RDE6

Differential pressure switch, explosion proof for variable static pressure

Main Features

- Excellent repeatability
- Dead band adjustment for regulation
- Fix dead band for control and alarm
- Static pressure max. 20 bar
- No influence of the static pressure on the setpoint
- Explosion proof Hazardous areas 1, 2, 21, 22

Applications

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

Technical Data

Pressure range	10 ... 200 mbar to 10 ... 2000 mbar
Temperature	Process: -15 ... +150 °C Ambient: -20 ... + 55 °C Storage: -40 ... + 70 °C
Repeatability	± 1% F.S. / constant pressure cycle
CE conformity	Low Voltage Directive 2014/35/EU ATEX Directive 2014/34/EU
Protection rating	IP 66 (EN 60529)
Process Connection	Stainless steel 1.4404 (316L)
Sensing element	Pressure range codes 156 to 163 Flanges: Stainless steel 1.4404 (316L) Diaphragm: Viton®
Scale	Internal. Accuracy on reading ± 5% F.S.
Housing	Type RA80, explosion proof, flameproof Alumunium epoxy painted. Captive stainless steel screws
Mounting	3 back lugs for wall mounting
Ground connection	Via internal terminal block

Electrical connection	Terminal block with metallic cable gland for Ø 7 to 12 mm standard
Electrical function	See ordering code details on page 5
Adjustment	2 external adjustment screws on top of the case for set point and dead band. The adjustment is not influenced by changes of the static pressure.
ATEX/IECEx	Certificate LCIE 03 ATEX 6231X (Type RA80) IECEx LCIE 15.0061X Classification CE Ex II 2 G D Ex d IIC T6 or T5 Gb Ex tb IIIC IIC T80 °C or T95 °C Db T° ambient -20 °C to +60 °C (T6 or T80 °C) or -20 °C to +70 °C (T5 or T95 °C)

Options

Customer specific set point adjustment	Code SETP
Oxygen application	Code 0765
Lead seal of the adjustment screws	Code 8990
Mounting on 2" pipe	Code 0407
Stainless steel tag plate and wire	Code 9941

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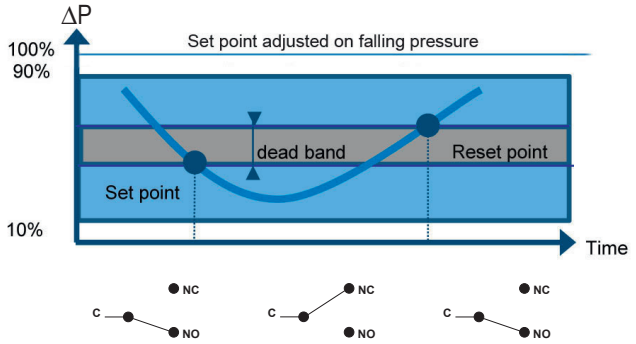
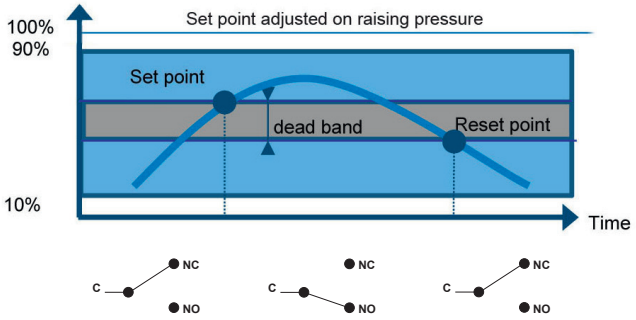
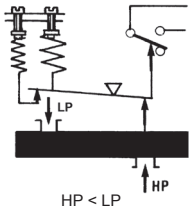
Principle

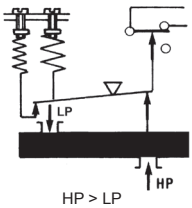




A flexible sensing element actuates a microswitch by means of a piston. The set point is adjusted by means of a compressible spring installed in opposition.



HP < LP



HP > LP

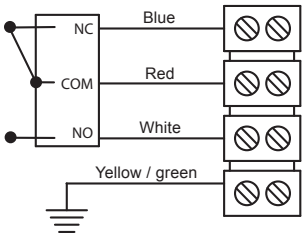
Set point and reset point must be between 10% and 90% of the selected scale.

Standard factory adjustment
Setpoint at 50% of the scale on falling pressure

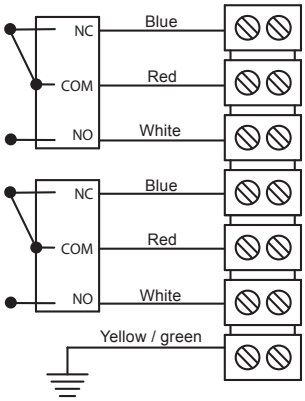
Customer speciffic factory adjustment (option SETP)
The following specifications have to be given with the order:
- Setpoint value
- Adjustment on falling or raising pressure.
- Dead band value (as needed) when using an adjustable dead band switch

Electrical connections

1 SPDT



2 SPDT



Hazardous areas: 1, 2, 21, 22

-20 °C ≤ Ta ≤ +70 °C	Dust IP6x	Gases
	T° surface	Class
Ta = 60 °C	80 °C	T6
Ta = 70 °C	95 °C	T5

<u>Important</u> : Maximum power dissipated inside enclosure does not exceed 5 W

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.

