



### Main Features

- For corrosive gasses and liquids
- Class 1 according to EN 13190
- Wetted parts and case material stainless steel
- Mechanical or inductive contacts
- Option: case material 1.4404 (316L) for aggressive atmosphere

### Applications

- Food & Beverage
- Oil & Gas / Chemical
- Laboratory & Medical
- Energy

### Technical Data

Nominal size	100, 160 mm
Temperature ranges	-200 ... 800 °C
Accuracy	Class 1 (according to EN 13190)
Protection rating	IP 65 (EN 60529)
Immersion tube	Stainless steel 1.4541 (AISI 321)
Case	Stainless steel 1.4301 (AISI 304)
Bezel ring	Stainless steel 1.4301 (AISI 304)
Window	Laminated safety glass
Movement	Brass
Window gasket	Elastomer
Dial	Aluminium, white
Pointer	Aluminium, black
Accessories	Sliding connections and thermowells, see data-sheets: B51.01 (AGF/AGW) and T6.215 (Ø 8)
Temperature limit	130 % F.S.

ATEX

Only for inductive contacts (type 8xxx)

Type examination certificate

DEKRA 14 ATEX 0034

EN 60079-0 : 2009

EN 60079-11 : 2007

EN 61241-11 : 2006

Marking

CE 0344

Ex II 2 G

Ex ia IIC T4 Gb

Ex II 2 D

Ex ia IIC T135 °C ... T85 °C Db

Electrical data

$U_{max}$  = 20 Vdc

$I_{max}$  = 60 mA

$P_{max}$  = 130 mW

Sensor type: SI2-K08-Y1 (Turck)

This certification is valid for connection to a certified intrinsically safe circuit with maximum values as listed above and in the instructions and certificate of the sensor.

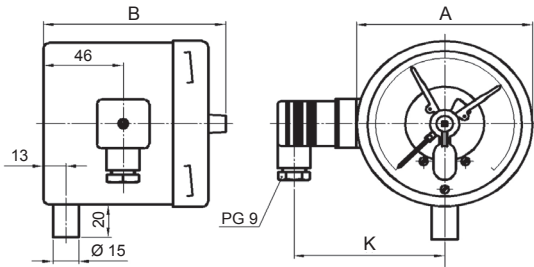
### Options

Stainless steel housing 1.4404 (316L)	Code 0110	Customer specific immersion length <sup>(1)</sup>	Code 9003_xxxx
Movement stainless steel	Code 0651	Red mark	Code 9700
Process connections (see table on page 3)	Code 73xx	Green mark	Code 9701
Oil filling (paraffin oil, Ondina)	Code 0777	Stainless steel tag plate and wire	Code 9941
Screws secured with loctite	Code 0799		
Accuracy +/- 0.6 % F.S.	Code 0840		

<sup>(1)</sup> xxxx = L in mm.

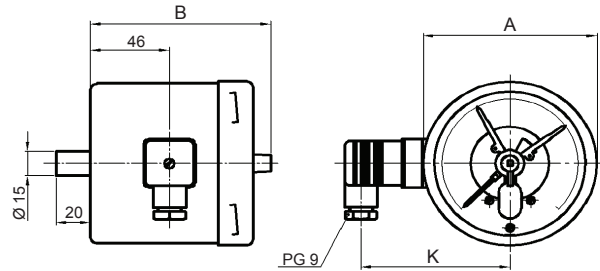
**Dimensions in mm**

**Type D (Code 11)**



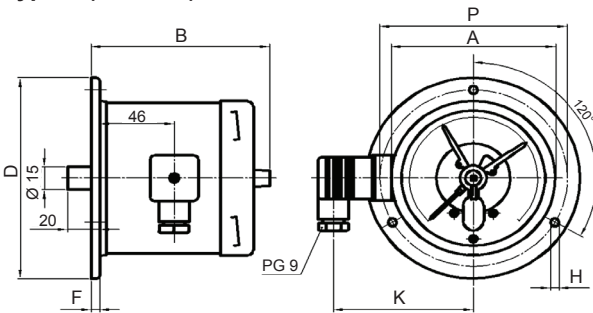
Dimensions	Diameter	
	100	160
A	101	161
B	104	108
K	92	122

