

**BOURDON**  
The Original by Baumer



### Main Features

- Excellent repeatability
- Dead band adjustment for regulation
- Fix dead band for control and alarm
- High static pressure up to 80 bar

### Applications

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

### Technical Data

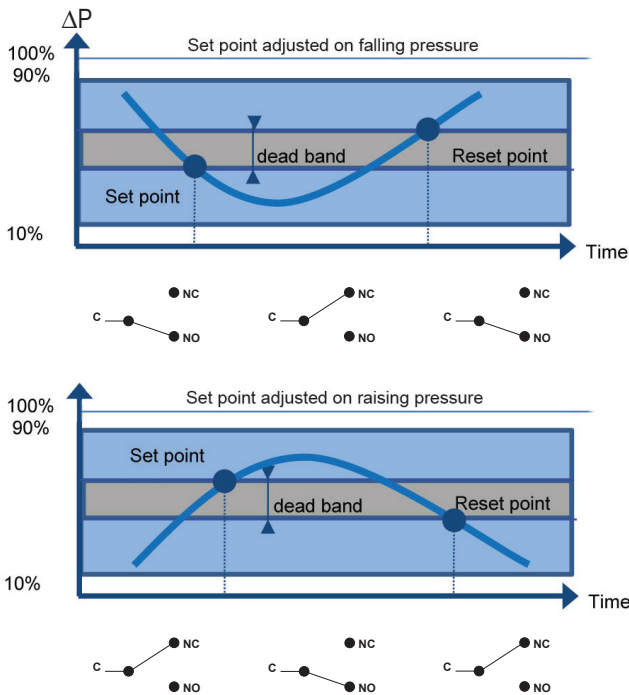
Pressure range	2 ... 10 mbar to 10 ... 2000 mbar
Temperature	Process: -15 ... +150 °C Ambient: -25 ... + 55 °C Storage: -40 ... + 70 °C
Repeatability	± 1% F.S. / constant pressure cycle
CE conformity	Low Voltage Directive LVD 2006/95/EC
Protection rating	IP 66 (EN 60529)
Process Connection	Stainless steel 1.4404 (316L)
Sensing element	<u>Pressure range codes 111 to 131</u> Flanges: Stainless steel 1.4404 (316L) Diaphragm: Nitrile, Butyl rubber  <u>Pressure range codes 156 to 163</u> Flanges: Stainless steel 1.4404 (316L) Diaphragm: Viton®
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 : - cable Ø 7 to 10.5 mm
Electrical function	See ordering code details in 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.

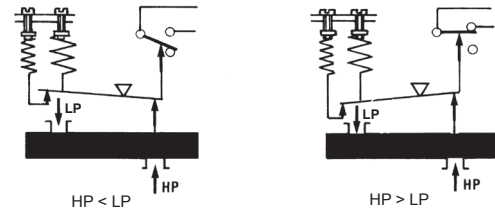
### Options

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

## 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

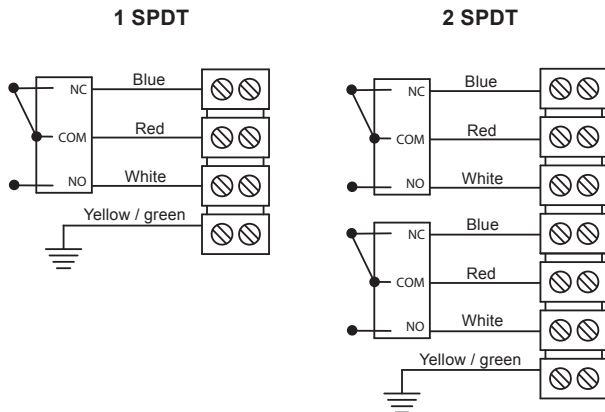
Setpoint at 50% of the scale on falling pressure

