

Square Thermometers for Switch Panels

TFQS

Square case, front narrow rim black

Standard Versions

Information on general and metrological features (e.g. temperature resistance) and temperature ranges / error limits / smallest subdivision can be found in model overview 8000.

Measuring Unit

With nitrogen filling
(inert gas, physiological harmless)

Accuracy (EN 13 190)

Class 1

Case

Square case, narrow front flange black,
bracket for switch panel mounting

Case Protection Type (EN 60 529 / IEC 529)

IP 43

Nominal Case Sizes

96 x 96, 144 x 144 (mm) (3.8" x 3.8", 5.7" x 5.7)

Case Configuration

Connection temperature

sensor (stem): capillary line

Capillary line position: lower back position (r),
see page 2

Mounting device : u-clamp

Capillary Line (standard) 1m stainless steel Ø 2mm, with buckle
protection spirals at both ends
capillary line length L_{FL} selectable from
1m to 15 m (> 15 m upon request)

Temperature Ranges

Temperature differences from 80 K to 600 K

Temperature Sensor (Stem)

1.4571 (316 stainless steel),

max. static operating pressure: 25 bar

Stem models: A1, A3, A4, A5 or A6,

Stem- Ø dF: 8, 10 or 12 mm

Stem length L resp. L1: L_{min} resp. $L1_{min}$ to max. 2.50 m

Please regard the minimum stem length against the active length
and stem model, see page 3.

Window

Instrument glass

Movement

Brass / German silver

Dial

Aluminum, black figures, white background

Pointer

Aluminum, black

Zero adjustment ($\pm 6\%$)

Externally by a screw



Ordering Information, Standard Temperature Ranges, Options

See page 4

Special Versions and further Options among others

- Other stem-Ø, connection thread and materials upon request
- Capillary line $F_{FL} > 15$ m upon request
- Other temperature ranges and/or special scales, e.g. double scale °C/°F, coloured fields or areas, dial inscriptions, etc.
- Min- or max. -drag indicator upon request

Accessories:

mechanical: thermowells, see data sheet 8.8110 ff

electronical: limit switch contact assemblies,
see catalogue-heading 9.1



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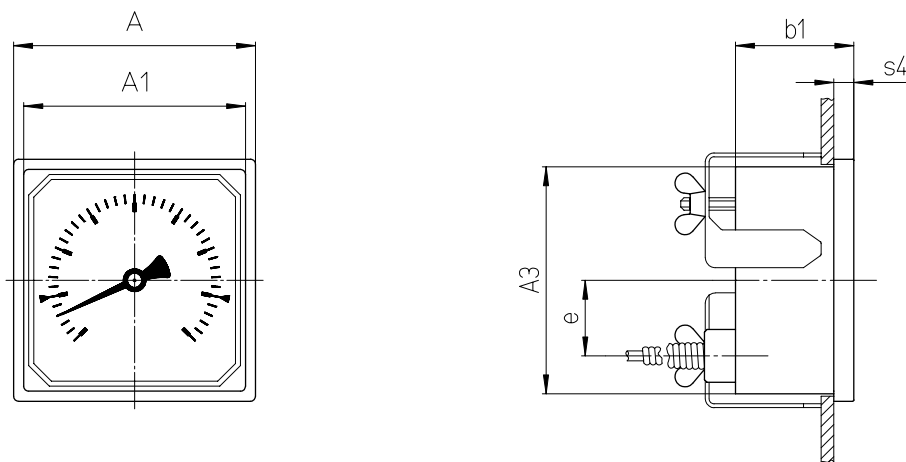
02/11

Capillary Line Position / Case Configurations, Code Letters, Dimensional Data and Weights

