

0165

Diaphragm / piston pressure switches up to 250 V

ATEX 0102 CE II 2G Ex d II C T6 / T5 X (gas-protected zones 1 and 2)

- Aluminium housing
- Snap action with silver contacts
- Operating voltage up to 250 V
- Overpressure safety up to 2,900 / 8,700 psi (200 / 600 bar)¹⁾

P _{max.} in psi (bar)	Adjustment range in psi (bar)	Tolerance in psi (bar) at room temperature	Thread	Order number
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0165 Diaphragm pressure switches

2,900 psi ¹⁾ (200 bar ¹⁾)	14.5 - 87 psi (1 - 6 bar)	± 7.25 psi (± 0.5 bar)	1/4" BSPP female	0165 - 448 14 - 1 - 001
		72.5 - 725 psi (5 - 50 bar)		± 43.5 psi (± 3.0 bar)

0165 Piston pressure switches

8,700 psi ¹⁾ (600 bar ¹⁾)	290 - 1,450 psi (20 - 100 bar)	± 43.5 - 72.5 psi (± 3.0 - 5.0 bar)	1/4" BSPP female	0165 - 450 14 - X - 001		
		362.5 - 3,625 psi (25 - 250 bar)		± 72.5 - 101.5 psi (± 5.0 - 7.0 bar)		0165 - 452 14 - X - 001
		1,450 - 5,800 psi (100 - 400 bar)		± 72.5 - 130.5 psi (± 5.0 - 9.0 bar)		0165 - 451 14 - X - 001

Seal material – Application areas

Seal material	Application areas	Code
NBR (BunaN)	Hydraulic/machine oil, heating oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM (Viton®)	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3

Refer to page 82 for the temperature range and application thresholds of sealing materials

Your order number: 0165 - XXX 14 - X - 001

Piston pressure switches only have limited suitability for use with gases.

¹⁾ Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.

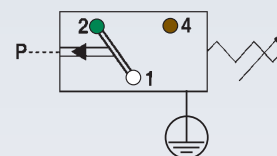
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Contact assignment:

- 1 = white
- 2 = green
- 4 = brown



Explosion-protected pressure switches

Technical details

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Technical explanations

Explosion-protected pressure switches are classified according to the respective combustible material-type. This division is:

Gases and vapours 0165, 0342 / 0343	Dusts 0340 / 0341, 0342 / 0343	Methane / coal dust 0342 / 0343
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ATEX/IECEx marking for pressure switches

Our pressure switches are designed for gases and vapours (G), dust (D) and methane / coal dust (M) in mining:

Series	Flammable materials	Ex zones	Ex marking acc. to 2014/34/EU
0165	Gases and vapours	1 + 2	⊕ II 2G Ex d II C T6/T5 X
0340 / 0341	Dusts	22	⊕ II 3D Ex tc IIIC T90°C Dc
0342 / 0343	Gases and vapours	1 + 2	⊕ II 2G Ex db IIC T6 / T5 Gb
	Dusts	21 + 22	⊕ II 2D Ex tb IIIC T80°C/ T100°C Db
	Methane / coal dust	M2 (Mining)	⊕ I M2 Ex db I Mb

The following table shows an overview of the explosion protection zones, device groups and categories. The applications covered by our pressure switches (according to Ex zones) are highlighted in colour.

Conditions in potentially explosive atmosphere

Com-bustible materials	Temporary behaviour of com-bustible materials in potentially explosive area	Categori-sation of potentially explosive areas	Marking required on equipment to be used	
			Equipment group	Equipment category
Gases Vapours	are present continually, frequently or for long periods	Zone 0	II	1G
	occur occasionally	Zone 1	II	2G
	are unlikely to occur, and if so, are then only seldom or for short periods	Zone 2	II	2G
Dusts	are present continually, frequently or for long periods	Zone 20	III	1D
	occur occasionally	Zone 21	III	2D
	occur if accumulated dust is whirled up, and then only seldom or for short periods	Zone 22	III	3D or 2D
Methane / Coal dust	operation where there is a risk of explosions	-	I	M1
	disconnection where there is a risk of explosion	-	I	M2 or M1



Explosion-protected pressure switches

Technical details

Type	0165	0340 / 0341	0342 / 0343		
Ex zones:	1 + 2	22	1 + 2	21 + 22	Mining
Flammable materials:	Gases and vapours	Dusts	Gases and vapours	Dusts	Methan / coal dust
Temperature resistance:	NBR		-4 °F... +176 °F (-20 °C ... +80 °C)		
	EPDM		-4 °F... +176 °F (-20 °C ... +80 °C)		
	FKM (Diaphragm pressure switch)		41 °F... +176 °C (-5 °C ... +80 °C)		
	FKM (Piston pressure switch)		5 °F... +176 °C (-15 °C ... +80 °C)		
	FFKM (0340 + 0342 only)		-4 °F... +176 °F (-20 °C ... +80 °C)		
	HNBR		-4 °F... +176 °F (-20 °C ... +80 °C)		
Switching frequency:	200 / min				
Mechanical life expectancy:	1.000.000 cycles				
Pressure rise rate:	≤14,500 psi/s (≤ 1.000 bar/s)				
Hysteresis:	10 ... 30 % (depending on type, non-adjustable)				
Vibration resistance:	10 g; 5 ... 200 Hz sine wave; DIN EN 60068-2-6				
Shock resistance:	294 m/s ² 14 ms half sine wave; DIN EN 60068-2-27				
Cable length:	Standard length approx. 2m with wire end sleeve, also available in lengths of approx. 5m as well as customer-specific lengths				
Protection class:	IP65				
Cable cross-section:	3 x 0,75 mm ²	3 x 0,5 mm ²			
Housing material:	Aluminium	Zinc-plated steel (CrVI-free), anodised aluminium			
Weight:	approx. 380 g	approx. 230 g			

Elektrische Werte

Rated working voltage U_e (usage category)	Rated working current I_e :	
250 VAC 50 / 60 Hz, AC 12	2 A	5 A
250 VAC 50 / 60 Hz, AC 14	1 A	1 A
24 VDC, DC 12 / DC 13	2 / 1 A	3,5 / 3,5 A
50 VDC, DC 12 / DC 13	1 / 0,5 A	2 / 1 A
75 VDC, DC 12 / DC 13	0,5 / 0,25 A	1 / 0,5 A
125 VDC, DC 12 / DC 13	0,2 / 0,1 A	0,3 / 0,2 A
250 VDC, DC 12 / DC 13	0,15 / 0,1 A	0,25 / 0,2 A
Rated insulation voltage U_i	300 V	
Rated impulse withstand voltage U_{imp} :	4 kV	
Conventional thermal current I_{the} :	5 A	
Switching overvoltage:	< 2,5 kV	
Rated frequency:	DC und 50 / 60 Hz	
Nominal current of short-circuit mechanism:	bis 3,5 A	
Conditional short-circuit current:	< 350 A	

Explosion-protected pressure switches

according to ATEX directive 2014/34/EU and IECEx scheme



- ATEX certification for the Ex-protected zones:
 - 1 + 2 (Gases and vapours)
 - 21 + 22 (Dust)
 - M2 Mining (Methane / coal dust)
- Types 0342/0343 are certified according to IECEx scheme
- Switching point can be easily adjusted by the user while system in operation
- Compact design
- Excellent price-performance ratio