

RT2Y

Compact temperature switch intrinsic safety

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

Overview

- Excellent repeatability
- Fix dead band for control
- Resistant to accidental overtemperature
- Intrinsic safety Hazardous area 0, 1, 2



Picture similar



Technical data

Housing

Protection rating (EN 60529)	IP66
Cover	Black painted, zamak
Body	Blue, polyamide PA 6
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 ... +55°C (T6)
	-30°C ... +70°C (T5)
Storage temperature	-40°C ... +40°C ,Code 40
	-40°C ... +60°C ,Code 60
	-40°C ... +70°C, other codes
Media temperature	-46°C ... +250°C, depends on the scale

Wetted parts

Process connection material	Stainless steel 1.4404 / AISI 316L
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Electrical data

Electrical connection	Via internal terminal block with cable gland for Ø 5.5 to 8.5 mm
Ground connection	Via internal terminal block
Adjustment	Internal adjustment possible for set point

Weight

Temperature switch	960 g + transmission
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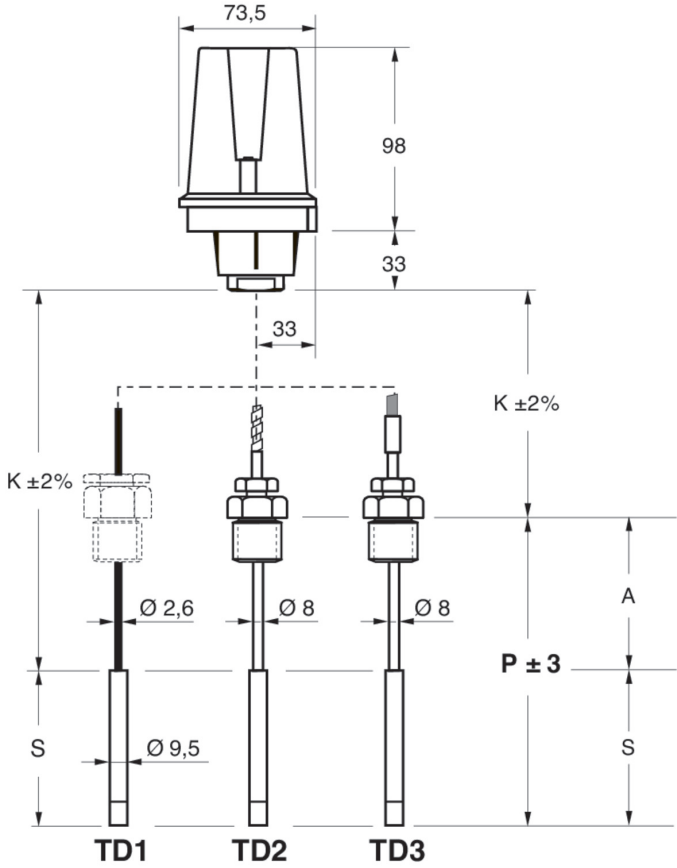
Approval / Conformities

ATEX/IECEx Certificate	LCIE 03 ATEX 6160X IECEx LCIE 15.0058X
ATEX/IECEx	ATEX directive 2014/34/UE Ex I M1 Ex ia I Ma Ex II 2 G Ex ia IIC T6 or T5 Ga Further information can be found in the ATEX approval

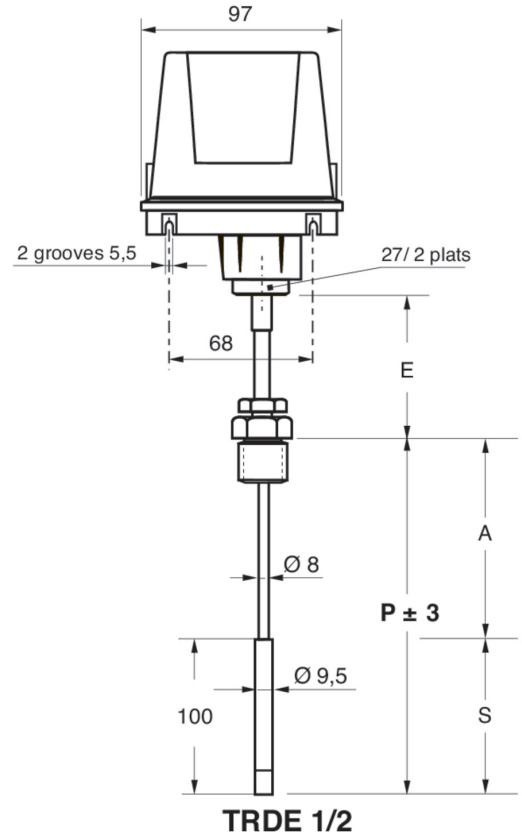
Remarks

- 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)

