

RT2N

Compact temperature switch

RT2-##.##.###C#

Overview

- Excellent repeatability
- Dead band adjustment for regulation
- Fix dead band for control
- Resistant to accidental overtemperature
- Light weight



Picture similar

Technical data

Housing

| | |
|------------------------------|------------------------------------|
| Protection rating (EN 60529) | IP66 |
| Body | Black painted, zamak |
| Case material | Blue painted, zamak |
| Mounting | Wall mounting, 2 x M5 screws |
| Scale | Internal graduated scale |
| Bulb | Stainless steel 1.4404 / AISI 316L |

Performance

| | |
|------------------------|-------------------|
| Min. temperature range | -46°C ... +0°C |
| Max. temperature range | +160°C ... +250°C |
| Repeatability | ± 1 % FS |

Temperature

| | |
|---------------------|--|
| Ambient temperature | -30°C ... +70°C |
| Storage temperature | -40°C ... +40°C ,Code 40 -40°C ... +60°C ,Code 60 -40°C ... +70°C, other codes |

Temperature

| | |
|-------------------|--|
| Media temperature | -46°C ... +250°C, depends on the scale |
|-------------------|--|

Wetted parts

| | |
|-----------------------------|------------------------------------|
| Process connection material | Stainless steel 1.4404 / AISI 316L |
|-----------------------------|------------------------------------|

Electrical data

| | |
|-----------------------|--|
| Electrical connection | Via internal terminal block with cable gland for Ø 5.5 to 8.5 mm |
| CE conformity | Low Voltage Directive 2014/35/UE |
| Ground connection | Via internal terminal block |
| Adjustment | Internal adjustment possible for set point and deadband |

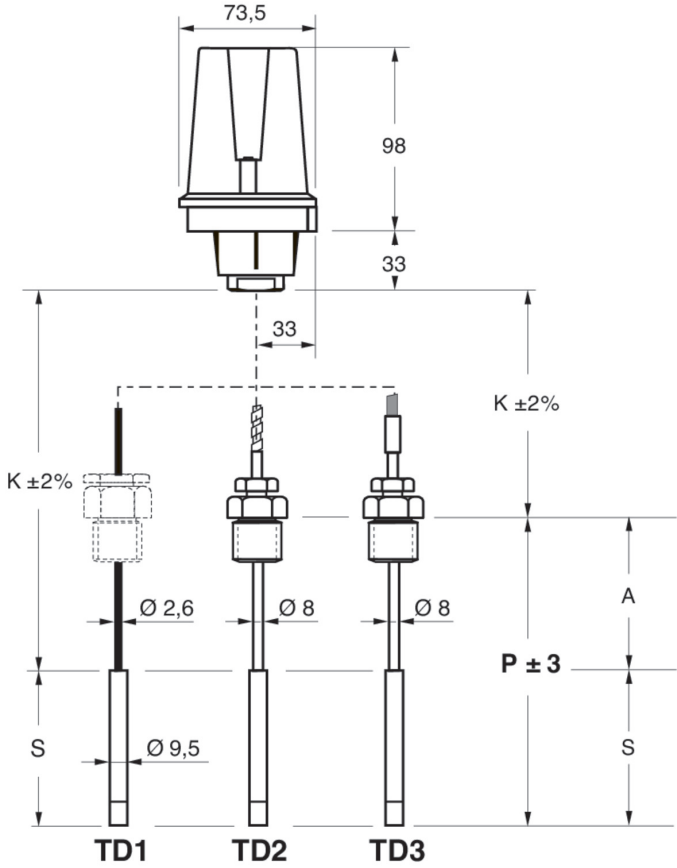
Weight

| | |
|--------------------|----------------------|
| Temperature switch | 960 g + transmission |
|--------------------|----------------------|