**Type F (Code 12)**



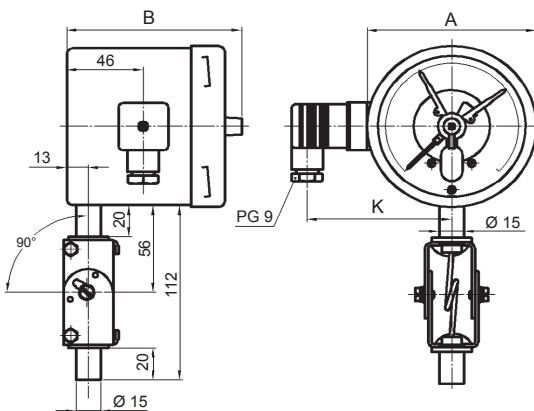
Dimensions	Diameter	
	100	160
A	101	161
B	104	108
K	92	122

**Type E (Code 32)**



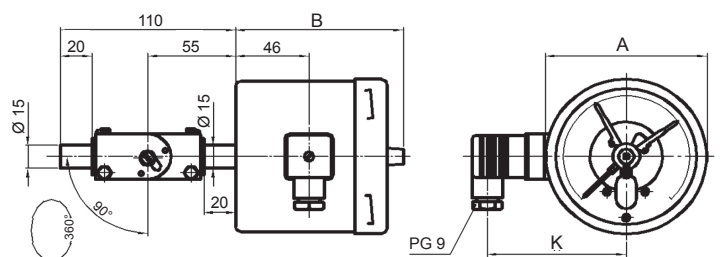
Dimensions	Diameter	
	100	160
A	101	161
B	110	114
D	132	196
F	5	5
H	5.5	6
P	116	178
K	92	122

**Type A (Code 41)**



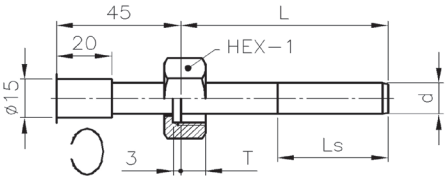
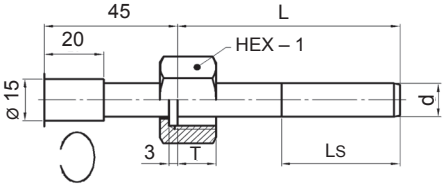
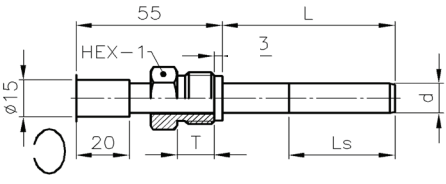
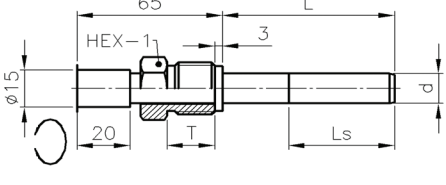
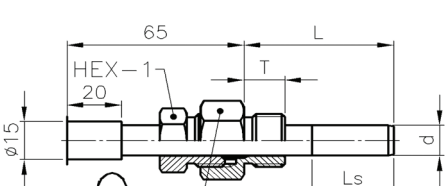
Dimensions	Diameter	
	100	160
A	101	161
B	104	108
K	92	122

