

RT Standard temperature switches

All industrial environments

All fluids

One or two set points

Copper/stainless steel RTA or stainless steel/
stainless steel RTN

Stainless steel version for aggressive fluids, marine
version

Conforms to **CE**



Temperature switches of the **RTA, RTN** series are designed to maintain a constant temperature around a chosen preset value, or actuate an alarm or safety circuit when the temperature being monitored reaches a critical level.

Technical Data (20°C)

Fluids	All fluids compatible with the measuring element from -46...350°C
Operating ambient temperature	From -30...55°C (except 407 Ta = 0...55°C)
Storage temperature	From -40...55°C
Reproducibility	±2% of F.S.
Reading accuracy	±5% of full scale
Conform to CE	Low Voltage Directive DBT 73/23/CE Pressure Directive PED 97/23/CE
Degree of protection	IP 65, NF EN 60529

Important

Normal operation is between 10 % and 90 % of the selected scale. The deadband values given in the table overleaf are defined under these conditions. T°C max. values correspond to accidental overruns of limited duration.

All circuits must be equipped with a safety system protecting them against excess temperature.

The length of the bulb (codes 400 to 415) is a function of the capillary length. Consult table overleaf.

The bulb must be totally immersed in the process fluid, or incorrect readings will result.

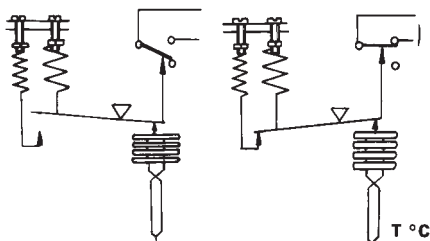
In the presence of mechanical vibrations, these should be reduced by means of antivibration mounts fitted to the temperature switches.

Manufacturing

Cover	Blue, ZAMAK protected Captive screws for cover attachment
Case	Black ZAMAK protected
Wall mounting	Removable bracket
Earth connection	Via internal
Electrical connection	Via internal terminal block with P.E. 11 for cable Ø 7 to 10.5 mm dia
Graduated scale	Internal calibrated scale
Measuring element	Bulb and capillary L 1 to 20 m, codes 400 to 415. A rigid probe code 300 to 315
Adjustment element	External adjustment screw fitted with an antivibration system locking the set point and the deadband, protected by screwed, lead seal on in option. Internal mechanism of bichromate-treated cadmium-plated steel
Sensing element (connection and bellow)	Cuprous steel

Operating principle

A vapour filled sensing element actuates one or two microswitches by means of levers. The set point and the deadband are set by springs mounted in opposition.



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made to measure



Adjustable ranges

RTA - RTN - RTE

RTA : standard copper / stainless steel sensing element

RTN/RTE : stainless steel / stainless steel sensing element

ECHELLE	T°C MAXI (accidentelle)	CODE	MICROSWITCH									
			ADJUSTABLE DEADBAND				MAX. FIXED DEADBAND		MAX. FIXED DEADBAND			
			N (tropicalized)	A (St)	M (gold)	C (SH)		E (GS)		H (SRC)	D (GSH)	J (SRJ)
			At 10% of scale	At 90% of scale	At 10% of scale	At 90% of scale	At 10% of scale	At 90% of scale	At 10% of scale	At 90% of scale	At 10% of scale	At 90% of scale
°C	°C		°C	°C	°C	°C	°C	°C	°C	°C		
- 46 + 0	+ 40	400	4 to 9	2 to 9	8 to 12	4 to 12	1.5	0.8	5	2.5		
- 20 + 20	+ 60	401	3 to 8	1.5 to 6	6 to 10	4 to 10	1	0.5	4	2		
0 + 45	+ 80	402	4 to 9	2 to 9	7 to 12	4 to 12	1.5	0.7	5	2.5		
+ 40 + 120	+ 145	403	5 to 16	3 to 16	10 to 20	6 to 20	2	1.2	6	4		
+100 + 160	+ 180	414	5 to 12	3 to 12	9 to 15	5 to 15	2	1	6	3		
+ 20 + 80	+ 100	415	5 to 12	3 to 12	9 to 15	5 to 15	2	1	6	3		
+160 + 250	+ 290	406	6 to 18	4 to 18	11 to 22	7 to 22	2.5	1.2	8	4.5		
+250 + 350	+ 360	407*	8 to 20	4 to 20	15 to 25	8 to 25	3	1.5	10	5		
+ 70 + 150	+ 175	408	5 to 16	4 to 16	10 to 20	6 to 20	2	1	6	4		
- 20 + 20	+ 60	411	-	-	5 to 8	3 to 7	-	-	-	-		
+130 + 190	+ 210	412	5 to 12	3 to 12	9 to 15	5 to 15	2	1	6	3		
+200 + 270	+ 290	413	5 to 12	3 to 12	9 to 15	5 to 15	2	1	6	3		
- 46 + 0	+ 40	300	4 to 9	2 to 9	8 to 12	4 to 12	1.5	0.8	5	2.5		
- 20 + 20	+ 60	301	3 to 8	1.5 to 8	6 to 12	4 to 10	1	0.5	4	2		
0 + 45	+ 80	302	4 to 9	2 to 9	7 to 12	4 to 12	1.5	0.7	5	2.5		
+ 40 + 120	+ 145	303	5 to 16	3 to 16	10 to 20	6 to 20	2	1.2	6	4		
+ 20 + 80	+ 100	315	5 to 12	3 to 12	9 to 15	5 to 15	2	1	6	3		