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Micro switches characteristics

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

Adjustable ranges

Scale	Max ΔP	Max P Static	Code	Micro-switch dead band (1)							
				Adjustable dead band				Fixed dead band			
				A (B*) M (K*)		C(W*)		E(F*)		D (V*)	
mbar	mbar	bar		10%	90%	10%	90%	10%	90%	10%	90%
				mbar							
10 ... 200	200	20	156	12 - 120	15.5 - 120	52 - 120	67 - 120	3.75	5.1	15	19.5
10 ... 400	400	20	157	22 - 225	30 - 225	60 - 225	75 - 225	6.75	9	27	36
10 ... 1000	1000	20	158	27 - 225	33 - 225	67 - 225	90 - 225	7.5	10.5	33	40
10 ... 700	700	20	161**	45 - 375	67 - 375	195 - 675	225 - 675	19.5	22.5	54	81
10 ... 1500	1500	20	162**	45 - 450	67 - 450	195 - 675	225 - 675	19.5	22.5	54	81
10 ... 2000	2000	20	163**	67 - 450	135 - 450	270 - 675	450 - 675	27	37.5	81	162

(*) For version with 2 microswitches lower values of the dead band must be multiplied x 1.5
(**) G 1/4 female only

(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%.

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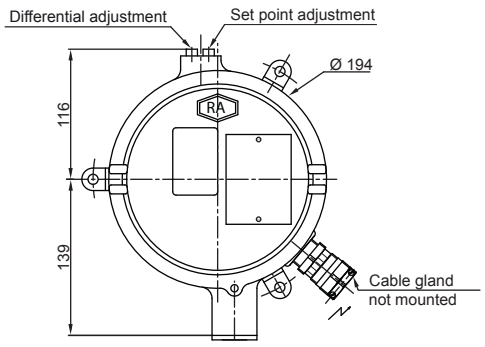
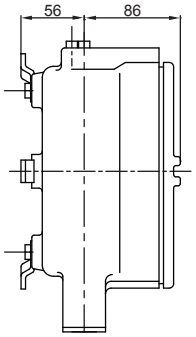
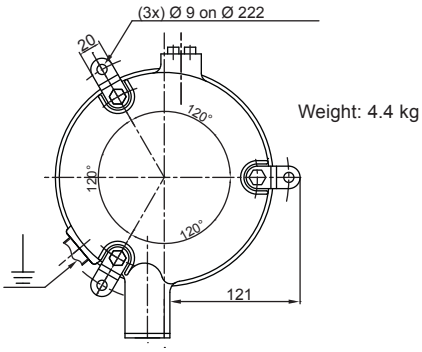
Dimensions (mm)

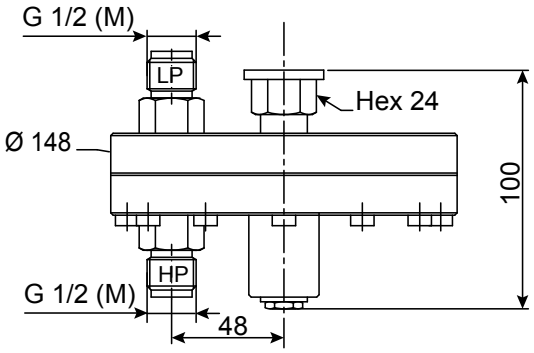


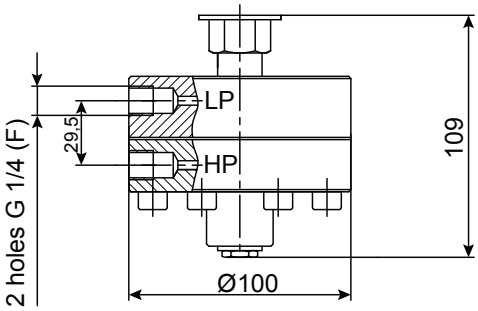




Pressure range codes: 156 - 157 - 158
Weight: 4.4 kg

Pressure range codes: 161 - 162 - 163
Weight: 3.3 kg





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Ordering details RDE6

	RD	E	–	6			.	xxx	/
Model									
Differential pressure switch for variable static pressure	RD								
Approvals									
Explosion proof		E							
			–						
Sensing element									
Diaphragm (Viton®)				6					

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

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)**			
10 ... 200	1 ... 20			156
10 ... 400	1 ... 40			157
10 ... 1000	1 ... 100			158
10 ... 700	1 ... 70	Process connection G1/4 female		161
10 ... 1500	1 ... 150	Process connection G1/4 female		162
10 ... 2000	1 ... 200	Process connection G1/4 female		163
Options to be added behind the / (see example below)				/

Ordering example with options

RD	E	–	6	C	3	.	111	/	0407	_	9941

Differential pressure switch for variable static pressure
With ATEX/IECEx approval explosion proof
Sensing element diaphragm
1 SPDT hermetically changeover switch
Process connection G 1/2 male
Pressure range 2 ... 10 mbar
Option: Mounting on 2" pipe
Option: Stainless steel tag plate and wire