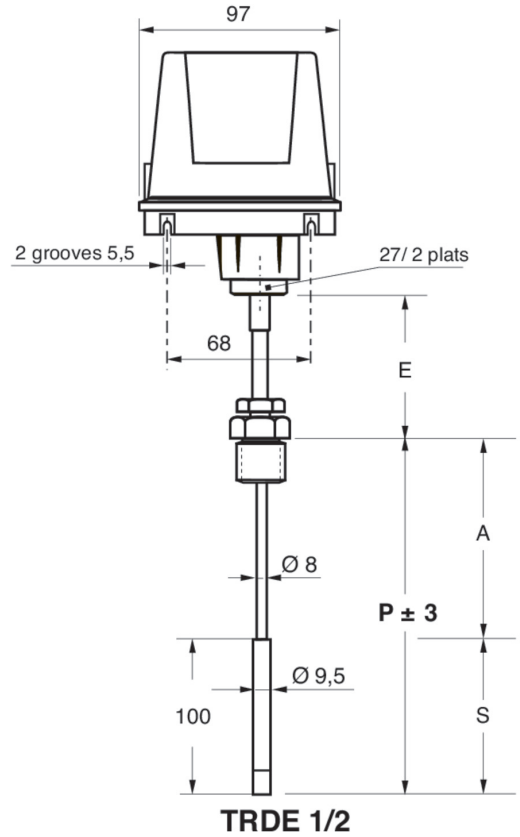
Remarks

- These devices must be used as instruments that provide electrical information according to the value of the input variable. They are not intended to be used as a safety accessory. It is the responsibility of the user to check the compatibility of the device with its intended use.

Dimensional drawings (mm)



Temperature switches with capillary



Direct mount temperature switches

S = Bulb length (temperature sensitive part)

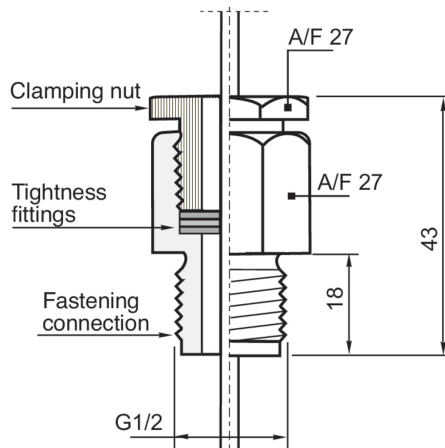
A = Additional stem length (min. 25 mm)

P = Immersion length (P = S + A)

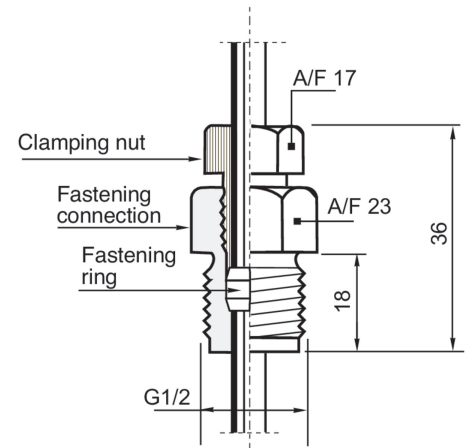
K = Capillary length (only TD1, TD2, TD3)

E = Extension between process connection and housing only TRDE1 and TRDE2

For version TD1 there is no additional stem length (A = 0). The sliding connection is mounted on the capillary.



Stainless steel sliding male connection: G 1/2 (TD1)
Waterproof after tightening mounted on the capillary.



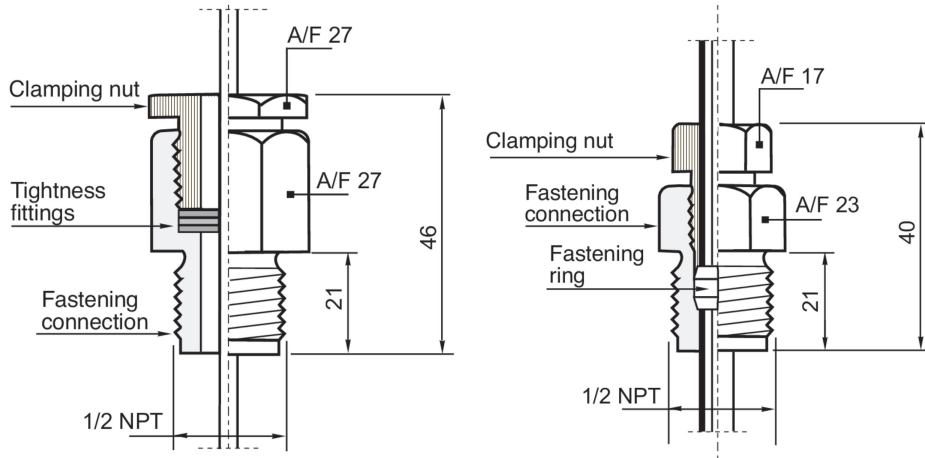
Stainless steel sliding male connection: G 1/2 (TD2/3, TRDE1/2)
After tightening of the clamping nut, the stem is fixed in the process connection. Tight up to 40 bar.