### 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



## Micro switches characteristics

Switch code	A (B)	M (K)	C (W)	E (F)	H	D (V)	J
Type	Standard	Gold contact	Hermetic	Ultra sensitive	Manual reset	Ultra sensitive hermetic	Manual reset
6 Vdc	0.4... 10 A	10... 50 mA	5 mA ... 4 A	0.4... 1 A	N/A	0.4... 4 A	N/A
12 Vdc	0.4... 10 A	10... 50 mA	5 mA ... 4 A	0.4... 1 A	N/A	0.4... 4 A	N/A
24 Vdc	0.4... 6 A	10... 50 mA	5 mA ... 4 A	0.4... 1 A	0.1... 8 A	0.4... 4 A	0.1... 8 A
30 Vdc	0.4... 6 A	10... 10 mA	5 mA ... 3 A	0.4... 1 A	0.1... 8 A	0.4... 2 A	0.1... 8 A
48 Vdc	0.4... 6 A	10... 50 mA	5 mA ... 3 A	N/A	0.1... 8 A	N/A	0.1... 8 A
110 Vdc	0.1... 0.5 A	10... 50 mA	5 mA ... 1 A	N/A	N/A	N/A	N/A
220 Vdc	0.1... 0.25 A	10... 50 mA	5 mA ... 0.5 A	N/A	N/A	N/A	N/A
115 Vac	0.4... 10 A	10... 50 mA	50 mA ... 3 A	0.4... 10 A	0.1... 10 A	N/A	0.1... 10 A
250 Vac	0.2... 10 A	10... 50 mA	50 mA ... 2.5 A	0.2 ... 10 A	0.1... 5 A	N/A	0.1... 5 A
Dielectric rigidity between contacts and ground	2000 V	2000 V	1500 V	2000 V	2000 V	1000 V	2000 V

## Adjustable ranges

Scale	Max ΔP	Max P Static	Code	Micro-switch dead band <sup>(1)</sup>									
				Adjustable dead band				Fixed dead band					
				A (B*)		M (K*)	C(W*)		E(F*)		H	D (V*)	J
				10%	90%	10%	90%	10%	90%	10%	90%		
mbar	mbar	bar		mbar									
2 ... 10	10	0 to 5	<b>111</b>	1.2 - 10	1.6 - 10	4.5 - 10	4.5 - 10	0.3	0.4	1.5	2		
2 ... 20	50	0 to 5	<b>112</b>	1.7 - 20	2.2 - 20	5 - 20	5.5 - 20	0.4	0.5	2	3		
2 ... 50	50	0 to 5	<b>121</b>	1.7 - 30	2.2 - 30	5 - 30	5.5 - 30	0.4	0.5	2	3		
2 ... 100	100	0 to 5	<b>131</b>	1.7 - 40	2.5 - 40	5.5 - 40	10 - 40	0.5	0.7	2	3		
10 ... 200	200	5.5 to 50	<b>156</b>	8 - 80	10.5 - 80	35 - 80	45 - 80	2.5	3.4	10	13		
10 ... 400	400	5.5 to 50	<b>157</b>	15 - 150	20 - 150	40 - 150	50 - 150	4.5	6	18	24		
10 ... 1000	1000	5.5 to 50	<b>158</b>	18 - 150	22 - 150	40 - 150	60 - 150	5	7	22	26.5		
10 ... 700	700	5.5 to 80	<b>161**</b>	20 - 200	30 - 200	60 - 350	90 - 350	6	8	24	36		
10 ... 1500	1500	5.5 to 80	<b>162**</b>	20 - 300	30 - 300	60 - 350	100 - 350	6	8	24	36		
10 ... 2000	2000	5.5 to 80	<b>163**</b>	30 - 300	60 - 300	90 - 350	200 - 350	9	12	36	72		

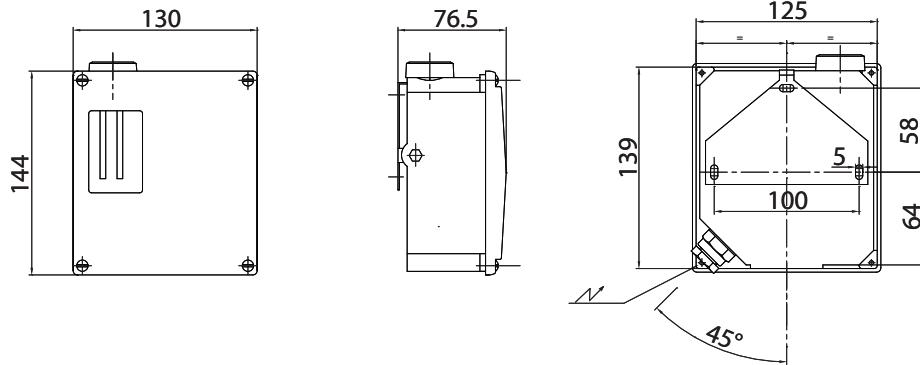
(\*) For version with 2 microswitches lower values of the dead band must be multiplied x 1.5

