



TEMPERATURE

GAUGE | ACCESSORIES | SWITCH

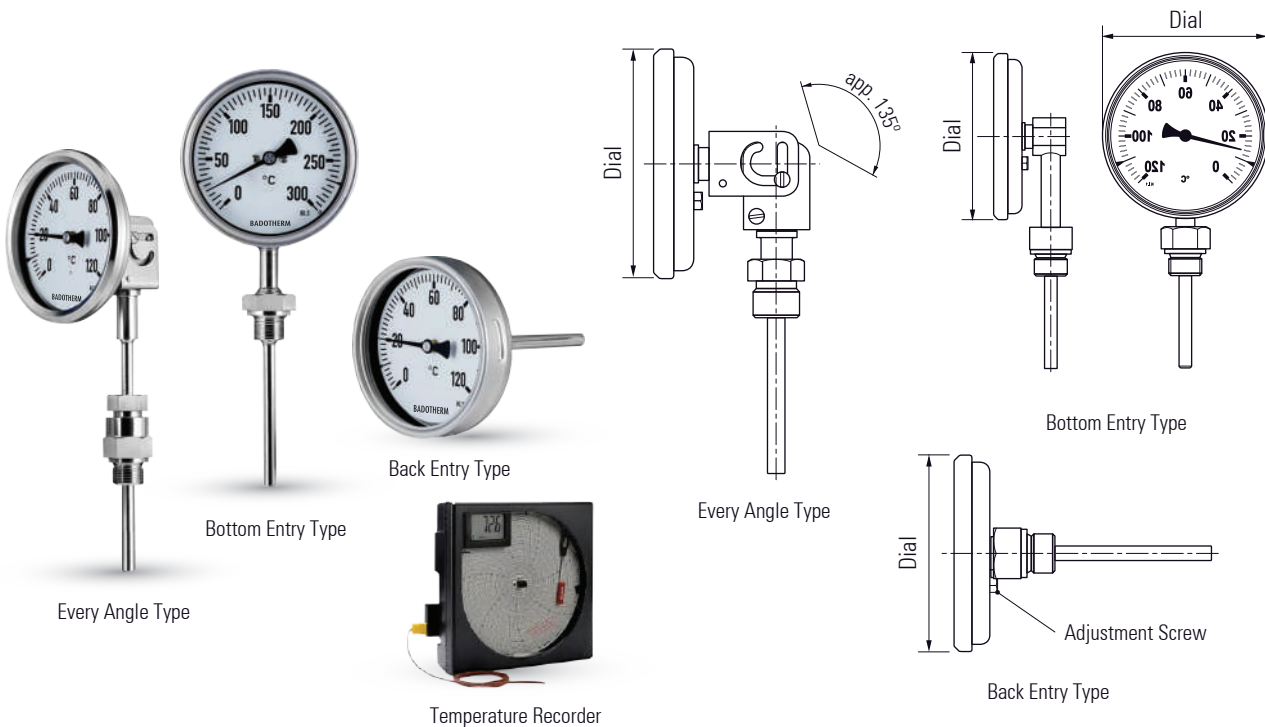
A temperature gauge is a device used to indicate the temperature of an item being monitored. Common methods of measuring temperature include bimetallic strip (the bending of which increases with temperature) and the thermocouple which produces an electronic voltage that depends on the temperature.

Temperature switches are generally used in industry for limiting temperature. They monitor the temperature of machinery and equipment and, for example, switch off machinery if it overheats or switch on a fan to cool the equipment.

TEMPERATURE GAUGE & RECORDER (BI-METAL)

VALVES
MALAYSIA

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APPLICATION

Suitable for corrosive, food & beverage, pharmaceutical, cryogenics, pumps, diesel engines & refrigerating plants, chemical & petrochemical industries, conventional & nuclear power plants, environments & gaseous or liquid media that will not obstruct the pressure system, hydro-cleaning machines, presses, engine compressors, turbines.

