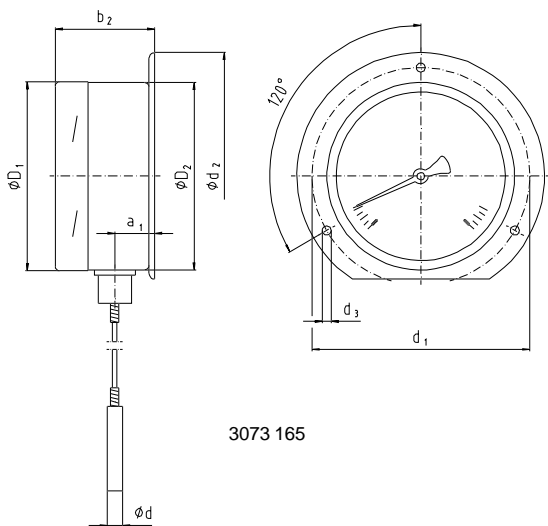
1) not suitable for alarm contacts

Optional extras

- Liquid damping
- Other scale ranges
- Scale °F; dual scale °C/°F or other
- Capillary entry other than radial bottom
- Stem 6, 10 or 12 mm diameter
- Window of safety glass or non-splintering plastic
- Armoured or coated capillary
- Other mounting provisions
- Surface mounting bracket made of other material
- Thermowells per DIN 43 772 or to user specifications
- Alarm contacts (see data sheet AE 08.01)

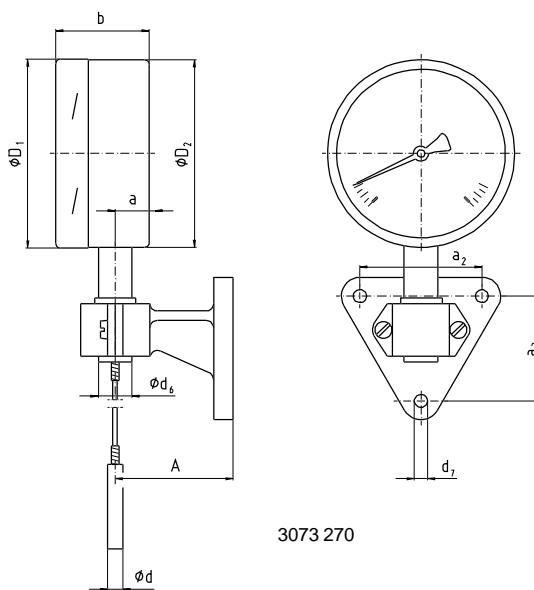
Dimensions in mm

3-hole surface mounting flange (H)



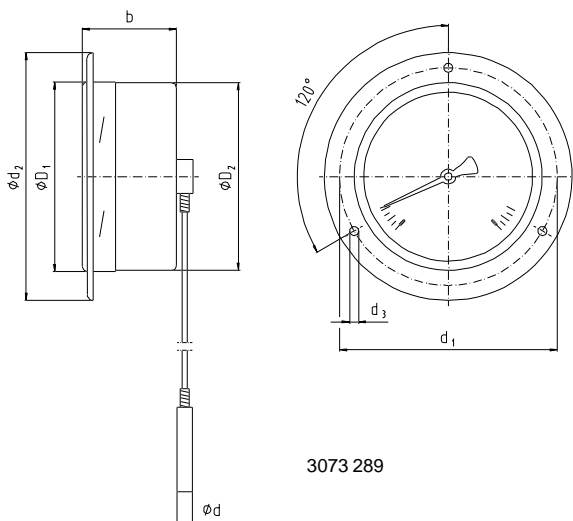
3073 165

Surface mounting bracket (M)



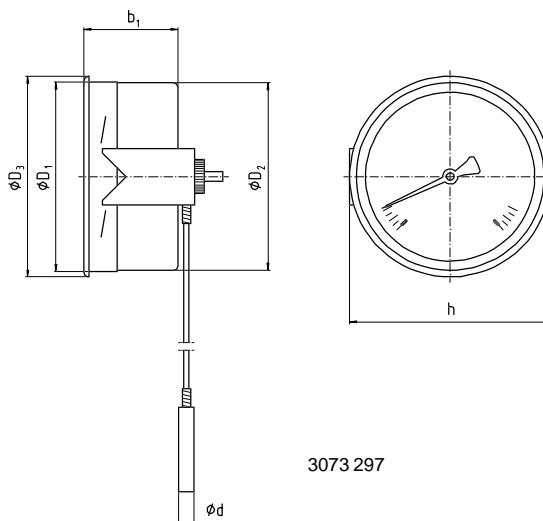
3073 270

3-hole panel mounting flange (V)



3073 289

Triangular bezel (D) ¹⁾



3073 297

Nominal size	Dimensions in mm											
	A	a	a ₁	a ₂	a ₃	alarm contacts of model 811, 821, 830 E or 831						
						without			1 or 2		3	
						b	b ₁	b ₂	b	b ₂	b	b ₂
100	100	19	22	65	56	50	51	53	88	91	97	100
160												