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RT2-##.##.##C#

Dimensional drawings (mm)



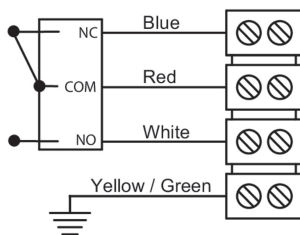
Stainless steel sliding male connection: 1/2 NPT (TD1)
Waterproof after tightening mounted on the capillary.

Stainless steel sliding male connection: 1/2 NPT (TD2/3, TRDE1/2)
After tightening of the clamping nut, the stem is fixed in the process connection. Tight up to 40 bar.

| | Capillary | Code | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 48 |
|---------------|--------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|
| TRDE1 | n/a | S / mm | 100 | 100 | 100 | 100 | n/a | 100 | n/a | n/a |
| TRDE2 | n/a | S / mm | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| TD1, TD2, TD3 | K = 1...4 m | S / mm | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| TD1, TD2, TD3 | K = 5...7 m | S / mm | 100 | 150 | 150 | 100 | 100 | 150 | 100 | 100 |
| TD1, TD2, TD3 | K = 8...10 m | S / mm | 100 | 200 | 200 | 100 | 100 | 200 | 100 | 100 |

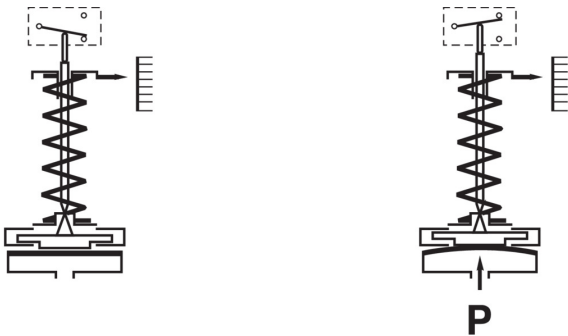
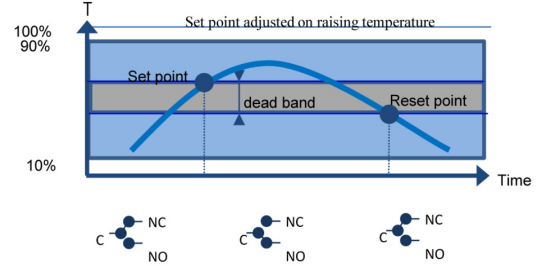
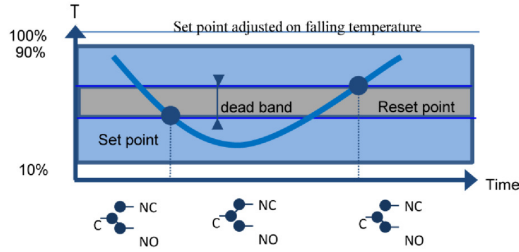
Bulb length (S) according to the capillary length (K) and the temperature range (code)
Versions with S = 150 mm or S = 200 mm are not feasible with P = 150 mm

Electrical connection



1 SPDT

Principle



A vapour filled flexible sensing element actuates a microswitch by means of a piston. The set point is adjusted by means of a compressible spring installed in opposition.

Set point and reset point must be between 10% and 90% of the selected scale.

Standard factory adjustment

Setpoint at 50% of the scale on falling temperature.