**Type F (Code 42)**



Dimensions	Diameter	
	100	160
A	101	161
B	104	108
K	92	122

**Process connections**

Models	Code	Connection	HEX-1	HEX-2	T	Immersion tube (mm)
 <p>Coupling nut (standard)</p>	731A	G $\frac{1}{4}$	22	-	7	Ø 6 to 8
	731B	G $\frac{3}{8}$	27	-	9	Ø 6 to 11
	731C	G $\frac{1}{2}$	27	-	9	Ø 6 to 15
	731D	G $\frac{3}{4}$	32	-	9	Ø 6 to 20
	731E	G1	41	-	13	Ø 6 to 20
	731P	M18 x 1.5	27	-	8	Ø 6 to 12
	731Q	M20 x 1.5	27	-	9	Ø 6 to 14
731R	M24 x 1.5	32	-	9	Ø 6 to 18	
 <p>Coupling nut (long model)</p>	732C	G $\frac{1}{2}$	27	-	14	Ø 6 to 15
	732D	G $\frac{3}{4}$	32	-	16	Ø 6 to 20
	732E	G1	41	-	18	Ø 6 to 20
 <p>Rotating nipple (standard)</p>	733A	G $\frac{1}{4}$	17	-	12	Ø 6 to 8
	733B	G $\frac{3}{8}$	22	-	12	Ø 6 to 11
	733C	G $\frac{1}{2}$	22	-	14	Ø 6 to 15
	733D	G $\frac{3}{4}$	30	-	16	Ø 6 to 20
	733E	G1	36	-	18	Ø 6 to 20
	733P	M18 x 1.5	22	-	12	Ø 6 to 12
	733Q	M20 x 1.5	22	-	14	Ø 6 to 14
733R	M24 x 1.5	27	-	14	Ø 6 to 18	
 <p>Rotating nipple (long model)</p>	734C	G $\frac{1}{2}$	22	-	20	Ø 6 to 15
	734D	G $\frac{3}{4}$	30	-	20	Ø 6 to 20
	734E	G1	36	-	25	Ø 6 to 20
 <p>Sliding connection</p>	738A	G $\frac{1}{4}$	22	27	12	Ø 6 to 8
	738B	G $\frac{3}{8}$	22	27	12	Ø 6 to 11
	738C	G $\frac{1}{2}$	22	27	14	Ø 6 to 15
	738D	G $\frac{3}{4}$	22	32	16	Ø 6 to 20
	738E	G1	22	36	18	Ø 6 to 20
	738H	$\frac{1}{4}$ NPT	22	27	14	Ø 6 to 8
	738J	$\frac{1}{2}$ NPT	22	27	20	Ø 6 to 15
	738K	$\frac{3}{4}$ NPT	22	27	20	Ø 6 to 20
	738L	1" NPT	22	36	25	Ø 6 to 20
	738P	M18 x 1.5	22	27	12	Ø 6 to 12
	738Q	M20 x 1.5	22	27	14	Ø 6 to 14
	738R	M24 x 1.5	22	27	14	Ø 6 to 18

Note: minimum immersion length: see table on page 4

**Temperature ranges**

Code	Range °C
69T	-200 ... 50
77T	-120 ... 40
76T	-100 ... 50
74T	-80 ... 40
68T	-70 ... 50
50T	-60 ... 40
65T	-40 ... 40
55T	-30 ... 170
51T	-30 ... 70
61T	-30 ... 30
84T	-20 ... 100
54T	-20 ... 60
52T	-20 ... 40
11T	0 ... 60
27T	0 ... 80

Code	Range °C
12T	0 ... 100
20T	0 ... 120
13T	0 ... 160
22T	0 ... 200
14T	0 ... 250
23T	0 ... 300
15T	0 ... 400
25T	0 ... 500
16T	0 ... 600
82T	0 ... 800
30T	100 ... 500

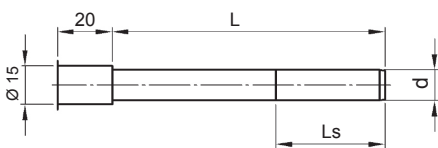
Code	Range °F
68U	-100 ... 120
09U	-50 ... 120
08U	-40 ... 160
02U	0 ... 200
03U	0 ... 250
04U	0 ... 300
05U	0 ... 400
06U	0 ... 500
20U	30 ... 250
13U	30 ... 320
22U	30 ... 400
23U	30 ... 580
15U	30 ... 750
28U	100 ... 800
29U	200 ... 1000

Code	Range (double scale)				
	°C		/	°F	
51V	-30 ... 70	/	-40 ... 160		
68V	-70 ... 50	/	-100 ... 100		
55V	-30 ... 170	/	0 ... 350		
11V	0 ... 60	/	30 ... 140		
20V	0 ... 120	/	30 ... 250		
13V	0 ... 160	/	30 ... 320		
14V	0 ... 250	/	30 ... 500		
15V	0 ... 400	/	30 ... 750		
16V	0 ... 600	/	100 ... 1100		

**Minimum immersion length Ls (mm)**

Immersion tube (mm)	Ø 6	Ø 8	Ø 9	Ø 10	Ø 11	Ø 12	Ø 14	Ø 16
Temperature Span ≥ 120 °C	70	35	30	25	20	18	15	13
Temperature Span ≥ 60 °C	120	60	45	35	30	25	20	17

Standard version with plain immersion tube (without process connection)



