



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.

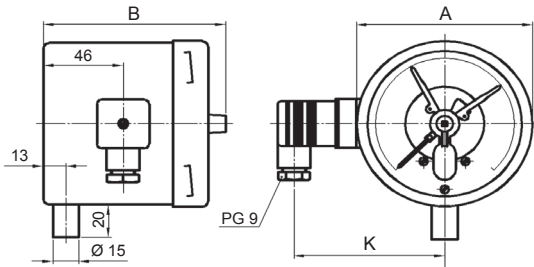
Options

| | | | |
|---|-----------|---|----------------|
| Stainless steel housing 1.4404 (316L) | Code 0110 | Customer specific immersion length ⁽¹⁾ | 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 | | |

⁽¹⁾ xxxx = L in mm.

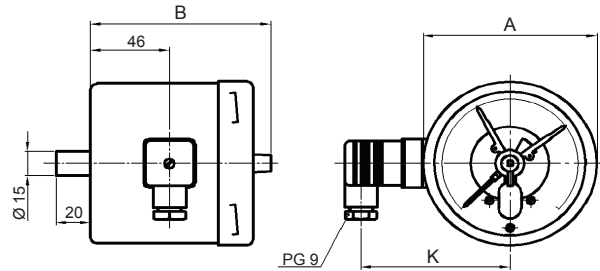
Dimensions in mm

Type D (Code 11)



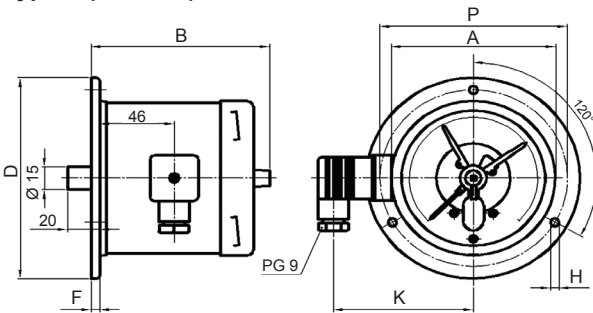
| Dimensions | Diameter | |
|------------|----------|-----|
| | 100 | 160 |
| A | 101 | 161 |
| B | 104 | 108 |
| K | 92 | 122 |

Type F (Code 12)



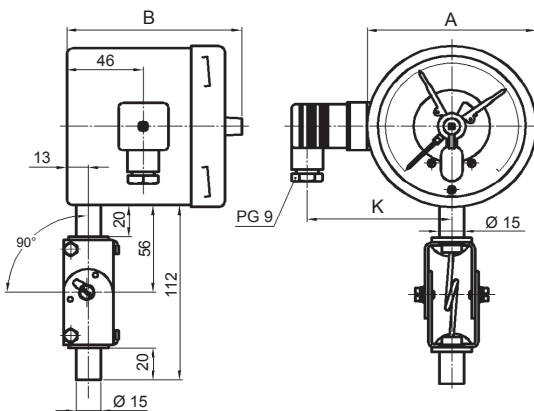
| Dimensions | Diameter | |
|------------|----------|-----|
| | 100 | 160 |
| A | 101 | 161 |
| B | 104 | 108 |
| K | 92 | 122 |

Type E (Code 32)



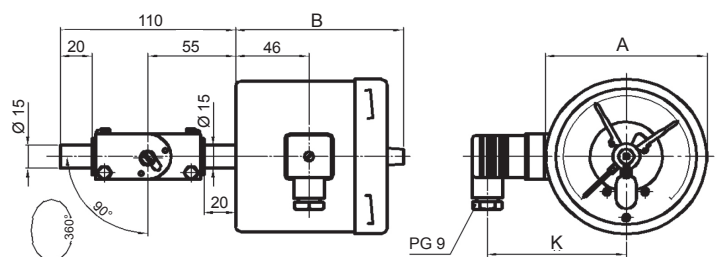
| Dimensions | Diameter | |
|------------|----------|-----|
| | 100 | 160 |
| A | 101 | 161 |
| B | 110 | 114 |
| D | 132 | 196 |
| F | 5 | 5 |
| H | 5.5 | 6 |
| P | 116 | 178 |
| K | 92 | 122 |

Type A (Code 41)



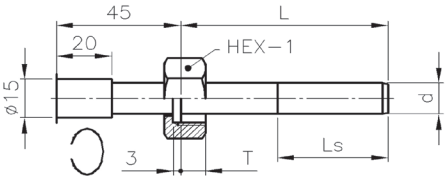
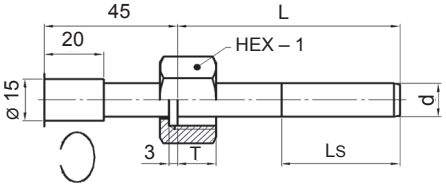
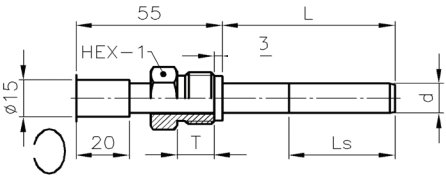
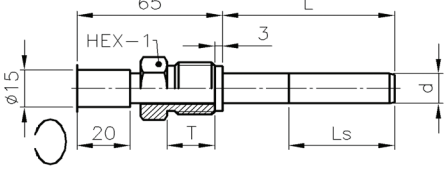
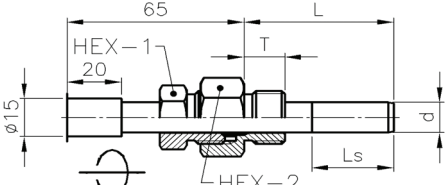
| Dimensions | Diameter | |
|------------|----------|-----|
| | 100 | 160 |
| A | 101 | 161 |
| B | 104 | 108 |
| K | 92 | 122 |