Customer specific factory adjustment (option SETP)

The following specifications have to be given with the order:

- Setpoint value
- Adjustment on falling or raising temperature
- Dead band value (as needed) when using an adjustable dead band switch (not for RT2Y)

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RT2-##.##.###C#

Adjustable ranges

| Scale | T max | Code | Micro-switch dead band ¹⁾ | | | | | |
|-------------|-------|------|--------------------------------------|--------------|-----------------|-----|-----|-----|
| | | | Adjustable dead band | | Fixed dead band | | | |
| R | | | L | | M - P | | | |
| 10% | 90% | | 10% | 90% | 10% | 90% | | |
| °C | °C | °C | °C | °C | °C | °C | °C | |
| -46 ... 0 | 40 | 40 | 4 ... 7.5 | 2.5 ... 6.5 | 1 | 1 | 5 | 4 |
| -20 ... 20 | 60 | 41 | 2.5 ... 5.5 | 2 ... 6.5 | 1 | 1 | 5 | 4 |
| 0 ... 45 | 80 | 42 | 3 ... 6 | 2.5 ... 7 | 1 | 0.5 | 3.5 | 3 |
| 40 ... 120 | 145 | 43 | 5.5 ... 10.5 | 3 ... 8.5 | 1.5 | 1 | 6 | 6 |
| 100 ... 180 | 190 | 44 | 6 ... 12 | 4 ... 7.5 | 1.5 | 1 | 7 | 5.5 |
| 20 ... 90 | 120 | 45 | 6.5 ... 12.5 | 4 ... 8 | 2 | 1.5 | 11 | 11 |
| 160 ... 250 | 290 | 46 | 6 ... 11 | 4 ... 11 | 1.5 | 1 | 6.5 | 5 |
| 70 ... 150 | 175 | 48 | 9.5 ... 18.5 | 5.5 ... 10.5 | 1.5 | 1.5 | 11 | 8 |

1) The value of the dead band is depending on the value of the set point. This table contains the dead band values for set point adjustment at 10% and 90% of the selected scale. For adjustable dead band the lower value corresponds to the dead band spring totally released and the higher corresponds to the dead band spring fully tensed. For other set points the dead band value can be calculated by linear interpolation between the values at 10% and 90%.

Micro switch characteristics

| Switch code | R | L | M | P |
|---|----------------------|-----------------|--------------|-----------------|
| Type | Adjustable dead band | Fixed dead band | | |
| | | Standard | Gold contact | Ultra sensitive |
| 6 Vdc | 0.4 ... 10 A | N/A | 10 ... 50 mA | 0.4 ... 4 A |
| 12 Vdc | 0.4 ... 10 A | N/A | 10 ... 50 mA | 0.4 ... 4 A |
| 24 Vdc | 0.4 ... 5 A | N/A | 10 ... 50 mA | 0.4 ... 4 A |
| 30 Vdc | 0.4 ... 5 A | N/A | 10 ... 50 mA | 0.4 ... 2 A |
| 48 Vdc | 0.4 ... 5 A | N/A | 10 ... 50 mA | N/A |
| 110 Vdc | 0.2 ... 0.25 A | N/A | 10 ... 50 mA | N/A |
| 220 Vdc | 0.1 ... 0.25 A | N/A | 10 ... 50 mA | N/A |
| 115 Vac | 0.4 ... 10 A | 0.4 ... 10 A | 10 ... 50 mA | N/A |
| 250 Vac | 0.2 ... 10 A | 0.2 ... 10 A | N/A | N/A |
| Dielectric rigidity between contacts and ground | 2000 V | 2000 V | 2000 V | 1000 V |