SPECIFICATION - TECHNICAL DATA

| Dial Size (mm) | 50 | 63 | 80 | 100 | 160 | 200 |
|----------------------------------|--|----|----|-----|-----|-----|
| Stem Length (mm) | 50 to 1200 | | | | | |
| Measuring Ranges* | -30 ... 50°C to 0 ... 650°C | | | | | |
| Accuracy (according to EN 13190) | Class 1 | | | | | |
| Wetted Parts Material | Stainless steel (304) / Stainless steel (316) / Stainless steel (316L) | | | | | |
| Measuring Element | Bi-metal strip coiled | | | | | |
| Case Material | Stainless Steel (304) / Stainless steel (316) | | | | | |
| Process Connection | G 1/4 / G 3/8 / G 1/2 / 1/8 NPT / 1/4 NPT / 3/8 NPT / 1/2 NPT | | | | | |
| Protection Rating | IP 65 - IP 67 | | | | | |
| Approval | ATEX II2GDc | | | | | |
| Additional Information | With damping fluid / Zero adjustment | | | | | |

* Note : Other temperature units are available on request

SPECIFICATION - TECHNICAL DATA (TEMPERATURE RECORDER)

| | |
|-------------|---|
| Case | Cast aluminium, Corrosion resistant backed black enamel case / MS /SS |
| Dimension | 14" x 17" x 5" |
| Weight | 24 lbs approximately and plus element weight |
| Pens | Disposable recording fiber tip recording pen |
| Mounting | Flush or Face |
| Connection | Bottom standard |
| Chart | 10" Circular |
| Accuracy | 1% of span range |
| Chart Drive | Standard 8 days manual or electrical 110 or 220 V 50 cycles rotation 24 hours |
| Ink | Red or blue |
| Recording | Single pen or double pen |
| System | Mercury in steel for temperature recorder & Bottom system for pressure recorder |
| Threads | 1/2" or 3/4" or 1" or other threads |
| Capillary | PVC / Copper / Other metal on request |
| Parts | All parts in list made as per international standard in stainless steel, brass and spring steel |

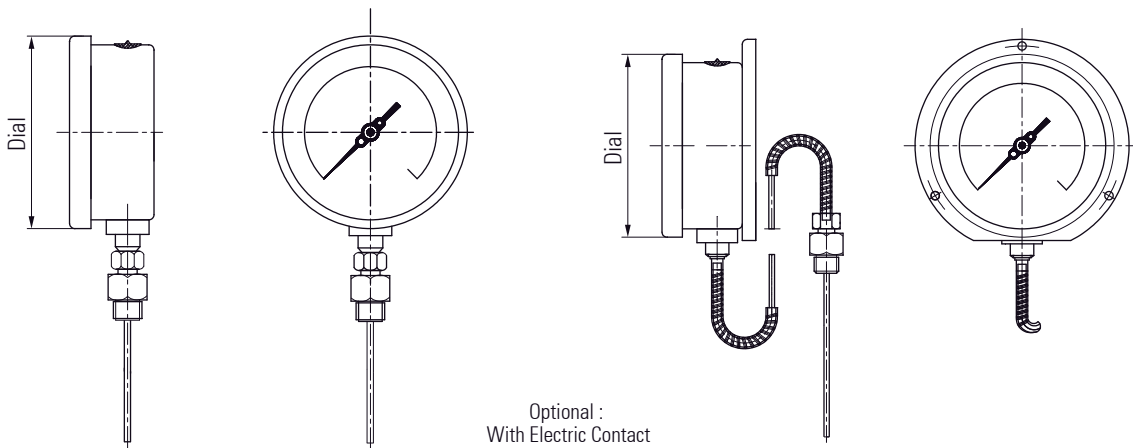
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Temperature Gauge Type 1



Temperature Gauge Type 2



APPLICATION

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SPECIFICATION - TECHNICAL DATA

| | | | | | | |
|----------------------------------|--|-----|-----|-----|-----|-----|
| Dial Size (mm) | 100 | 125 | 150 | 200 | 250 | 200 |
| Stem Length (mm) | 50 to 600 | | | | | |
| Capillary Length (m) | 1 / 3 / 7 / 10 / 15 / Other length are available on request | | | | | |
| Measuring Ranges* | -40 ... 60°C to 0 ... 650°C | | | | | |
| Accuracy (according to EN 13190) | Class 1 | | | | | |
| Wetted Parts Material | Stainless steel (304) / Stainless steel (316) / Stainless steel (316L) | | | | | |
| Measuring Element | Inert gas filled expansion system | | | | | |
| Case Material | Stainless Steel (304) / Stainless steel (316) | | | | | |
| Process Connection | G 1/4 / G 3/8 / G 1/2 / 1/8 NPT / 1/4 NPT / 3/8 NPT / 1/2 NPT | | | | | |
| Protection Rating | IP 65 - IP 67 | | | | | |
| Approval | ATEX II2GDC | | | | | |
| Additional Information | With damping fluid / Zero adjustment / Electrical contacts | | | | | |

