Pressure switches

RDE5

Differential pressure switch, explosion proof for high static pressure

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Overview

- Excellent repeatability
- Dead band adjustment for regulation
- Fix dead band for control
- High static pressure up to 80 bar
- Explosion proof Hazardous areas 1, 2, 21, 22

Picture similar

Technical data

Housing	
Protection rating (EN60529)	IP66
Case material	Type RA80 Explosion-proof and flame-proof Epoxy painted, Aluminium Captive stainless steel screws
Mounting	Wall mounting, 3 back lugs
Scale	Internal, accuracy on reading ± 5 % FS
Process	
Process connection	G1/2" G1/4" female, only for codes 161,162,163 1/2" NPT 1/4" NPT female
Temperature	
Ambient temperature	-25°C ... +55°C (T6)
Storage temperature	-40°C ... +70°C
Media temperature	-15°C ... +100°C
Wetted parts	
Flange	Stainless steel 1.4404 / AISI 316L
Diaphragm	NBR for pressure ranges 111 to 131 FKM (Viton®) for pressure ranges 156 to 163

Sensing / Input	
Min. measuring range	2 ... 10 mbar
Max. measuring range	10 ... 2000 mbar
Performance	
Repeatability	± 1 % FS
Adjustment	2 external adjustment screws on top of the case for set point and deadband When set point adjustment is required it is necessary to know the static pressure, as it has an influence on the set point.
Electrical data	
Ground connection	Via internal terminal block
Electrical connection	Via internal terminal block with metallic cable gland for Ø 7 to 12 mm
Approval / Conformities	
ATEX/IECEx Certificate	LCIE 03 ATEX 6231X (Type RA80) IECEx LCIE 15.0061X
ATEX/IECEx	Ex II 2 GD Further information can be found in the ATEX approval
CE conformity	ATEX directive 2014/34/UE

Remarks

- These devices must be used as instruments that provide electrical information according to the value of the input variable. They are not intended to be used as a safety accessory. It is the responsibility of the user to check the compatibility of the device with its intended use.

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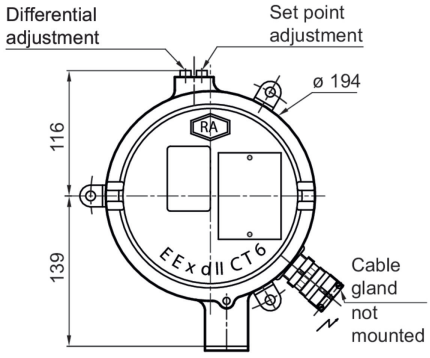
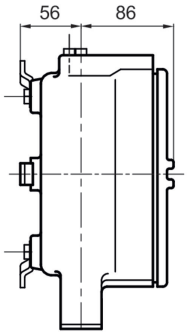
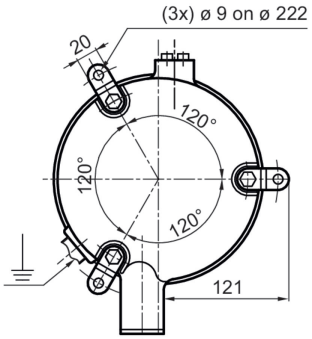
Dimensional drawings (mm)







Weight: 4.4 kg

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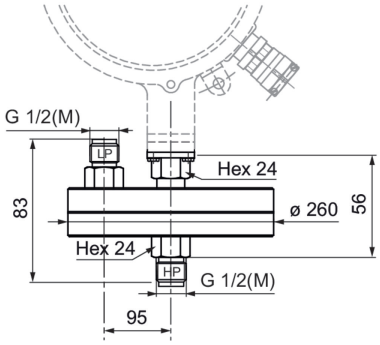
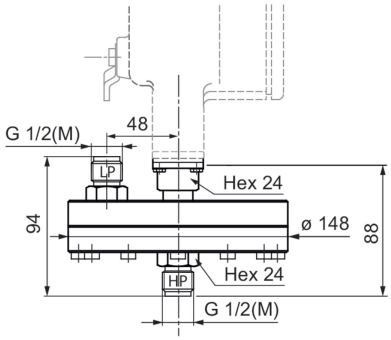
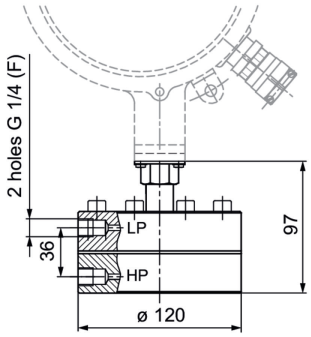




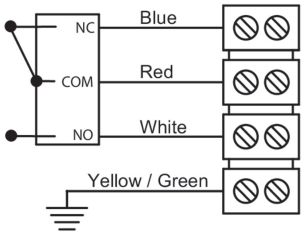


Pressure range codes: 111 - 112 - 121 - 131
Weight: 8.8 kg

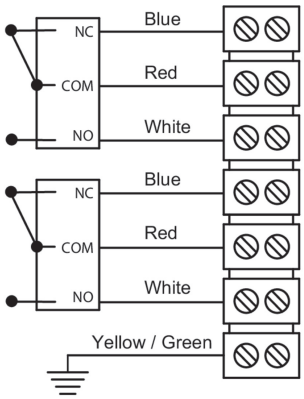
Pressure range codes: 156 - 157 - 158
Weight: 4.7 kg

