

BOURDON
The Original by Baumer

Main Features

- Excellent repeatability
- Dead band adjustment for regulation
- Fix dead band for control and alarm
- Intrinsic safety Hazardous area 0, 1, 2



Applications

- Power generation safety equipment
- Pressurized chambers control
- Liquid level control



Technical Data

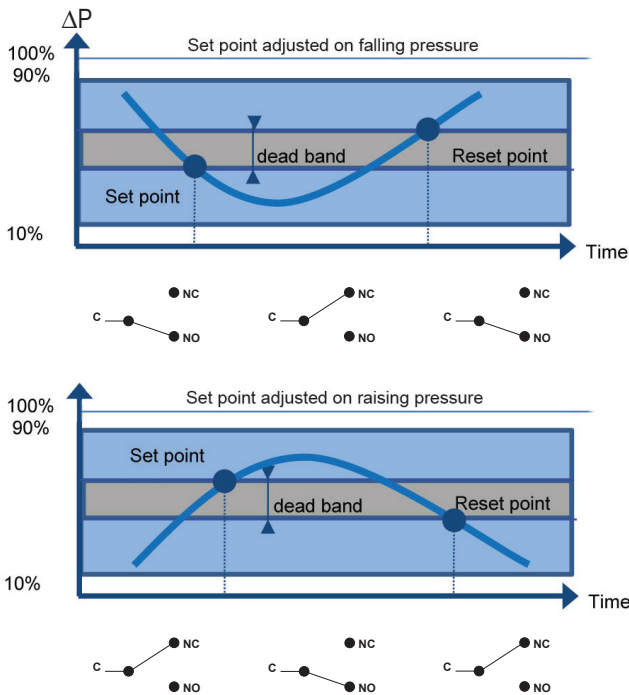
Pressure range	2 ... 10 mbar to 2.5 ... 30 bar
Temperature	<u>Pressure range codes 111 to 157</u> Medium: -15 ... +150 °C Ambient: -25 ... + 55 °C Storage: -40 ... + 70 °C <u>Pressure range codes 211 to 256</u> Medium: -50 ... +200 °C Ambient: -25 ... + 55 °C Storage: -40 ... + 70 °C
Repeatability	± 1% F.S. / constant pressure cycle
CE conformity	Low Voltage Directive LVD 2006/95/EC ATEX Directive 94/9/EC
Protection rating	IP 66 (EN 60529)
Process connection	Stainless steel 1.4404 (316L)
Sensing element	<u>Pressure range codes 111 to 157</u> Flanges: Stainless steel 1.4404 (316L) Diaphragm: Viton® <u>Pressure range codes 211 to 256</u> Bellow: Stainless steel 1.4404 or 1.4432 (316L) <u>Pressure range codes 257 and 258</u> Piston: Nickel plated steel
Scale	Internal. Accuracy on reading ± 5% F.S.
Cover	Zamak blue painted Captive stainless steel screws

Case	Black Zamak
Mounting	Wall mounting bracket
Ground connection	Via internal terminal block
Electrical connection	Terminal block with plastic cable gland for Ø 7 to 10.5 mm
Electrical function	See ordering code details on page 5
Adjustment	2 external adjustment screws for set point and dead band. When set point adjustment is required it is necessary to know the static pressure, as it has an influence on the set point.
ATEX	<u>Type examination certificate</u> LCIE 03 ATEX 6123X EN 60079-0: 2012 (internal conformity analysis) EN 60079-11: 2012 <u>Marking</u> CE 0081  I M 1 Ex ia I Ma  II 1 G Ex ia IIC T6 or T5 Ga <u>Electrical data</u> $U_{max} = 28 \text{ Vdc}$ $I_{max} = 120 \text{ mA}$ $P_{max} = 0.84 \text{ W}$ $C_i = \text{Negligible}$; $L_i = \text{Negligible}$

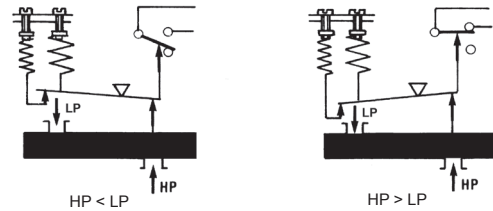
Options

Customer specific set point adjustment	Code SETP
Oxygen application	Code 0765
Mounting on 2" pipe	Code 0407
Electrical connection: stainless steel connector (Souriau)	Code 2298
Mobile plug for stainless steel connector (Souriau)	Code 2249
Stainless steel tag plate and wire	Code 9941
Lead seal of the adjustment screws	Code 8990

Principle



A 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 pressure

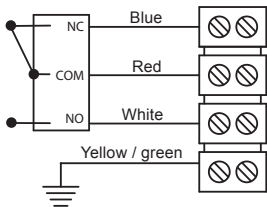
Customer specific factory adjustment (option SETP)

The following specifications have to be given with the order:

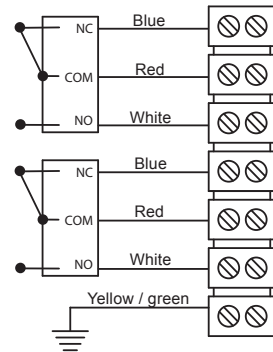
- Setpoint value
- Adjustment on falling or raising pressure.
- Static pressure
- Dead band value (as needed) when using an adjustable dead band switch

Electrical connections

1 SPDT



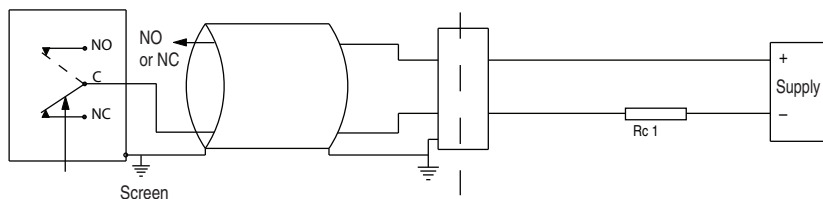
2 SPDT



Hazardous area
Zone 0, 1, 2

Certified safety
barrier

Non hazardous
area



For max. ambient temperature 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.

Micro switches characteristics

Switch code	M (K)	C (W)	S
Type	Gold contact	Hermetic	Ultrasensitive Gold contact
6 Vdc	10 ... 50 mA	5 ... 120 mA	10 ... 50 mA
12 Vdc	10 ... 50 mA	5 ... 66 mA	10 ... 50 mA
24 Vdc	10 ... 33 mA	5 ... 33 mA	10 ... 33 mA
30 Vdc	N/A	N/A	N/A
48 Vdc	N/A	N/A	N/A
110 Vdc	N/A	N/A	N/A
220 Vdc	N/A	N/A	N/A
115 Vac	N/A	N/A	N/A
250 Vac	N/A	N/A	N/A
Dielectric rigidity between contacts and ground	2000 V	1500 V	2000 V

Adjustable ranges

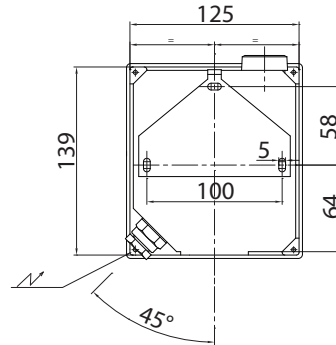
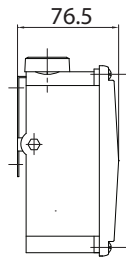
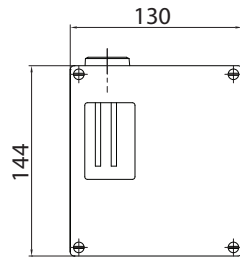
Scale	Max ΔP	Max P Static	Code	Micro-switch dead band ⁽¹⁾					
				Adjustable dead band				Fixed dead band	
				M (K*)		C(W*)		S	
				10%	90%	10%	90%	10%	90%
mbar	mbar	bar		mbar					
2 ... 10	10	0.15	111	1.2 - 10	1.6 - 10	4.5 - 10	4.5 - 10	0.7	1.2
2 ... 50	50	0.15	121	1.7 - 30	2.2 - 30	5 - 30	5.5 - 30	0.9	1.4
2 ... 100	100	0.15	131	1.7 - 40	2.5 - 40	5.5 - 40	10 - 40	1.2	2
10 ... 200	200	1	156	8 - 80	10.5 - 80	25 - 80	40 - 80	5.8	9.5
10 ... 400	400	1	157	15 - 150	20 - 150	30 - 150	45 - 150	10.5	17
bar			Code	bar					
0.05... 0.5	0.5	7	211	0.09 - 0.3	0.1 - 0.3	0.15 - 0.4	0.2 - 0.4	0.06	0.09
0.05... 1	1	7	221	0.09 - 0.3	0.1 - 0.3	0.15 - 0.4	0.22 - 0.4	0.06	0.09
0.15... 0.5	0.5	30	214	0.14 - 0.5	0.18 - 0.5	N/A	N/A	0.12	0.18
0.15... 1	1	30	224	0.2 - 0.6	0.25 - 0.6	N/A	N/A	0.12	0.18
0.15... 4	4	30	234	0.21 - 1.5	0.27 - 1.5	0.65 - 2	0.8 - 2	0.12	0.18
0.8... 4	4	30	235	0.7 - 2.5	1.1 - 2.5	0.75 - 2.5	1.1 - 2.5	0.16	0.28
0.8... 10	10	30	245	0.7 - 2.5	1.1 - 2.5	0.75 - 2.5	1.1 - 2.5	0.16	0.28
1.5... 10	10	65	246	1.2 - 5	2.5 - 5	2.5 - 6	3.5 - 6	0.42	0.68
1.5... 20	20	65	256	1.2 - 5	2.5 - 5	2.5 - 6	3.5 - 6	0.42	0.68
2.5... 20	20	220	257	2.5 - 20	3.5 - 20	6 - 20	7 - 20	1.85	2.8
2.5... 30	30	220	258	3 - 30	4 - 20	6 - 20	7 - 20	1.95	2.8

(*) For version with 2 microswitches lower values of the dead band must be multiplied x 1.5

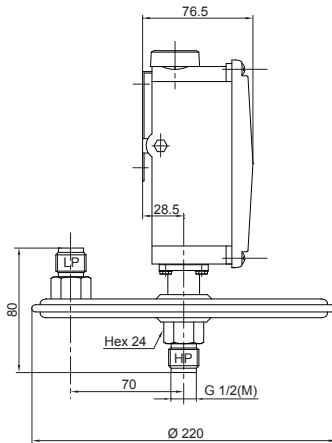
⁽¹⁾ The value of the dead band is depending on the value of the set point.