Nominal size	Dimensions in mm										Weight in kg
	d	d ₁	d ₂	d ₃	d ₆	d ₇	D ₁	D ₂	D ₃	h	
100	8	116	132	4.8	18	7	101	99	107	107	1.400
160		178	196	5.8			161	159	166	172	1.800

1) not suitable for alarm contacts

Design of connection per DIN

Dimensions in mm

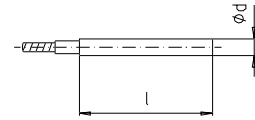
Connection no. 1

Plain stem

Length of stem $l = 140, 200, 240$ or 290 mm

Stainless steel 1.4571

To suit compression fitting of connection no. 4



Connection no. 2

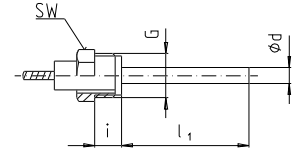
Male nut $G \frac{1}{2} A$

Length of stem $l_1 = 80, 140, 180$ or 230 mm

Stainless steel 1.4571

To suit thermowells per DIN 42 772

Male thread G	SW	i
$G \frac{1}{2} A$	27	20



Connection no. 3

- Union nut $G \frac{1}{2}$ or $G \frac{3}{4}$

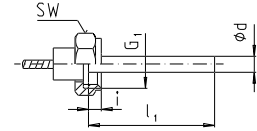
Length of stem $l_1 = 89, 126, 186, 226$ or 276 mm

Stainless steel 1.4571

To suit thermowells per DIN 42 772

- Union nut $M 24 \times 1.5$ suitable to DIN 43 772

Female thread G_1	SW	i
$G \frac{1}{2}$	27	8.5
$G \frac{3}{4}$	32	10.5
$M 24 \times 1.5$	32	13.5



Connection no. 4

Compression fitting (sliding on stem)

$G \frac{1}{2} A$, $G \frac{3}{4} A$, $M 18 \times 1.5$, $\frac{1}{2}$ NPT or $\frac{3}{4}$ NPT

Minimum insertion length l_{min} (depends upon stem-diameter d , scale range and length of capillary l_F)

Guiding values with stem-diameter $d = 8$ mm:

l_{min} approx. 100 mm for scale ranges $\geq 0 \dots 120$ °C

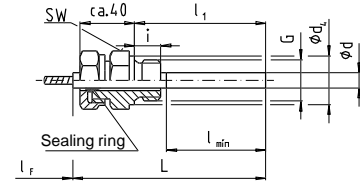
l_{min} approx. 150 mm for scale ranges $\leq 0 \dots 100$ °C

Length of stem $l_1 =$ variable

Length $L = l_1 + 40$ mm

Stainless steel 1.4571

Male thread G	SW	d_4	i
$G \frac{1}{2} A$	27	26	14
$G \frac{3}{4} A$	32	32	16
$M 18 \times 1.5$	24	23	12
$\frac{1}{2}$ NPT	22	-	19
$\frac{3}{4}$ NPT	30	-	20



Connection no. 5

- Union nut $G \frac{1}{2}$

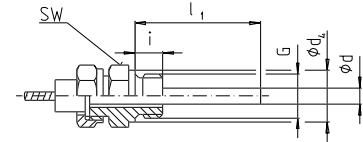
with fitting $G \frac{1}{2} A$, $G \frac{3}{4} A$, $\frac{1}{2}$ NPT or $\frac{3}{4}$ NPT

Length of stem $l_1 = 63, 100, 160, 200$ or 250 mm

Stainless steel 1.4571

- Union nut $M 24 \times 1.5$ with fitting $M 18 \times 1.5$ suitable to DIN 43 772 (stem 6 mm diameter only)

Male thread G	SW	d_4	i
$G \frac{1}{2} A$	27	26	14
$G \frac{3}{4} A$	32	32	16
$M 18 \times 1.5$	24	23	12
$\frac{1}{2}$ NPT	22	-	19
$\frac{3}{4}$ NPT	30	-	20



Connection no. 6

Compression fitting (sliding on capillary)

$G \frac{1}{2} A$, $G \frac{3}{4} A$, $\frac{1}{2}$ NPT or $\frac{3}{4}$ NPT

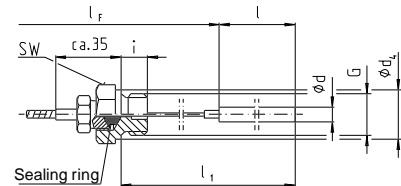
Length of stem l (depends upon stem-diameter d , scale range and length of capillary l_F)

Mounting length $l_1 =$ variable, at least $l_1 = l + 40$ mm

Length of capillary l_F (case \leftrightarrow stem)

Stainless steel 1.4571

Male thread G	SW	d_4	i
$G \frac{1}{2} A$	27	26	14
$G \frac{3}{4} A$	32	32	16
$\frac{1}{2}$ NPT	22	-	19
$\frac{3}{4}$ NPT	30	-	20



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Ordering information

State: Model / Nominal size / Scale range / Location of capillary entry / No. and size of connection / Mounting provisions / Length of stem l , l_1 / Length of capillary l_F / Optional extras required



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