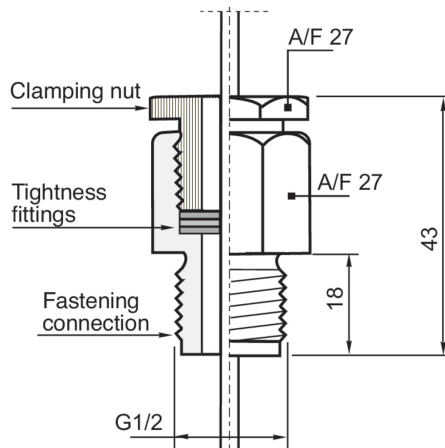
A = Additional stem length (min. 25 mm)

P = Immersion length ($P = S + A$)

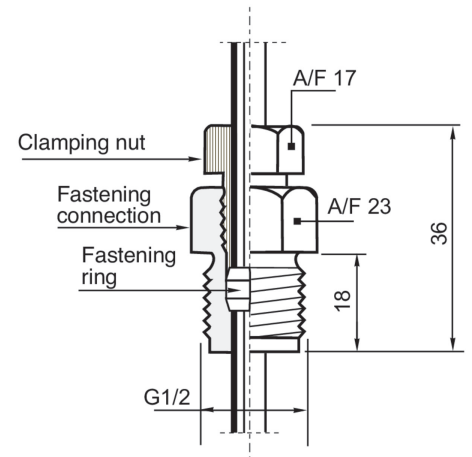
K = Capillary length (only TD1, TD2, TD3)

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.

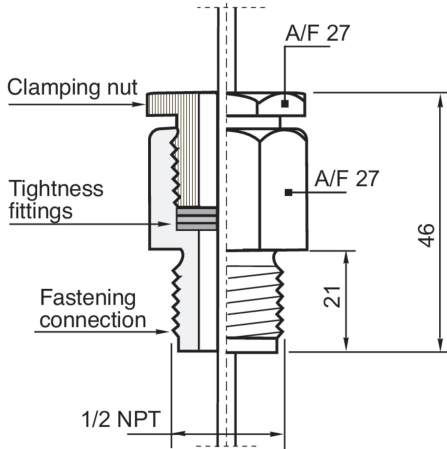


Stainless steel sliding male connection: G 1/2 (TD1)
Waterproof after tightening mounted on the capillary.

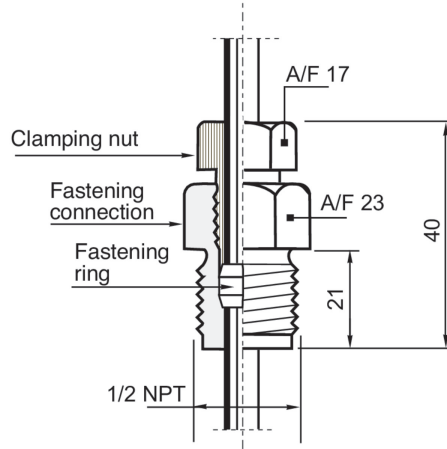


Stainless steel sliding male connection: G 1/2 (TD2/3, TRDE1/2)
After tightening of the clamping nut, the stem is fixed in the process connection. Tight up to 40 bar.

Dimensional drawings (mm)



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

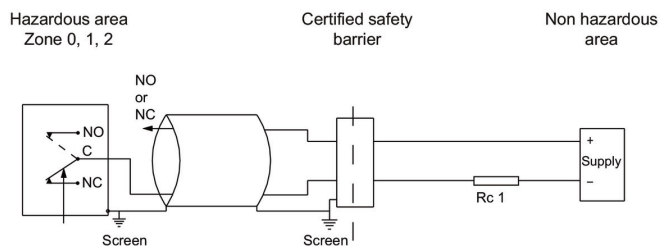
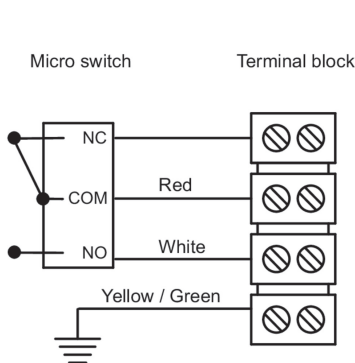


Stainless steel sliding male connection: 1/2 NPT (TD2/3, TRDE1/2)
After tightening of the clamping nut, the stem is fixed in the process connection. Tight up to 40 bar.