* Stainless steel version only (RTN)

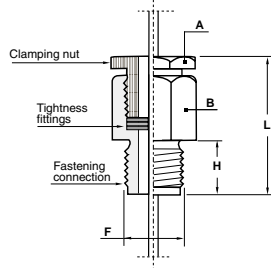
These microswitches can be implemented with two simultaneous contacts : W (2xC)

Warning : in this case, deadbands are multiplied by 1.5

For microswitches G : consult us

Connections and accessories

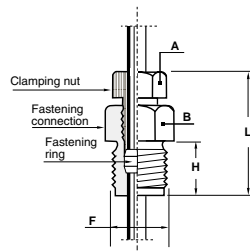
St. steel sliding male connection (TD1)



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.

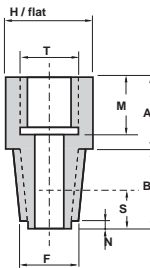
St. steel sliding male connection (TD2/3)



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

Becomes revolving male connection after clamping.
When tightened on stem tight at 40 bar max.

St. steel or brass socket union



This term indicates female/male connections.

Female side is parallel tapered, tightness is ensured by means of a gasket. It corresponds to the male connection in our fastening (G 1/2).

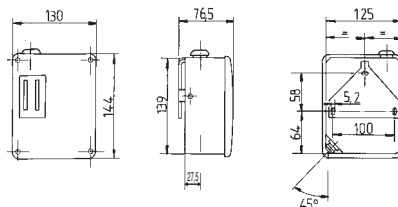
The male part corresponds to the "customer requirement". It provides sealing according to the existing pipe connections.

Socket union dimensions

	G1/2			
	1/2 BSP-Tr	1/2 NPT	3/4 BSP-Tr	3/4 NPT
F				
T				
B	26	26	32	32
max. dia. of the stem	14	14	16	16
H	26	26	35	35
A	20	20	20	20
M	16	16	16	16
N	5	5	5	5
S	11.4 to 15	13	12.7 to 16.3	13.5

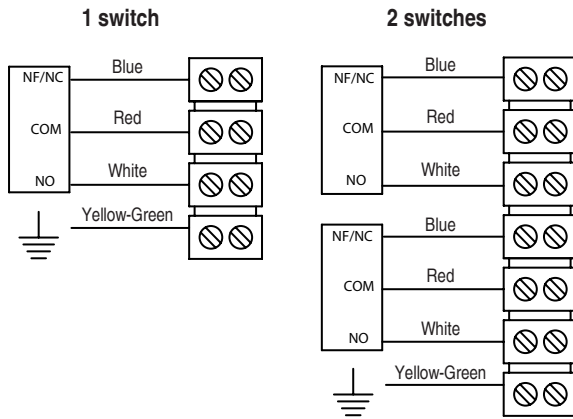
Dimensions (mm)

Standard case (IP65)



Cable identification, current rating

Cable identification



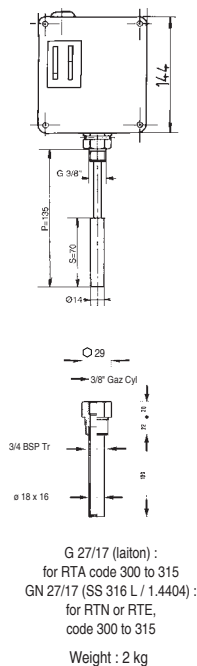
Current rating

Microswitch type SPDT

A	Standard Adjustable deadband	0.1 A min.; 10 A max. 250 Vac max. or 220 Vcc max.
B	2 simultaneous contact Adjustable deadband	0.1 A min.; 10 A max. 250 Vac max. or 220 Vcc max.
C	Hermetic Adjustable deadband	5 mA min.; 4A max. 250 Vac max. or 220 Vcc max.
W	2 hermetically contact Adjustable deadband	5 mA min.; 4A max. 250 Vac max. or 220 Vcc max.
E	Ultra sensitive Fixed deadband	0.2 A min.; 10A max. 250 Vac max. or 30 Vcc max.
F	2 ultra sensitive Fixed deadband	0.2 A min.; 10A max. 250 Vac max. or 30 Vcc max.
G	2 movable contacts Fixed deadband	0.2 A min.; 10A max. 250 Vac max. or 30 Vcc max.
D	Hermetically ultra sensitive Fixed deadband	0.4 A min.; 10A max. 30 Vcc max.
V	2 hermetically contact ultra sensitive Fixed deadband	0.4 A min.; 10A max. 30 Vcc max.
M	Gold contact Adjustable deadband	10 mA min.; 50 mA max. 250 Vac max. or 220 Vdc max.
N	Tropicalized Adjustable deadband	0,1 A min.; 10A max. 250 Vac max. or 48 Vdc max.
H	1 changeover switch with manual reset opening on rise Fixed deadband	0.1 A min.; 10A max. 250 Vac max. or 30 Vcc max.
J	1 changeover switch with manual reset opening on fall Fixed deadband	0.1 A min.; 10A max. 250 Vac max. or 30 Vcc max.