Ordering reference
Ordering key - Configuration possibilities see website

| | RT2 | - | N | # | . | ## | . | # | # | # | C | # |
|--|-----|---|---|---|---|----|---|---|---|---|---|---|
| Product | RT2 | | | | | | | | | | | |
| ATEX | | | N | | | | | | | | | |
| without ATEX | | | N | | | | | | | | | |
| Type of Microswitch | | | | | | | | | | | | |
| 1xSPDT Standard change-over | | | | L | | | | | | | | |
| 1 gold contact changeover switch | | | | M | | | | | | | | |
| 1 hermetically ultra sensitive changeover switch | | | | P | | | | | | | | |
| 1xSPDT adjust. Dead band | | | | R | | | | | | | | |
| Temperature range | | | | | | | | | | | | |
| -46 ... 0°C | | | | | | 40 | | | | | | |
| -20 ... 20°C | | | | | | 41 | | | | | | |
| 0 ... 45°C | | | | | | 42 | | | | | | |
| 40 ... 120°C | | | | | | 43 | | | | | | |
| 100 ... 180°C ⁽¹⁾ | | | | | | 44 | | | | | | |
| 20 ... 90°C | | | | | | 45 | | | | | | |
| 160 ... 250°C ⁽¹⁾ | | | | | | 46 | | | | | | |
| 70 ... 150°C ⁽¹⁾ | | | | | | 48 | | | | | | |
| Type of design | | | | | | | | | | | | |
| without protection | | | | | | | | | | 1 | | |
| with st. steel protection | | | | | | | | | | 2 | | |
| with st. steel protection and PVC coating | | | | | | | | | | 3 | | |
| TRDE1 rigid stem, E = 65 mm ⁽²⁾ | | | | | | | | | | C | | |
| TRDE2 rigid stem, E = 120 mm | | | | | | | | | | D | | |
| Length of capillary | | | | | | | | | | | | |
| without capillary | | | | | | | | | | | | 0 |
| 1 m | | | | | | | | | | | | 1 |
| 2 m | | | | | | | | | | | | 2 |
| 3 m | | | | | | | | | | | | 3 |
| 4 m | | | | | | | | | | | | 4 |
| 5 m | | | | | | | | | | | | 5 |
| 6 m | | | | | | | | | | | | 6 |
| 7 m | | | | | | | | | | | | 7 |
| 8 m | | | | | | | | | | | | 8 |
| 9 m | | | | | | | | | | | | 9 |
| 10 m | | | | | | | | | | | | A |
| Immersion length | | | | | | | | | | | | |
| S+ A min (see datasheet) | | | | | | | | | | | | 0 |
| 150 mm ⁽³⁾ | | | | | | | | | | | | 3 |
| 250 mm ⁽³⁾ | | | | | | | | | | | | 4 |
| 600 mm ⁽³⁾ | | | | | | | | | | | | 6 |
| 1000 mm ⁽³⁾ | | | | | | | | | | | | D |
| Bulb diameter | | | | | | | | | | | | |
| 9.5 mm ⁽³⁾ | | | | | | | | | | | | C |
| Process connection | | | | | | | | | | | | |
| without connection | | | | | | | | | | | | 0 |
| G 1/2 | | | | | | | | | | | | 3 |
| 1/2 NPT | | | | | | | | | | | | 6 |

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RT2-##.##.###C#

Ordering reference

Ordering key - Configuration possibilities see website

- (1) Not for TRDE1
- (2) For temperature measurement below 120 °C
- (3) Not for TD1

Ordering example

| | | | | | | | | | | | | | | |
|----------------------------|-----------------------------|---|---|---|---|----|---|---|---|---|---|---|---|------|
| | RT2 | - | N | L | . | 40 | . | 1 | 1 | 0 | C | 0 | / | Q001 |
| Product | RT2 | | | | | | | | | | | | | |
| ATEX | without ATEX | | N | | | | | | | | | | | |
| Type of Microswitch | 1xSPDT Standard change-over | | | L | | | | | | | | | | |
| Temperature range | -46 ... 0°C | | | | | 40 | | | | | | | | |
| Type of design | without protection | | | | | | | 1 | | | | | | |
| Length of capillary | 1 m | | | | | | | | 1 | | | | | |
| Immersion length | S+ A min (see datasheet) | | | | | | | | | 0 | | | | |
| Bulb diameter | 9.5 mm | | | | | | | | | | C | | | |
| Process connection | without connection | | | | | | | | | | | 0 | | |

Certificate

Declaration of compliance with the order 2.1 according to EN 10204

Options

| | | | |
|--------------------------------|------|-------------------------------|------|
| Setpoint factory adjusted | SETP | 2.1 Certificate | Q001 |
| Mounting on 2 pipe | 0407 | 2.2 Certificate | Q002 |
| stainless steel label wired* | 9941 | 3.1 Material certificate | Q003 |
| HOUSING PREPARED FOR LEAD SEAL | 8991 | 3.1 Certif. setpoints adjust. | Q011 |