**Ordering example with options**

	TSSE	100	-	2	11	.	1	6	0	.	12T	.	5001	/	738C	-	9003	-	0210
Gas filled thermometer with rigid stem and contacts	TSSE																		
Nominal size 100 mm		100																	
Case material stainless steel 1.4301 (AISI 304)			-	2															
Direct mounting, immersion tube bottom					11	.													
Immersion tube diameter 8 mm						.	1												
Immersion tube, stainless steel 1.4541 (AISI 321)								6											
Immersion length (L) customer specific									0	.									
Temperature range: 0 ... 100 °C											12T	.							
Mechanical contact makes (NO) with clockwise pointer motion													5001	/					
Option: Adjustable connection sliding on stem G½															738C	-			
Option: Customer specific immersion length																	9003	-	
Option: Customer specific immersion length L = 210 mm																			0210

## Ordering details TSSE

	TSSE		-	2	xx	.	6	.	xxx	.	xxxx	/
<b>Model</b>												
Gas filled thermometer with rigid stem and contacts	TSSE											
<b>Nominal size</b>												
100 mm		1	0	0								
160 mm		1	6	0								
<b>Case</b>												
Stainless steel 1.4301 (AISI 304)				2								
<b>Type of mounting</b>												
Direct mounting, immersion tube bottom							11					
Direct mounting, immersion tube center back							12					
Rear flange for wall mounting, immersion tube center back							32					
Every angle version, immersion tube bottom							41					
Every angle version, immersion tube center back							42					
<b>Immersion tube diameter</b>												
6 mm							4					
8 mm							1					
9 mm							A					
10 mm							B					
11 mm							2					
12 mm							C					
14 mm							7					
16 mm							D					
<b>Immersion tube / material</b>												
Stainless steel 1.4541 (AISI 321)								6				
<b>Immersion tube / installed length L</b>												
100 mm								2				
160 mm								4				
250 mm								6				
400 mm								7				
600 mm								8				
1000 mm								9				
Customer specific length (use option 9003_ xxxx, xxxx = L in mm)								0				
<b>Unit of measurement / Temperature ranges</b>												
°C									xxT			
°F									xxU			
°C / °F (double scale)									xxV			
<b>Mechanical contacts (snap-action)</b>												
Contact makes (NO) <sup>(1)</sup>											5001	
Contact breaks (NC) <sup>(1)</sup>											5002	
Changeover contact (SPDT)											5003	
1 <sup>st</sup> contact makes / 2 <sup>nd</sup> contact makes (NO/NO) <sup>(1)</sup>											5011	
1 <sup>st</sup> contact makes / 2 <sup>nd</sup> contact breaks (NO/NC) <sup>(1)</sup>											5012	
1 <sup>st</sup> contact breaks / 2 <sup>nd</sup> contact makes (NC/NO) <sup>(1)</sup>											5021	
1 <sup>st</sup> contact breaks / 2 <sup>nd</sup> contact breaks (NC/NC) <sup>(1)</sup>											5022	
Double changeover contact (SPDT/SPDT)											5033	
1 <sup>st</sup> contact makes / 2 <sup>nd</sup> contact makes (NO/NO, separate circuits) <sup>(1)</sup>											5055	
1 <sup>st</sup> contact makes / 2 <sup>nd</sup> contact breaks (NO/NC, separate circuits) <sup>(1)</sup>											5056	
1 <sup>st</sup> contact breaks / 2 <sup>nd</sup> contact makes (NC/NO, separate circuits) <sup>(1)</sup>											5065	
1 <sup>st</sup> contact breaks / 2 <sup>nd</sup> contact breaks (NC/NC, separate circuits) <sup>(1)</sup>											5066	
<b>Inductive contacts (Namur, DIN EN 60947-5-6)</b>												
Contact makes (NO) <sup>(1)</sup>											8001	
Contact breaks (NC) <sup>(1)</sup>											8002	
1 <sup>st</sup> contact makes / 2 <sup>nd</sup> contact makes (NO/NO) <sup>(1)</sup>											8011	
1 <sup>st</sup> contact makes / 2 <sup>nd</sup> contact breaks (NO/NC) <sup>(1)</sup>											8012	
1 <sup>st</sup> contact breaks / 2 <sup>nd</sup> contact makes (NC/NO) <sup>(1)</sup>											8021	
1 <sup>st</sup> contact breaks / 2 <sup>nd</sup> contact breaks (NC/NC) <sup>(1)</sup>											8022	
<b>Options to be added behind the / (see example page 4)</b>												

<sup>(1)</sup> with clockwise pointer motion.