Types of transmission

RTA-RTN - Code 300-301-302-303-315

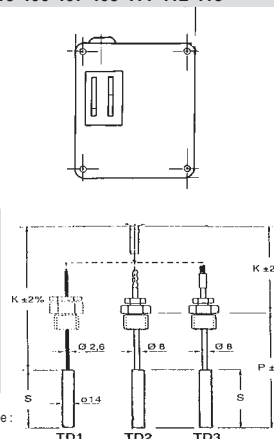


RTA-RTN - Code 400-401-402-403-414-415-406-407-408-411-412-413

Weight : 2 kg + Transmission

TD 1 : stem transmission with bare stainless steel capillary (without stem). Option : sliding male connection.
TD 2 : stem transmission with st. steel capillary and st. steel protection. Without stem = without connection. With stem = connection.
TD 3 : stem transmission with st. steel capillary and PVC coated st. steel protection. Without stem = without connection. With stem = connection.

Nota : In all cases, the minimum immersion of the stem **P** will be :
 - S + 16 for G 1/2 connection
 - S + 21 for 1/2 NPT connection



Bulb length (S) according to the transmission length (K)

	Code	400	401	402	403	414	415	406	407	408	411	412	413
K = 0 m .. 2 m	S mm	80	80	80	80	80	80	80	80	80	80	80	80
K = 3 m .. 7 m	S mm	100	100	100	100	100	100	100	100	100	100	100	100
K = 8 m .. 16m	S mm	150	150	150	150	150	150	150	150	150	150	150	150
K = 17 m .. 20 m	S mm	180	180	180	180	180	180	180	180	180	180	180	180

All versions supplied with bulb of 100 mm length and stem P = 150, 250, 400 and 600 mm are feasible,

all versions supplied with bulb of 150 or 180 mm length and stem P = 250, 400 and 600 mm are feasible (not feasible with stem P = 150 mm length).

Options

Bulb Ø 9,5 mm (min. length : 120, 150, 225, 280 mm)
 French electricity (EDF) version (consult SEPTEN ZT3, ZT4 leaflet)
 Other glands

Stainless steel tag plate and wire **Code 9941**
 Connection on pipe 2 " dia. **Code 0407**
 Adjustment of the set point **Code SETP**

Ordering Details - RT

		RTxxxxxxxxxx
Model	1' digit	
Temperature switches		R
Type	2'...3' digit	
TA		TA
TN		TN
Type of protection	4' digit	
Standard		A
Microswitch **	5' digit	
1 standard changeover switch		A
2 simultaneous changeover switches		B
1 hermetically changeover switches		C
1 hermetically ultra sensitive changeover switch		D
1 ultra sensitive changeover switch		E
2 ultra sensitive changeover switches		F
2 movable changeover switches		G
2 hermetically scaled ultra sensitive changeover switches		V
2 hermetically changeover switches		W
1 gold contact changeover switch		M
1 tropicalized changeover switch		N
1 changeover switch with manual reset opening on rise		H
1 changeover switch with manual reset opening on fall		J
Pneumatic version (NO)		Z
Pneumatic version (NF)		Y
Temperature range	6'...8' digit	
See codes in table		xxx
Type of transmission	9' digit	
TD1		1
TD2		2
TD3		3
TRD code 3xx		E
Transmission length K	10' digit	
Without code 3xx		0
1 meter		1
2 meters (std)		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
Non-standard (max.20 meters)		X
Stem length P	11' digit	
Stem only (for TRD)		0
TD1 std.		2
150 mm		3
250 mm		4
400 mm		5
600 mm		6
Non-standard (max.1000 mm)		X
Bulb diameter	12' digit	
14 mm		E
Connection	13' digit	
Without		0
G 1/2		3
1/2 NPT		6
3/8 gaz cyl. (1)		J
Other connection		X

code	Range in °C	
400	- 46	+ 0
401	- 20	+ 20
402	0	+ 45
403	+ 40	+ 120
414	+ 100	+ 160
415	+ 20	+ 80
406	+ 160	+ 250
407 *	+ 250	+ 350
408	+ 70	+ 150
411	- 20	+ 20
412	+ 130	+ 190
413	+ 200	+ 270
300	- 46	+ 0
301	- 20	+ 20
302	0	+ 45
303	+ 40	+ 120
315	+ 20	+ 80

* Stainless steel only (RTN / RTE)

** SPDT microswitches only

(1) Operating range series 300 only

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