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

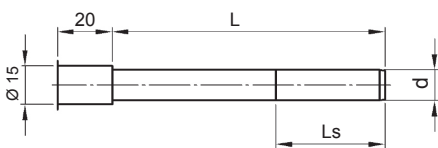
| Code | Range °F |
|------|--------------|
| 68U | -100 ... 120 |
| 09U | -50 ... 120 |
| 08U | -40 ... 160 |
| 02U | 0 ... 200 |
| 03U | 0 ... 250 |
| 04U | 0 ... 300 |
| 05U | 0 ... 400 |
| 06U | 0 ... 500 |
| 20U | 30 ... 250 |
| 13U | 30 ... 320 |
| 22U | 30 ... 400 |
| 23U | 30 ... 580 |
| 15U | 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 | / |
|---|------|---|---|---|----|---|----|---|-----|---|------|---|
| Model | | | | | | | | | | | | |
| Gas filled thermometer with rigid stem and contacts | TSSE | | | | | | | | | | | |
| Nominal size | | | | | | | | | | | | |
| 100 mm | | 1 | 0 | 0 | | | | | | | | |
| 160 mm | | 1 | 6 | 0 | | | | | | | | |
| | | | | | | | | | | | | |
| Case | | | | | | | | | | | | |
| Stainless steel 1.4301 (AISI 304) | | | | 2 | | | | | | | | |
| Type of mounting | | | | | | | | | | | | |
| 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 | | | | | |
| Immersion tube diameter | | | | | | | | | | | | |
| 6 mm | | | | | | | 4 | | | | | |
| 8 mm | | | | | | | 1 | | | | | |
| 9 mm | | | | | | | A | | | | | |
| 10 mm | | | | | | | B | | | | | |
| 11 mm | | | | | | | 2 | | | | | |
| 12 mm | | | | | | | C | | | | | |
| 14 mm | | | | | | | 7 | | | | | |
| 16 mm | | | | | | | D | | | | | |
| Immersion tube / material | | | | | | | | | | | | |
| Stainless steel 1.4541 (AISI 321) | | | | | | | | 6 | | | | |
| Immersion tube / installed length L | | | | | | | | | | | | |
| 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 | | | | |
| Unit of measurement / Temperature ranges | | | | | | | | | | | | |
| °C | | | | | | | | | xxT | | | |
| °F | | | | | | | | | xxU | | | |
| °C / °F (double scale) | | | | | | | | | xxV | | | |
| Mechanical contacts (snap-action) | | | | | | | | | | | | |
| Contact makes (NO) ⁽¹⁾ | | | | | | | | | | | 5001 | |
| Contact breaks (NC) ⁽¹⁾ | | | | | | | | | | | 5002 | |
| Changeover contact (SPDT) | | | | | | | | | | | 5003 | |
| 1 st contact makes / 2 nd contact makes (NO/NO) ⁽¹⁾ | | | | | | | | | | | 5011 | |
| 1 st contact makes / 2 nd contact breaks (NO/NC) ⁽¹⁾ | | | | | | | | | | | 5012 | |
| 1 st contact breaks / 2 nd contact makes (NC/NO) ⁽¹⁾ | | | | | | | | | | | 5021 | |
| 1 st contact breaks / 2 nd contact breaks (NC/NC) ⁽¹⁾ | | | | | | | | | | | 5022 | |
| Double changeover contact (SPDT/SPDT) | | | | | | | | | | | 5033 | |
| 1 st contact makes / 2 nd contact makes (NO/NO, separate circuits) ⁽¹⁾ | | | | | | | | | | | 5055 | |
| 1 st contact makes / 2 nd contact breaks (NO/NC, separate circuits) ⁽¹⁾ | | | | | | | | | | | 5056 | |
| 1 st contact breaks / 2 nd contact makes (NC/NO, separate circuits) ⁽¹⁾ | | | | | | | | | | | 5065 | |
| 1 st contact breaks / 2 nd contact breaks (NC/NC, separate circuits) ⁽¹⁾ | | | | | | | | | | | 5066 | |
| Inductive contacts (Namur, DIN EN 60947-5-6) | | | | | | | | | | | | |
| Contact makes (NO) ⁽¹⁾ | | | | | | | | | | | 8001 | |
| Contact breaks (NC) ⁽¹⁾ | | | | | | | | | | | 8002 | |
| 1 st contact makes / 2 nd contact makes (NO/NO) ⁽¹⁾ | | | | | | | | | | | 8011 | |
| 1 st contact makes / 2 nd contact breaks (NO/NC) ⁽¹⁾ | | | | | | | | | | | 8012 | |
| 1 st contact breaks / 2 nd contact makes (NC/NO) ⁽¹⁾ | | | | | | | | | | | 8021 | |
| 1 st contact breaks / 2 nd contact breaks (NC/NC) ⁽¹⁾ | | | | | | | | | | | 8022 | |
| Options to be added behind the / (see example page 4) | | | | | | | | | | | | |

⁽¹⁾ with clockwise pointer motion.