Lower Back Position

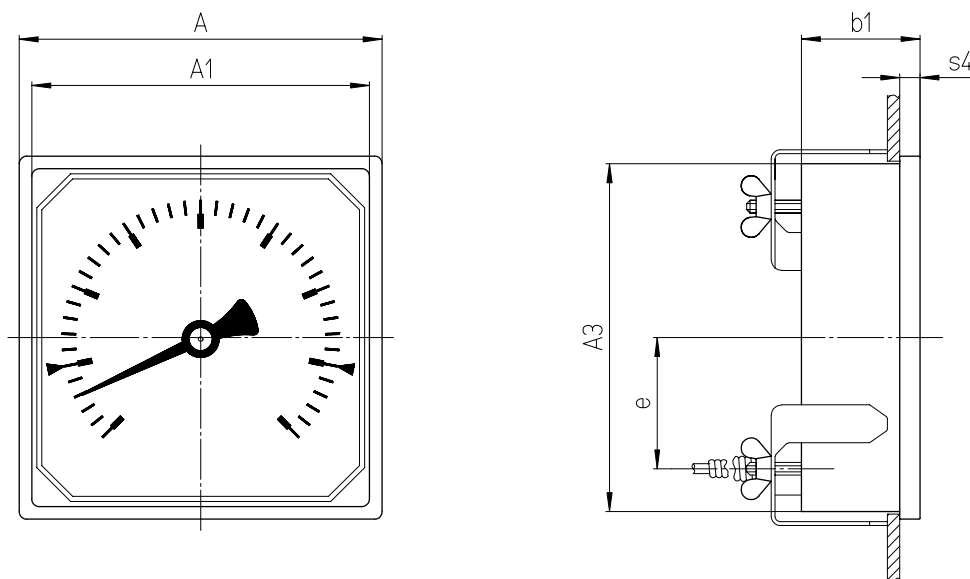
TFQS 96

no additional code letter



TFQS 144

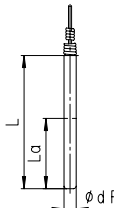
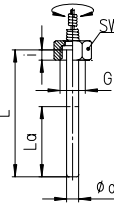
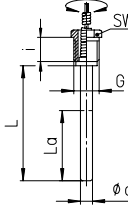
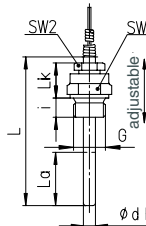
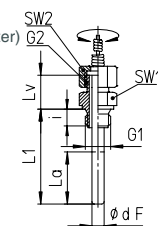
no additional code letter



Dimensional Data (mm / inches) and Weights (kg / lb)							
NCS	A	A1	A3	b1	e	s4	approx. weight ¹⁾ TFQS
96	96	88	90	48	33	8	0.64
3.8"	3.78	3.46	3.54	1.89	1.30	.31	1.41
144	144	134	136	48	52	8	1.15
5.7"	5.67	5.28	5.35	1.89	2.05	.31	2.53

¹⁾ The information is an example and relates to version with stem A1, Ø 10 mm (0.4"), length 200 mm (8") and 1 m (40") capillary line

Stem Models

Stem Models																																																																																												
Process connection:			without screw fitting, plain stem																																																																																									
Stem model:			A1																																																																																									
Form according to DIN 13 190:			Form 1																																																																																									
Stem material:			1.4571																																																																																									
Stem-Ø dF:			8, 10, 12																																																																																									
Order length:			L																																																																																									
Data sheet (suitable thermowell model):			8.8140 (SK1), 8.8141 (SK2)																																																																																									
																																																																																												
Process connection:			Union nut					Male thread, turnable																																																																																				
Stem model:			A3					A4																																																																																				
Form according to DIN 13 190:			Form 5					Form 4																																																																																				
Stem material:			1.4571					1.4571																																																																																				
Stem-Ø dF:			8, 10, 12					8, 10, 12																																																																																				
Screw fitting material:			1.4571					1.4571																																																																																				
Order length:			L					L																																																																																				
																																																																																												