* Note : Other temperature units are available on request

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TEMPERATURE GAUGE (VARIOUS APPLICATION)



Bi-metal
HVAC Application Type

Bi-metal
All Stainless Steel Type



Bi-metal
Industrial Application Type



Bi-metal
Heavy Duty Type



Bi-metal
Clamp-on Type



Bi-metal
Airducts in Ventilation
System Type

SPECIFICATION - TECHNICAL DATA

| Temperature Gauge Type | Bi-metal | | | | |
|----------------------------------|--|---|--|---|---|
| General Data | <ul style="list-style-type: none"> HVAC applications Conical immersion tube for good heat transfer Zero adjustment All stainless steel thermometer For corrosive applications | <ul style="list-style-type: none"> Heavy industry version Oil filling available as option | <ul style="list-style-type: none"> Clamp-on thermometer For insulated pipes up to Ø 2" Insulating material thickness 30 ... 110mm | <ul style="list-style-type: none"> Industrial applications Small size All stainless steel design | <ul style="list-style-type: none"> For airducts in ventilation systems Rear flange for wall mounting Zero adjustment |
| Industries | HVAC, Oil & gas / Chemical water / Waste water energy | Oil & gas / Chemical water / Waste water energy | HVAC | Laboratory & medical, Energy, Machinery | HVAC |
| Nominal Size | 80 / 100 / 130 160 | 100 / 130 | 80 / 100 | 40 / 63 | 100 |
| Measuring Ranges | -70 ... +600°C | -70 ... +600°C | -20 ... +160°C | -30 ... +500°C | -30 ... +80°C |
| Accuracy (according to EN 13190) | Class 1 | Class 1 | Class 1 | Class 1 (≤ 250°C) Class 2 (> 250°C) | Class 1 |
| Immersion Tube Material | Cu-alloy St. steel 1.4571 (316Ti) | St. steel 1.4571 (316Ti) | St. steel 1.4571 (316Ti) | St. steel 1.4571 (316Ti) | Cu-alloy |
| Immersion Tube Outlet | Bottom, Center back, Center back every angle | Center back every angle | Center back | Center back | Center back |
| Immersion Tube Diameter (mm) | Conical 6, 8 | 6, 8 | - | 4 | 8 |
| Immersion Tube Length (mm) | 60 ... 1000 | 60 ... 1000 | - | 60 ... 400 | 165 |
| Capillary | - | - | - | - | - |
| Contacts | - | - | - | - | - |
| Case Material | St. steel 1.4301 (304) | St. steel 1.4301 (304) | St. steel 1.4301 (304) | St. steel 1.4301 (304) | St. steel 1.4301 (304) |
| Sensing Element | Bi-metal | Bi-metal | Bi-metal | Bi-metal | Bi-metal |
| Protection Rating | IP 67 | IP 68 | IP 50 | IP 52 | IP 50 |
| Approval | ATEX Ex II 2 GDc | ATEX Ex II 2 GDc | - | - | - |

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SPECIFICATION - TECHNICAL DATA