(\*\*) G1/4 female only

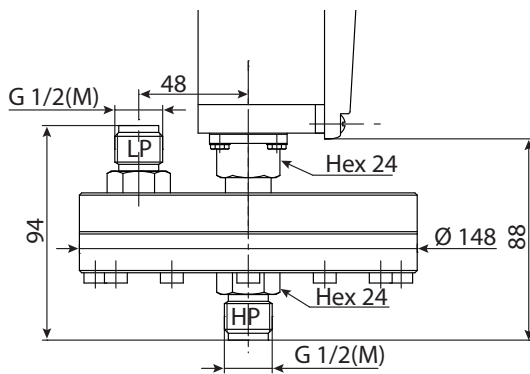
<sup>(1)</sup> The value of the dead band is depending on the value of the set point.

This table contains the dead band values for set point adjustment at 10% and 90% of the selected scale. For 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%.

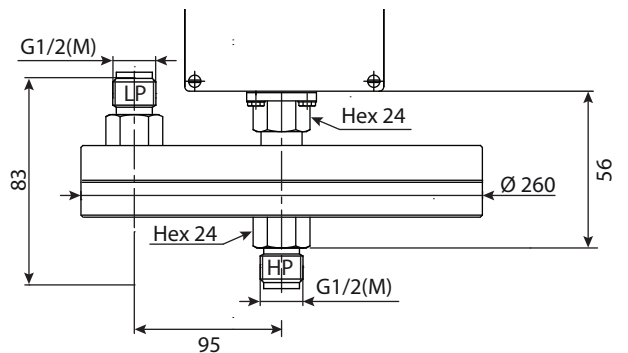
**Dimensions (mm)**



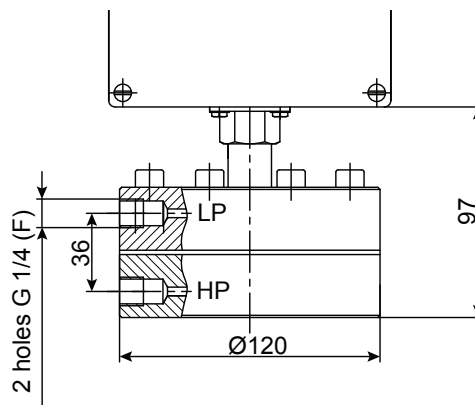
**Pressure range codes: 156-157-158**  
Weight: 6.1 kg



**Pressure range codes: 111-112-121-131**  
Weight: 10.2 kg



**Pressure range codes: 161-162-163**  
Weight: 6.8 kg



## Ordering details RDN5

**RD N - 5 . xxx /**

**Model**

Differential pressure switch for high static pressure

RD

**Approvals**

Standard version without ATEX approval

N

**Sensing element**

Diaphragm (Nitrile Butyl rubber, ranges 111 to 131, Viton®, ranges 156 to 163)

5

**Type of micro switches**

**Deadband**

1 SPDT standard changeover switch	Adjustable	A
2 SPDT standard changeover switch	Adjustable	B
1 SPDT hermetically changeover switch	Adjustable	C
2 SPDT hermetically changeover switch	Adjustable	W
1 SPDT ultra sensitive changeover switch	Fix	E
2 SPDT ultra sensitive changeover switch	Fix	F
1 SPDT hermetically, ultra sensitive changeover switch	Fix	D
2 SPDT hermetically, ultra sensitive changeover switch	Fix	V
1 SPDT gold contact changeover switch	Adjustable	M
2 SPDT gold contact changeover switch	Adjustable	K
1 SPDT changeover switch, manual reset, opening on raising pressure	Fix	H
1 SPDT changeover switch, manual reset, opening on falling pressure	Fix	J
Pneumatic changeover contact, NO		Z
Pneumatic changeover contact, NC		Y

**Process connection**

G 1/4 female (only pressure ranges 161, 162, 163)

H

G 1/2 male (standard)

3

1/2 NPT male

6

1/4 NPT female

8

**Pressure range (mbar)**

**Pressure range (kPa)**

2 ... 10	0.2 ... 1	111
2 ... 20	0.2 ... 2	112
2 ... 50	0.2 ... 5	121
2 ... 100	0.2 ... 10	131
10 ... 200	1 ... 20	156
10 ... 400	1 ... 40	157
10 ... 1000	1 ... 100	158
10 ... 700	1 ... 70	161
10 ... 1500	1 ... 150	162
10 ... 2000	1 ... 200	163

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

## Ordering example with options

**RD N - 5 C 3 . 111 / 0407 - 9941**

