

RT(Y) Intrinsically safe 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

LCIE 03 ATEX 6123X

CE 0081



IM 1
EEx ia I



II 1 G and D
EEx ia IIC T6 or T5



II 2 D

Hazardous areas : 0,1, 2, 20, 21, 22



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 F.S.
Conform to CE	Low Voltage Directive DBT 73/23/CE Directive ATEX 94/9/CE (EN50014, EN50020, EN50281-1-1)
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 are for accidental temperature overranges 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 PE. 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
Adjustement 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

**BOURDON
HAENNI**

made to measure



Operating range

RTA - RTN

RTA : standard copper / stainless steel sensing element

RTN : stainless steel / stainless steel sensing element

Scale	T°C MAXI (accidental)	CODE	MICROSWITCH					
			ADJUSTABLE				MAXI FIXED DEADBAND	
			N (tropicalized)	M (gold)	C (SH)		S (or)	
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
- 46 + 0	+ 40	400	4 à 9	2 à 9	8 à 12	4 à 12	3	2,5
- 20 + 20	+ 60	401	3 à 8	1,5 à 6	6 à 10	4 à 10	2,5	1,5
0 + 45	+ 80	402	4 à 9	2 à 9	7 à 12	4 à 12	3	2
+ 40 + 120	+145	403	5 à 16	3 à 16	10 à 20	6 à 20	4	3,5
+ 100 + 160	+180	414	5 à 12	3 à 12	9 à 15	5 à 15	4	3
+ 20 + 80	+100	415	5 à 12	3 à 12	9 à 15	5 à 15	4	3
+ 160 + 250	+290	406	6 à 18	4 à 18	11 à 22	7 à 22	5	3,5
+ 250 + 350	+360	407*	8 à 20	4 à 20	15 à 25	8 à 25	6	4
+ 70 + 150	+175	408	5 à 16	4 à 16	10 à 20	6 à 20	4	3
- 20 + 20	+ 60	411	-	-	5 à 8	3 à 7	-	-
+ 130 + 190	+210	412	5 à 12	3 à 12	9 à 15	5 à 15	4	3
+ 200 + 270	+290	413	5 à 12	3 à 12	9 à 15	5 à 15	4	3
- 46 + 0	+ 40	300	4 à 9	2 à 9	8 à 12	4 à 12	3	2,5
- 20 + 20	+ 60	301	3 à 8	1,5 à 8	6 à 12	4 à 10	2,5	1,5
0 + 45	+ 80	302	4 à 9	2 à 9	7 à 12	4 à 12	3	2
+ 40 + 120	+145	303	5 à 16	3 à 16	10 à 20	6 à 20	4	3,5
+ 20 + 80	+100	315	5 à 12	3 à 12	9 à 15	5 à 15	4	3

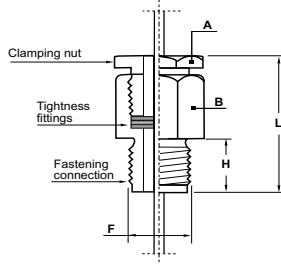
* Stainless steel version only (RTN)

Ces microrupteurs peuvent être fournis avec 2 inverseurs simultanés : SHH (2xSH)

Warning : dans ce cas, les écarts sont multiply by 1.5

Connections and accessories

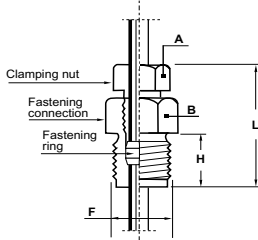
St. steel sliding male connection (TD1)



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)

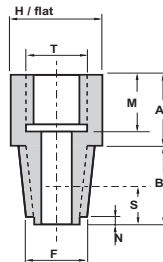


Thread and sizes		
F	G 1/2	1/2 NPT
H	18	21
L	36	40
A	17/flat	17/flat
B	23/flat	23/flat

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.



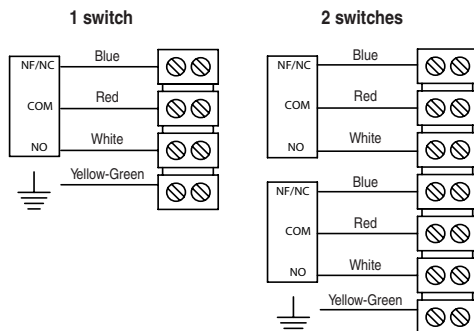
Female side is parallel tapered, tightness is ensured by means of a gasket. It corresponds to the male connection in our fastening (G 1/2).