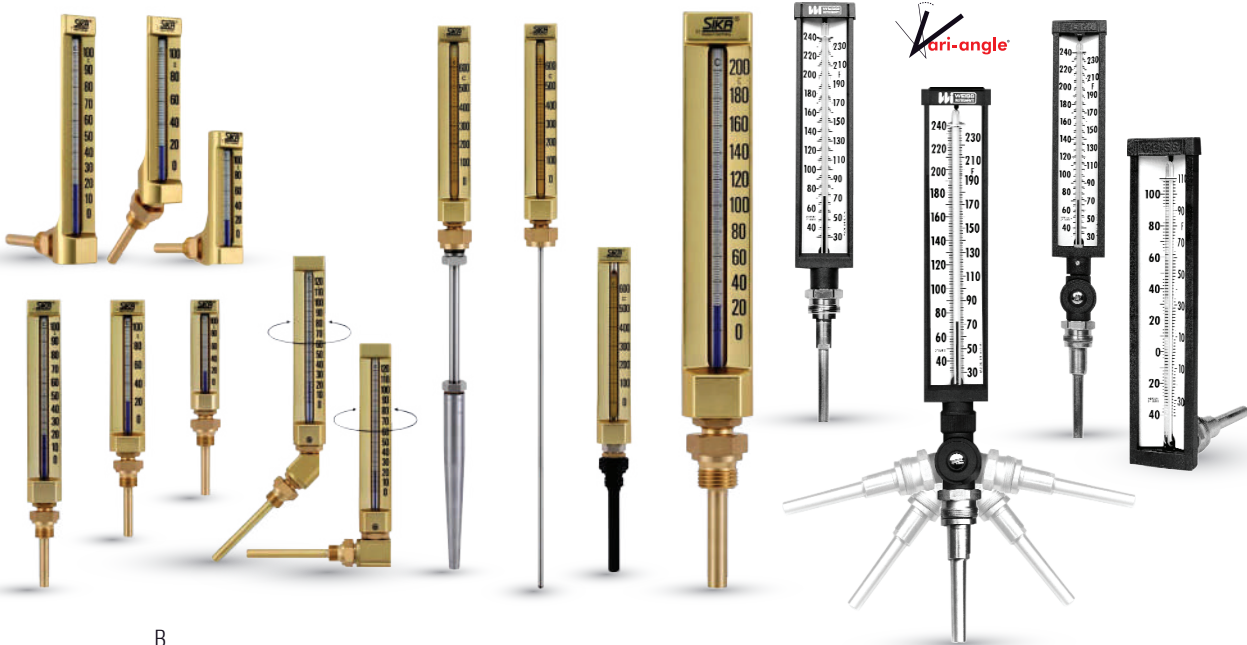
| Temperature Gauge Type | Gas Filled Plunger / Capillary | | | |
|----------------------------------|--|--|--|--|
| General Data | <ul style="list-style-type: none"> • Direct measurement industrial thermometer • Liquid filling as option • Zero adjustment | <ul style="list-style-type: none"> • Remote measurement industrial thermometer • Liquid filling as option • Zero adjustment | <ul style="list-style-type: none"> • Direct reading industrial thermometer • With contacts • Liquid filling as option | <ul style="list-style-type: none"> • Remote measurement industrial thermometer • With contacts • Liquid filling as option |
| Industries | Oil & gas / Chemical water / Waste water energy, Machinery | Oil & gas / Chemical water / Waste water energy, Machinery | Oil & gas / Chemical water / Waste water energy, Machinery | Oil & gas / Chemical water / Waste water energy, Machinery |
| Nominal Size | 63 / 80 / 100 / 160 / 250 | 63 / 80 / 100 / 160 / 250 | 100 / 160 | 100 / 160 |
| Measuring Ranges | -200 ... +800°C | -200 ... +800°C | -200 ... +800°C | -200 ... +800°C |
| Accuracy (according to EN 13190) | Class 1 | Class 1 | Class 1 | Class 1 |
| Immersion Tube Material | St. steel 1.4541 (321) | St. steel 1.4541 (321) | St. steel 1.4541 (321) | St. steel 1.4541 (321) |
| Immersion Tube Outlet | - | - | - | - |
| Immersion Tube Diameter (mm) | 6, 8, 11, 14 | 6, 8, 11, 14 | 6, 8, 11, 14 | 6, 8, 11, 14 |
| Immersion Tube Length (mm) | 100 ... 1000 | 100 ... 1000 | 100 ... 1000 | 100 ... 1000 |
| Capillary | - | 0.5 to 30m | - | 0.5 to 30m |
| Contacts | - | - | 1 or 2 set points Sliding, Magnetic spring or inductive contacts | 1 or 2 set points Sliding, Magnetic spring or inductive contacts |
| Case & Sleeve Material | St. steel 1.4301 (AISI 304) | St. steel 1.4301 (AISI 304) | St. steel 1.4301 (AISI 304) | St. steel 1.4301 (AISI 304) |
| Sensing Element | Gas filled plunger | Gas filled plunger and capillary | Gas filled plunger | Gas filled plunger and capillary |
| Protection Rating | IP 65 | IP 65 | IP 65 | IP 65 |
| Approval | ATEX Ex II 2 GDC | ATEX Ex II 2 GDC | ATEX Ex ia IIC T4 Gb Ex ia IIIC T135°C ... T85°C Db | ATEX Ex ia IIC T4 Gb Ex ia IIIC T135°C ... T85°C Db |

