



**BOURDON**  
The Original by Baumer



## Main Features

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

## Applications

- Power generation safety equipment
- Water treatment
- Valve and compressor control

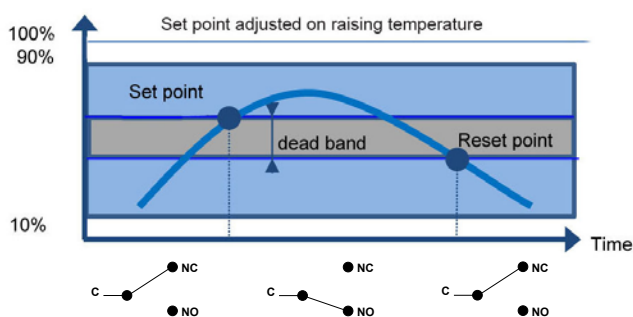
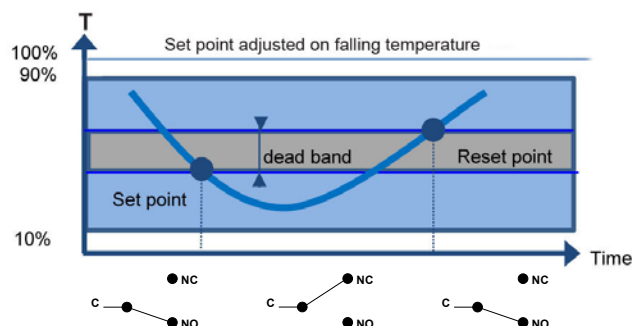
## Technical Data

Temperature range	-46 ... 0°C to 160 ... 250°C	Electrical connection	Via internal terminal block with cable gland for Ø 5.5 to 8.5 mm
Temperature	Process : -46 ... +250°C Ambient : -30 ... +70°C (T5) -30 ... +55°C (T6) Storage : -40 ... +70°C	Electrical function	See ordering code details in page 5
Repeatability	± 1% F.S. @ constant temperature cycle	Adjustment	Internal adjustment possible for set point
CE conformity	Low Voltage Directive LVD 2006/95/EC ATEX Directive 94/9/EC	ATEX	<u>Type examination certificate</u> LCIE 03 ATEX 6160X EN 60079-0 : 2009 EN 60079-11 : 2012
Protection rating	IP 66 (EN 60529)		<u>Marking</u> CE 0081 Ex I M 1 Ex ia I Ma Ex II 1 G Ex ia IIC T6 or T5 Ga
Process connection	Stainless steel 1.4404 (316L)		<u>Electrical data</u> U <sub>max</sub> = 30 Vdc I <sub>max</sub> = 66 mA P <sub>max</sub> = 0.5 W C <sub>i</sub> = Negligible ; L <sub>i</sub> = Negligible
Bulb	Stainless steel 1.4404 (316L) Ø 9.5 mm		
Scale	Internal graduated scale		
Weight	0.960 kg + transmission		
Body	Zamak black painting		
Housing	Plastic PA6, blue		
Mounting	Wall mounting 2 x M5 screws		
Ground connection	Via internal terminal block		

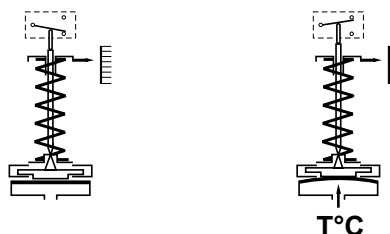
## Options

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 housing	Code 8990

## 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

## Adjustable ranges

Scale	T°C max	Code	Micro-switch dead band <sup>1)</sup>	
			Fixed dead band	
			M	
			10%	90%
°C	°C		°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

<sup>1)</sup> 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%.

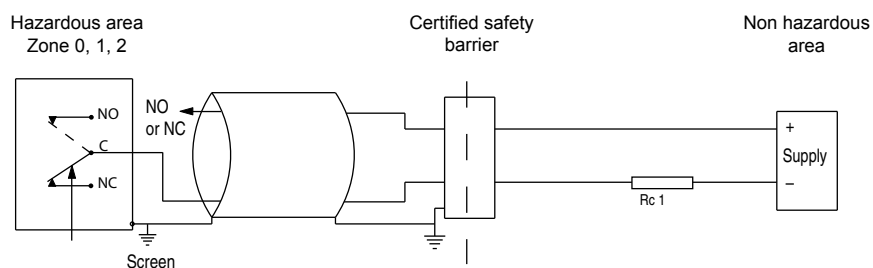
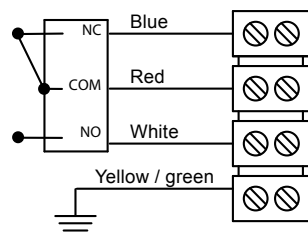
## Micro switches characteristics

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

## Electrical connections

### Micro switch

### Terminal block



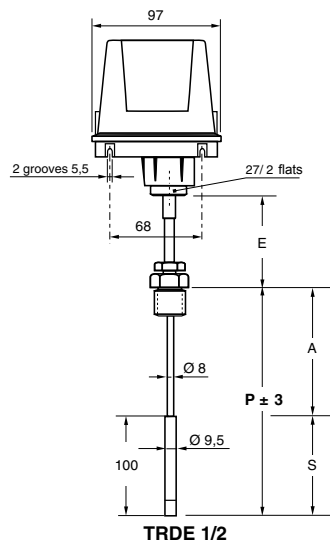
For max. ambient temperature according to temperature classes T5 and T6 refer to technical data on page 1.