	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

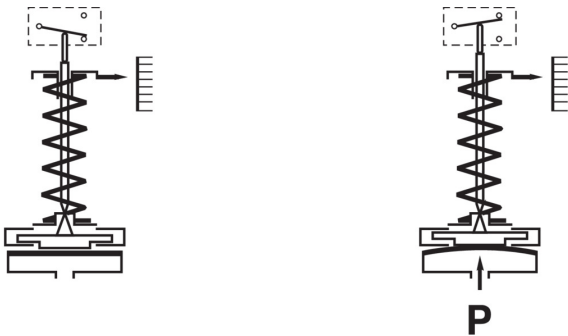
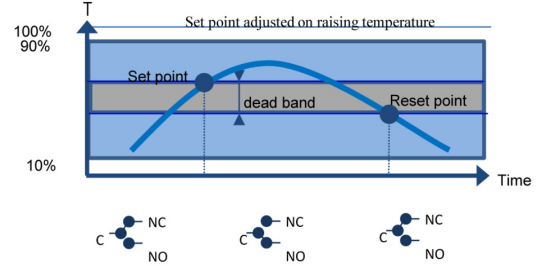
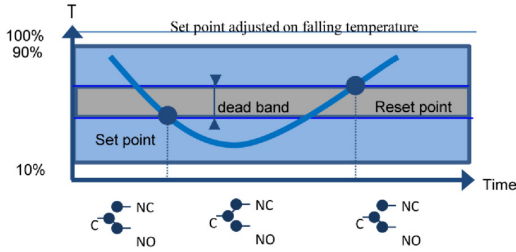


For max. ambient temperature according to temperature classes T5 and T6 refer to technical data.

The installation must be made in an intrinsically safe circuit whose certified electrical safety parameters do not exceed any of the values U_{max} , I_{max} and P_{max} given in the electrical data.

All necessary measures must be taken by the user, to avoid the calorific transfer from the fluid to the apparatus head increasing the head's temperature to such that it reaches the self-ignition temperature of the gas in which it is used.

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)

Adjustable ranges

Scale	T°C max	Code	Micro-switch dead band ¹⁾	
			Fixed dead band	
°C	°C		M	
			10%	90%
			°C	°C
-46 ... 0	40	40	5	4
-20 ... 20	60	41	5	4
0 ... 45	80	42	3.5	3
40 ... 120	145	43	6	6
100 ... 180	190	44	7	5.5
20 ... 90	120	45	11	11
160 ... 250	290	46	6.5	5
70 ... 150	175	48	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 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	M
	Gold contact
6 Vdc	10 ... 50 mA
12 Vdc	10 ... 50 mA
24 Vdc	10 ... 50 mA
30 Vdc	10 ... 50 mA
48 Vdc	N/A
110 Vdc	N/A
220 Vdc	N/A
115 Vac	N/A
250 Vac	N/A
Dielectric rigidity between contacts and ground	2000 V

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

Ordering reference

Ordering key - Configuration possibilities see website

	RT2	-	Y	M	.	##	.	#	#	#	C	#
Product	RT2											
ATEX			Y									
ATEX I M1			Y									
Ex ia I Ma			Y									
ATEX II 1 G												
Ex ia IIC T6 or T5 Ga												
HAZARDOUS AREA: 0,1,2												
Type of Microswitch				M								
1 gold contact changeover switch				M								
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
400 mm ⁽³⁾												5
600 mm ⁽³⁾												6
1000 mm ⁽³⁾												D
Bulb diameter												
9.5 mm												C
Process connection												
without connection												0
G 1/2												3
1/2 NPT												6

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	-	Y	M	.	40	.	1	1	0	C	0	/	Q001
Product	RT2													
ATEX			Y											
ATEX I M1														
Ex ia I Ma														
ATEX II 1 G														
Ex ia IIC T6 or T5 Ga														
HAZARDOUS AREA: 0,1,2														
Type of Microswitch				M										
1 gold contact changeover switch														
Temperature range						40								
-46 ... 0°C														
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