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TEMPERATURE GAUGE (INDUSTRIAL V-LINE)

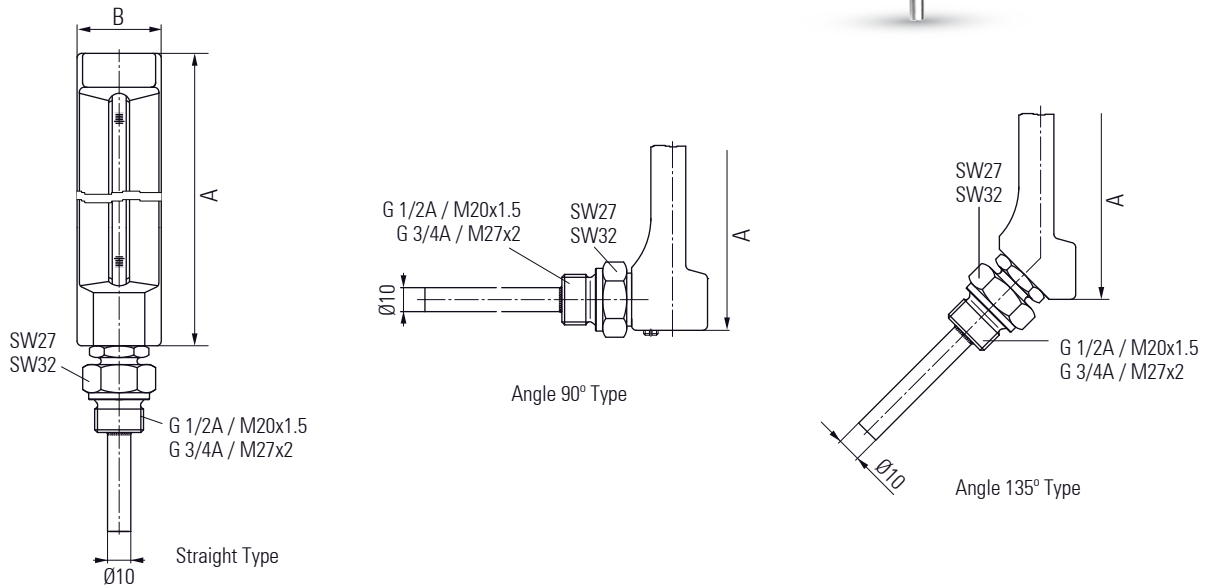
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Temperature Gauge

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APPLICATION

Suitable for corrosive, food & beverage, pharmaceutical, cryogenics, pumps, diesel engines & refrigerating plants, chemical & petrochemical industries, conventional & nuclear power plants, environments & gaseous or liquid media that will not obstruct the pressure system, hydro-cleaning machines, presses, engine compressors, turbines.

SPECIFICATION - TECHNICAL DATA

| Casing - A x B (mm) | 200 x 36 | 150 x 36 | 110 x 30 | 225 x 60 |
|----------------------------|--|----------|----------|----------|
| Measuring Ranges | -60 +40°C / -30 +50°C / 0 +60°C / 0 +100°C / 0 +120°C / 0 +160°C / 0 +200°C / 0 +250°C / 0 +300°C / 0 +400°C / 0 +500°C / 0 +600°C | | | |
| Scale* | Celsius (°C) / Celsius + Fahrenheit (°C + °F) | | | |
| Column (Filling) | Alcohol (up to 250°C) Mercury (+250°C) | | | |
| Immersion Tube Length (mm) | 40 / 63 / 100 / 160 / 250 / 400 | | | |
| Connection Thread | G 1/2 / G 3/4 / M20 / M27 | | | |
| Immersion Tube Material | Brass / Stainless steel (304) / Stainless steel (316) | | | |