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 on page 1.

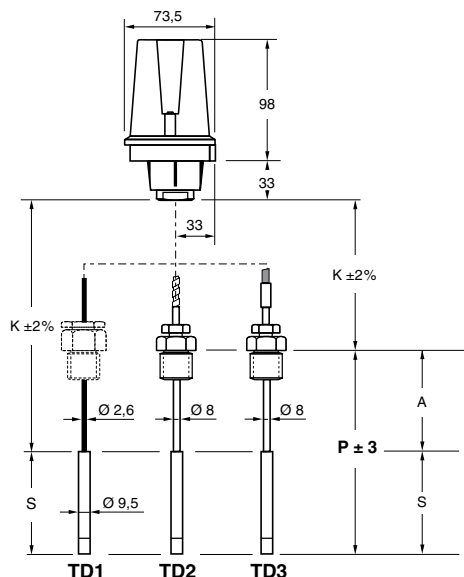
All necessary measures must be taken by the user, to avoid the calorific transfer from the fluid to the apparatus head increasing the head's temperature to such that it reaches the self-ignition temperature of the gas in which it is used.

## Dimensions (mm)

### Direct mount temperature switches



### Temperature switches with capillary



S = Bulb length (temperature sensitive part)

A = Additional stem length (min. 25 mm)

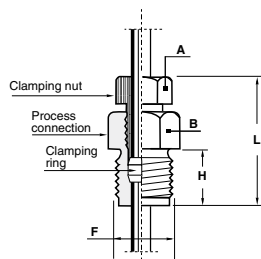
P = Immersion length ( $P = S + A$ )

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.

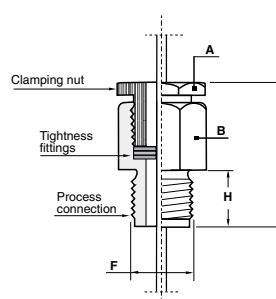
### Stainless steel sliding male connection (TD2/3, TRDE1/2)



Thread and sizes		
F	G 1/2	1/2 NPT
H	18	21
L	36	40
A	17/flat	17/flat
B	23/flat	23/flat

After tightening of the clamping nut, the stem is fixed in the process connection. Tight up to 40 bar.

### Stainless steel sliding male connection (TD1)



Thread and sizes		
F	G 1/2	1/2 NPT
H	18	21
L	43	46
A	27/flat	27/flat
B	27/flat	27/flat

Waterproof after tightening mounted on the capillary.

### Bulb length (S) according to the capillary length (K) and the temperature range (code)

	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

Versions with S = 150 mm or S = 200 mm are not feasible with P = 150 mm

## Ordering details RT2Y

		RT2	-		.		.						/
<b>Model</b>		RT2	-		.		.						/
Compact temperature switch													
<b>Approvals</b>													
ATEX intrinsic safety				Y									
<b>Type of microswitch</b>													
1 SPDT gold contact change over switch						M							
<b>Temperature range (°C)</b>													
- 46 ... 0											40		
20 ... 20											41		
0 ... 45											42		
40 ... 120											43		
100 ... 180						(not for TRDE1)					44		
20 ... 90											45		
160 ... 250						(not for TRDE1)					46		
70 ... 150						(not for TRDE1)					48		
<b>Type of transmission</b>													
TD1	Stainless steel capillary without protection										1		
TD2	Stainless steel capillary with stainless steel protection										2		
TD3	Stainless steel capillary with stainless steel protection and PVC coating										3		
TRDE1	Rigid transmission with E=65 mm for temperature measurement below 120°C										C		
TRDE2	Rigid transmission with E=120 mm for all temperature measurement										D		
<b>Capillary length (K)</b>													
Direct mounting	(for TRDE1 and TRDE2)										0		
1 meter											1		
2 meters											2		
3 meters											3		
4 meters											4		
5 meters											5		
6 meters											6		
7 meters											7		
8 meters											8		
9 meters											9		
10 meters											A		
<b>Immersion length (P)</b>													
Immersion length (P) = Bulb length (S) + additional stem length (A)													
P = S + 25 mm (minimum additional stem length A = 25 mm, for S see table on page 4)											0		
P = 150 mm (not for TD1)											3		
P = 250 mm (not for TD1)											4		
P = 400 mm (not for TD1)											5		
P = 600 mm (not for TD1)											6		
P = 1000 mm (not for TD1)											D		
<b>Bulb diameter</b>													
Ø 9.5 mm											C		
<b>Process connection</b>													
Without											0		
G1/2 male (standard)											3		
1/2 NPT male											6		
<b>Options to be added behind the / (see example below)</b>													/

## Ordering example with options

		RT2	-	Y	M	.	40	.	1	1	3	C	0	/	9941
Compact temperature switch															
ATEX intrinsic safety															
1 SPDT gold contact change over switch															
Temperature range -46 ... 0 °C															
Transmission TD1															
Capillary 1 meter															
Immersion length 150 mm															
Bulb Ø 9.5 mm															
Without process connection															
Option : Stainless steel tag plate and wire															