Data sheet (suitable thermowell model):			8.8111 (SF4.1), 8.8113 (SF4.1F) 8.8130 (SF8), 8.8131 (SF9)					8.8110 (SF4), 8.8112 (SF4F) 8.8120 (SF5), 8.8121(SF6+SF7)																																																																																				
Thread (dimensions in mm):			<table><tr><th>G</th><th>SW</th><th>i</th></tr><tr><td>G ½</td><td>27</td><td>10</td></tr><tr><td>G ¾</td><td>32</td><td>12</td></tr><tr><td>M 20 x 1.5</td><td>27</td><td>10</td></tr><tr><td>M 24 x 1.5</td><td>32</td><td>12</td></tr><tr><td>M 27 x 2</td><td>32</td><td>12</td></tr></table>			G	SW	i	G ½	27	10	G ¾	32	12	M 20 x 1.5	27	10	M 24 x 1.5	32	12	M 27 x 2	32	12	<table><tr><th>G</th><th>SW</th><th>i</th></tr><tr><td>G ½ B</td><td>27</td><td>20</td></tr><tr><td>G ¾ B</td><td>32</td><td>23</td></tr><tr><td>M 18 x 1.5</td><td>22</td><td>14</td></tr><tr><td>M 20 x 1.5</td><td>27</td><td>20</td></tr></table> Thermowell required!							G	SW	i	G ½ B	27	20	G ¾ B	32	23	M 18 x 1.5	22	14	M 20 x 1.5	27	20																																															
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Process connection:			Male thread / compression fitting					Male thread, turnable / double male adapter																																																																																				
Stem model:			A5 (= basic stem A1 with compression fitting)					A6 (= basic stem A3 with double male adapter)																																																																																				
Form according to DIN 13 190:			Form 2 (thread cylindrical) Form 3 (thread conical)					—																																																																																				
Stem material:			1.4571					1.4571																																																																																				
Stem-Ø dF:			8, 10, 12					8, 10, 12																																																																																				
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Minimum Length, Active Length and maximum realisable Capillary Line Length including Stem																																																																																												
The minimum length L_{min} / L1_{min} of the stem is the smallest possible stem length against the active length La (tank) and the stem model. The active length La of the stem (tank) has to immerse completely into the medium, to grant a corresponding measuring result, which corresponds to the accuracy class. The maximum realisable stem length is 2.50 m. Larger lengths are realisable with a capillary line, e.g. special stem A2, A7 and A7.1 (data sheet 8299.2)			Capillary line including stem up to 5 m						Capillary line including stem > 5 m to 15 m																																																																																			
			up to max. 500 °C			500 °C and above			up to max. 500 °C			500 °C and above																																																																																
			Stem-Ø dF:			Stem-Ø dF:			Stem-Ø dF:			Stem-Ø dF:																																																																																
			12	10	8	12	10	8	12	10	8	8	10	12																																																																														
Stem model:	Length:	Thread:	12	10	8	12	10	8	12	10	8	8	10	12																																																																														
all models	La	all standard threads	35	45	75	75	105	165	53	80	115	150	200	320																																																																														
A1 A3 A4	Lmin	all standard threads	55	65	95	95	125	185	73	100	135	170	220	340																																																																														
A5	Lmin	all standard threads	90	100	130	130	160	220	67	94	129	164	214	334																																																																														
A6	L1min	G ½ B, M 20x1.5	49	59	89	89	119	179	69	96	131	166	216	336																																																																														
		G ¾ B, M24x1.5, M27x2	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																																																																														
others			upon request			upon request			upon request			upon request																																																																																

Ordering Information with Indication- and Temperature Ranges, Options

Basic Model:		Square thermometers for switch panels		TFQS		
Case filling:	without			without code letters		
Nominal case size:	case 96, 144 (mm) (3.8", 5.7")			96, 144		
Temperature ranges:	scale:		ΔT (K):			
	0 — 80 °C	80				
	0 — 100 °C	100	e. g.	0-100 °C		
	0 — 120 °C	120				
	0 — 160 °C	160				
	0 — 200 °C	200				
	0 — 250 °C	250				
	0 — 300 °C	300				
	0 — 400 °C	400				
	0 — 500 °C	500				
	0 — 600 °C	600				
	–100 / + 100 °C		200			
	–50 / + 50 °C		100	e. g.	–30/+50 °C	
	–40 / + 40 °C		80			
	–40 / + 60 °C		100			
	–30 / + 50 °C		80			
	–20 / + 60 °C		80			
	–20 / + 80 °C		100			
	+50 / +300 °C		250			
	+50 / +400 °C		350			
	+100 / +500 °C		400			
	Stem:	without screw fitting, plain			A1	
		union nut			A3	
male thread, turnable			A4			
male thread / compression fitting			A5			
male thread, turnable / double male adapter			A6			
Stem-Ø dF:	8, 10 or 12 mm			dF 8, 10, 12		
Stem-length:	L resp. L1 in mm			e. g.	L = 100 mm	
Capillary line length:	L _{FL} > 1 to 15 m				L _{FL} = 5 m	
Process connection:	see page 3			e. g.	G ½ B	
Options:	red mark	on the dial				
	window	acrylic glas (PMMA)				
	movement stainless steel					
	wide front rim, TFQB					
	protective hose for capillary line	flexible armour made of stainless steel		(order at the moment still as cleartext)		
		flexible armour made of stainless steel with PE-cover				
		shrinkdown plastic tubing polyolefin, max. 10 m				
	measuring point marking	stainless steel plate 12mm x 55mm (0.47" x 2.17"), wire mounting or sticker on case coverage				

0-100 °C

–30/+50 °C

Example: TFQS 96, 0-100 °C, A3, dF 12, L = 100 mm, L_{FL} = 5 m G ½

Special Versions: Please describe your requirements clearly

Technical changes, replacement of materials and errors excepted.