* Note : Other temperature units are available on request

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SPECIFICATION - TECHNICAL DATA

| Accessories | Threaded Process | Welded Process | Flanged Process |
|---------------------------|--|--|---|
| General Data | <ul style="list-style-type: none"> • HVAC and industrial applications • Fitting all TBx and TSx • Threaded process connection | <ul style="list-style-type: none"> • HVAC and industrial applications • Fitting all TBx and TSx • Welded process connection | <ul style="list-style-type: none"> • Process applications • DIN / ISO / ANSI / Flanges • Threaded connections (NPT or G) |
| Industries | Water / Waste water Machinery HVAC | Water / Waste water Machinery HVAC | Oil & gas / Chemical water / Waste water energy |
| Process Temperature | Max. 650°C | Max. 650°C | Max. 600°C (Depending on process pressure) |
| Max. Pressure | Max. 250 Bar | Max. 250 Bar | Max. 400 Bar (Depending on process temperature) |
| Materials | Brass Steel Stainless steel | Steel Stainless steel | Stainless steel |
| Length (mm) | 50 ... 1000 | 50 ... 1000 | 100 ... 1000 |
| For Immersion Tube Ø (mm) | 4, 6, 8 | 6, 8 | 7 to 18 |

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TEMPERATURE SWITCH



General Duty Temperature Switch

Main Features

- Excellent repeatability
- Dead band adjustment for regulation
- Fix dead band for control and alarm
- Capillary 1 to 20 meters



Explosion Proof Temperature Switch

Main Features

- Excellent repeatability
- Dead band adjustment for regulation
- Fix dead band for control and alarm
- Explosion proof hazardous areas 1, 2, 21, 22

APPLICATION

Suitable for power generation safety equipment

SPECIFICATION - TECHNICAL DATA

| Temperature Switch Type | General Duty | Explosion Proof |
|-------------------------|--|---|
| Temperature Range | -46 ... 0°C to 200 ... 270°C | -46 ... 0°C to 200 ... 270°C |
| Temperature | Process : -46 ... +270°C / Ambient : -30 ... +55°C / Storage : -40 ... +55°C | |
| Repeatability | ± 1% F.S. / Constant temperature cycle | |
| CE Conformity | Low voltage directive 2014/35/EU | Low voltage directive 2014/35/EU ATEX Directive 2014/34/EU |
| Protection Ring | IP 66 (EN 60529) | |
| Process Connection | Stainless steel 1.4404 (316L) | |
| Bulb | Stainless steel 1.4435 / 1.4404 (316L) | Stainless steel 1.4404 (316L) |
| Capillary | RTA : Copper alloy / RTN : Stainless steel 1.4404 (316L) Capillary without protection / with Stainless steel protection / with PVC coating | |
| Scale | Internal. accuracy on reading ± 5% F.S. | |
| Cover / Housing | Zamak blue painted Captive stainless steel screws | Type RA80, Explosion proof, Flameproof Aluminium epoxy painted Captive stainless steel screws |
| Case | Black zamak | - |
| Mounting | Wall mounting bracket | 3 back lugs for wall mounting |
| Ground Connection | Via internal terminal block | |
| Electrical Connection | Terminal block with plastic cable gland for Ø 7 to 10.5mm | Terminal block with metallic cable gland for Ø 7 to 12mm standard |
| Electrical Function | 1/2 - SPDT - Std. / Hermetically / Ultra sensitive / Gold contact switch | |
| Adjustment | 2 external adjustment screws on top of the case for set point and dead band | |
| Approval | - | Certificate LCIE 03 ATEX 6231X (Type RA80), IECEx LCIE 15.0061X Classification CE, Ex II 2 G D, Ex d IIC T6 or T5 GB, Ex tb IIIC T8 °C or T95 °C Db T° ambient -20 °C to +60 °C (T6 or T8 °C) or -20 °C to +70 °C (T5 or T95 °C) |
| Options | <ul style="list-style-type: none"> • Customer specific set point adjustment Code SETP • Mounting on 2" pipe Code 0407 • Stainless steel tag plate and wire Code 9941 • Lead seal of the adjustment screws Code 8990 • Nuclear cleanliness (RTN only) Code 0838 • Electrical connection : Code 2298 Stainless steel connector (Souriau) • Mobile plug for stainless steel connector (Souriau) Code 2249 | <ul style="list-style-type: none"> • Customer specific set point adjustment Code SETP • Mounting on 2" pipe Code 0407 • Stainless steel tag plate and wire Code 9941 • Lead seal of the adjustment screws Code 8990 • Nuclear cleanliness (RTN only) Code 0838 |

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