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%.

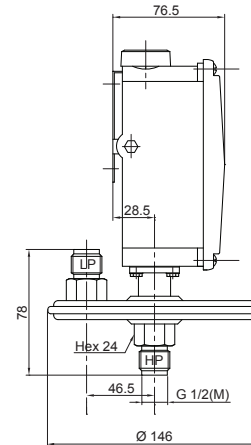
Dimensions (mm)



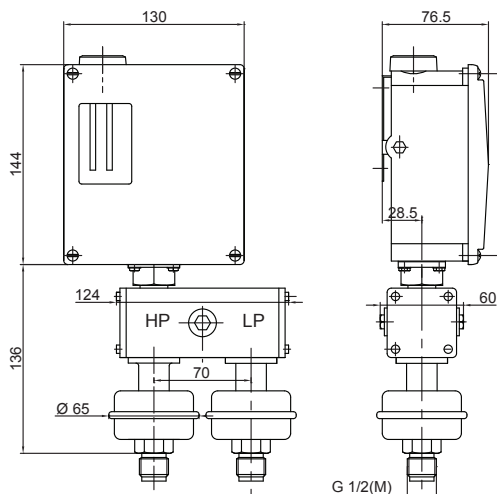
Pressure range codes: 111 - 121 - 131
Weight: 3 kg



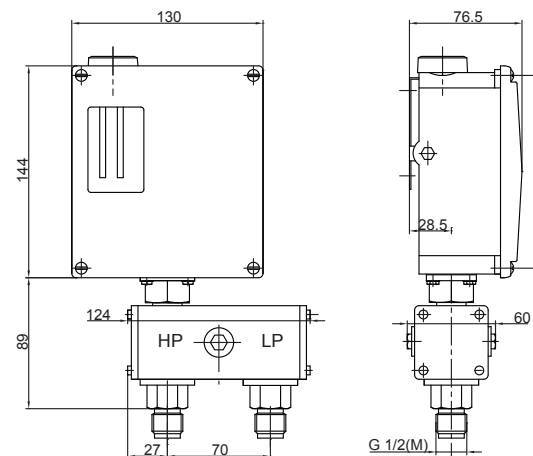
Pressure range codes: 156 - 157
Weight: 2.8 kg



Pressure range codes: 211 - 221
Weight: 3 kg



Pressure range codes: 214 - 224 - 234 - 235 - 245 - 246 - 256 - 257 - 258
Weight: 3 kg



Ordering details RDY4 - RDY8

	RD	Y	-			.	xxx	/
Model								
Differential pressure switch	RD							
Approvals								
ATEX intrinsic safety		Y						
Sensing element								
Diaphragm (Viton®, range 111 to 157)							4	
Bellow (stainless steel, range 211 to 256) or Piston (nickel plated steel, range 257 and 258)							8	
Type of micro switches								
1 SPDT hermetically changeover switch								C
2 SPDT hermetically changeover switch								W
1 SPDT gold contact changeover switch								M
2 SPDT gold contact changeover switch								K
1 SPDT ultrasensitive gold contact changeover switch								S
Process connection								
G 1/2 male (standard)								3
1/2 NPT male								6
1/4 NPT female								8
Pressure range (mbar)								
2 ... 10								111
2 ... 50								121
2 ... 100								131
10 ... 200								156
10 ... 400								157
Pressure range (kPa)								
0.2 ... 1								111
0.2 ... 5								121
0.2 ... 10								131
1 ... 20								156
1 ... 40								157
Pressure range (bar)								
0.05 ... 0.5								211
0.05 ... 1								221
0.15 ... 0.5								214
0.15 ... 1								224
0.15 ... 4								234
0.8 ... 4								235
0.8 ... 10								245
1.5 ... 10								246
1.5 ... 20								256
2.5 ... 20								257
2.5 ... 30								258

Options to be added behind the / (see example below)

Ordering example with options

	RD	Y	-	4	C	3	.	111	/	0407	_	9941
Differential pressure switch	RD											
With ATEX approval intrinsic safety		Y										
Diaphragm Viton®				4								
1 SPDT hermetically changeover switch					C							
Process connection G 1/2 male						3						
Pressure range 2 ... 10 mbar							.	111				
Option: Mounting on 2" pipe									/	0407		
Option: Stainless steel tag plate and wire											_	9941