Pressure range codes: 161-162-163
Weight: 5.4 kg

Electrical connection



1 SPDT



2 SPDT

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Electrical connection

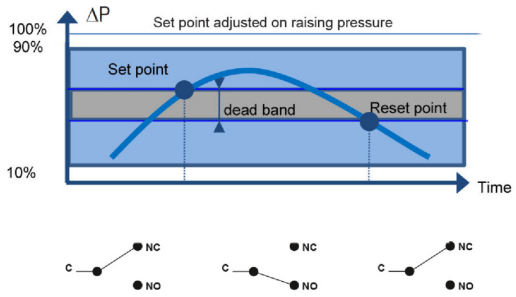
-20°C ≤ Ta ≤ +70°C	Dust IP6x	Gases
	T° surface	Class
Ta = 60°C	80°C	T6
Ta = 70°C	95°C	T5

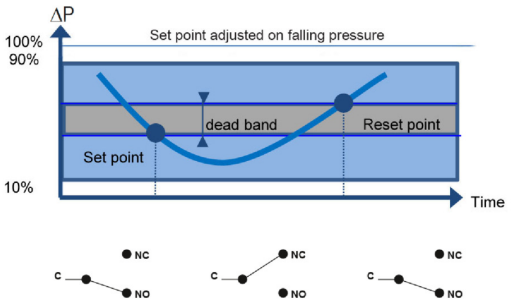
<u>Important</u> : Maximum power dissipation in the case must not exceed 5 W

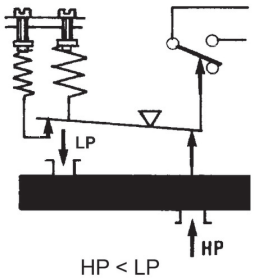
Hazardous areas: zone 1, 2, 21, 22

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.

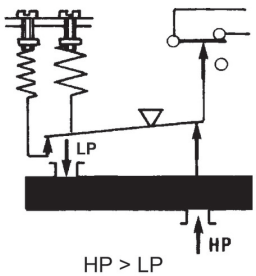
Principle







HP < LP



HP > LP

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 (except RDx6)
• Dead band value (as needed) when using an adjustable dead band switch

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Adjustable ranges

Scale	Max ΔP	Max P Static	Code	Micro-switch dead band [1]							
				Adjustable dead band				Fixed dead band			
				N (T*) A (B*) M (K*)		C(W*)		E(F*)		D (V*)	
mbar	mbar	bar		10%	90%	10%	90%	10%	90%	10%	90%
				mbar							
2 ... 10	10	0 ... 5	111	1.8 - 15	2.4 - 15	6.7 - 15	6.7 - 15	0.45	0.6	2.25	3
2 ... 20	50	0 ... 5	112	2.6 - 30	3.3 - 30	7.5 - 30	8 - 30	0.6	0.75	3	4.5
2 ... 50	50	0 ... 5	121	2.6 - 40	3.3 - 40	7.5 - 40	8 - 40	0.6	0.75	3	4.5
2 ... 100	100	0 ... 5	131	2.6 - 60	3.7 - 60	8.2 - 60	15 - 60	0.75	1.05	3	4.5
10 ... 200	200	5.5 ... 50	156	12 - 120	15.5 - 120	52 - 120	67 - 120	3.75	5.1	15	19.5
10 ... 400	400	5.5 ... 50	157	22 - 225	30 - 225	60 - 225	75 - 225	6.75	9	27	36
10 ... 1000	1000	5.5 ... 50	158	27 -225	33 - 225	67 - 225	90 - 225	7.5	10.5	33	40
10 ... 700	700	5.5 ... 80	161**	30 - 300	45 - 300	90 - 525	135 - 525	9	12	36	54
10 ... 1500	1500	5.5 ... 80	162**	30 - 450	45 - 450	90 - 525	150 - 525	9	12	36	54
10 ... 2000	2000	5.5 ... 80	163**	40 - 450	90 - 450	135 - 525	300 - 525	13	18	54	108

(*) 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%.

Micro switch 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

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Ordering reference

Ordering key - Configuration possibilities see website

	RDE	-	5	#	#	.	###
Product							
RDE	RDE						
Measuring element							
Membran, Viton® od. NBR			5				
Type of Microswitch							
1xSPDT, Standard				A			
simultaneous				B			
1xSPDT, hermetically				C			
simultaneous				W			
1xSPDT, ultra sensitive				E			
simultaneous				F			
1xSPDT hermetic/ultra sensit.?				D			
simultaneous				V			
1 gold contact changeover switch				M			
simultaneous				K			
Process connection							
G 1/4 Internal Screw					H		
G 1/2					3		
1/2 NPT					6		
1/4 NPT F					8		
Pressure range							
2 … 10 mbar							111
2 … 20 mbar							112
2 … 50 mbar							121
2 … 100 mbar							131
10 … 200 mbar							156
10 … 400 mbar							157
10 … 1000 mbar							158
10 … 700 mbar							161
10 … 1500 mbar							162
10 … 2000 mbar							163

Ordering example

	RDE	-	5	A	H	.	161	/	0765
Product									
RDE	RDE								
Measuring element									
Membran, Viton® od. NBR			5						
Type of Microswitch									
1xSPDT, Standard				A					
Process connection									
G 1/4 Internal Screw					H				
Pressure range									
10 … 700 mbar							161		
Cleanliness									
for oxygen applications free of oil and grease									0765

Options			
Setpoint factory adjusted	SETP	2.1 Certificate	Q001
For oxygen applications	0765	2.2 Certificate	Q002
Mounting on 2 pipe	0407	3.1 Material certificate	Q003
stainless steel label wired*	9941	3.1 Certif. setpoints adjust.	Q011
Setpoint adjust. lead sealed	8990		