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

Socket union dimensions				
F	1/2 BSP-Tr	1/2 NPT	3/4 BSP-Tr	3/4 NPT
T	G1/2			
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

Cable identification, current rating

Cable identification



Pouvoir de coupure

Microswitch type SPDT

C	hermetically Adjustable deadband	5 mA min.; 0.12 A max. 28 Vdc max.
M	Gold contact Adjustable deadband	10 mA min.; 50 mA max. 28 Vdc max.
K	2 Gold contact Adjustable deadband	10 mA min.; 50 mA max. 28 Vdc max.
N	Tropicalized Adjustable deadband	0.1 A min.; 0.12 A max. 28 Vdc max.
T	Tropicalized 2 contacts Adjustable deadband	0.1 A min.; 0.12 A max. 28 Vdc max.
W	2 hermetically contacts Adjustable deadband	5 mA min.; 0.12 A max. 28 Vdc max.
S	Fixed low deadband, Gold Contact Fixed deadband	10 mA min.; 50 mA max. 28 Vdc max.

Regulation

Temperature of regulator type RT(Y)

LCIE 03 ATEX 6123X

CE 0081



I M 1
EEx ia I



II 1 G and D
EEx ia IIC T6 or T5



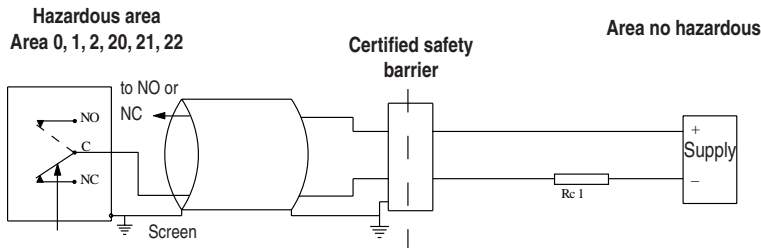
II 2 D Use without certified safety barrier for area 21 or 22

Poussière / Dust IP6X	Gaz / Gases
T° surface	Class
80°C	Ta = 55°C / T6
95°C	Ta = 70°C / T5

The installation must be in accordance with U_{max} and I_{max}

Every precaution must be taken by the user to ensure that the heat transfer by the fluid to the unit head does not raise the unit head temperature to the spontaneous ignition temperature of the gas in which it is situated.

Prescriptions d'installation



$$U_{max} = 28 \text{ Vdc}$$

$$I_{max} = 120 \text{ mA}$$

$$P = 0.8 \text{ W}$$

$$C_a > C_i + C_{cable}; L_a > L_i + L_{cable}$$

$$C_i = \text{Negligible}; L_i = \text{Negligible}$$

Don't forget the barrier's resistors in the determination of Rc 1.

In area 0 or 20 the loop calculation of the association transmitter with safety barrier must be approved by notified organism.

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 + 18 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).

Ø 29
3/8" Gas Cyl

3/4 BSP Tr

Ø 18 x 16

G 27/17 (laiton) :
for RTA code 300 to 315
GN 27/17 (SS 316 L / 1.4404) :
for RTN or RTE,
code 300 to 315

Weight : 2 kg

Dimensions (mm)

Standard case (IP 65)



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

Options

Bulb Ø 9.5 mm (min. length : 120, 150, 225, 280 mm)
 French electricity (EDF) version (consult SEPTEN ZT3, ZT4 leaflet)
 Other cables 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(Y)

RTxxYxxxxxxxx	
Model	1' digit
Temperature switches	R
Type	2'..3' digit
TA	TA
TN	TN
Protection	4' digit
SI - Intrinsically safe	Y
Microswitch **	5' digit
1 Hermetically changeover switch	C
2 gold contact changeover switches	K
1 Gold contact changeover switch	M
1 Tropicalized changeover switch	N
1 gold contact changeover switch, fixed low deadband	S
2 Tropicalized changeover switches	T
2 Hermetically changeover switches	W
Other changeover switches (option)	X
** SPDT microswitches only	
Temperature range	6'..8' digit
See code in table	xxx
Type of transmission	9' digit
TD1	1
TD2	2
TD3	3
TRD code 3xx	E
transmission lentgh K	10' digit
Without code 3xx	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
No std (max.20 meters)	X
Stem lentgh	11' digit
Stem for TRD only TRD	0
TD1 std.	2
150 mm	3
250 mm	4
400 mm	5
600 mm	6
No std. (max.1000)	X
Bulb diameter P	12' digit
Ø 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	scale 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)

⁽¹⁾ Operating range series 300 only

UK06-2005 This data sheet may only be reproduced in full