

0196 / 0197

Diaphragm / piston pressure switches up to 24 V with stainless steel housing

- Stainless steel housing (1.4305 / AISI 303)
- Fitted with changeover contact and gold contacts
- Overpressure safety up to 300 / 600 bar¹⁾
(EPDM-W270 and silicone diaphragm up to 35 bar²⁾)
- Hysteresis adjustable at factory

p _{max.} in bar	Adjustment range in bar	Tolerance in bar at room temperature	Male thread	Order number
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0196 Diaphragm pressure switches with spade terminal

300 ¹⁾⁺²⁾	0.5 – 5	± 0.3	G 1/4	0196 – 457 03 – X – 003
	1 – 10	± 0.5		0196 – 458 03 – X – 006
	10 – 50	± 3.0		0196 – 459 03 – X – 009
	10 – 100	± 3.0 – 5.0		0196 – 461 03 – X – 012

0197 Piston pressure switches with spade terminal

600 ¹⁾	50 – 200	± 5.0	G 1/4	0197 – 460 03 – X – 003
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Seal material – Application areas

NBR	Hydraulic/machine oil, heating oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
EPDM-W270	Drinking water (only in diaphragm, p _{max} ≤ 35 bar)	5
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
Silicone	Water, food products, air, etc. (only in diaphragm, p _{max} ≤ 35 bar)	8
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

Refer to page 53 for the temperature range and application thresholds of sealing materials.

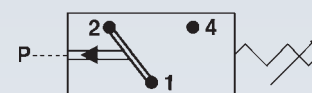
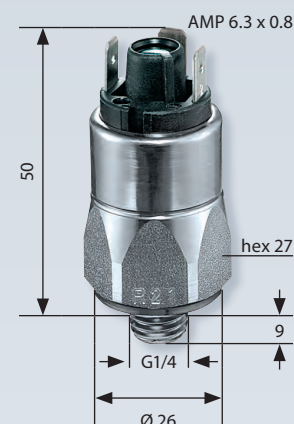
Your order number: 019X – XXX 03 – X – XXX

M.4

hex 27

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

²⁾ Overpressure safety of diaphragm pressure switch up to 300 bar. Functional reliability only up to 35 bar with diaphragm materials EPDM-W270 and silicone.

Pressure switches hex 27

Changeover with silver or gold contacts



- Switching point can be adjusted when fitted on site ¹⁾
- Factory adjustable hysteresis (except types 0140 and 0141)
- High overpressure safety and long service life under harsh conditions
- Operating voltage up to 250 V
- Series 0140 / 0141 with protective insulation □
- For ready-wired customized versions refer to chapter M.5, starting at page 62
- For pressure switches with integrated connectors refer to chapter M.2, starting at page 32

¹⁾ Pressure switches can also be supplied preset at factory.
Our preset switches are sealed with lacquer paint, set points are embossed on the housing.

Pressure switches hex 27

Technical data

M.4

hex 27



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Temperature resistance of sealing materials:	NBR (max. overpressure up to 100 bar)	-30 °C ... +100 °C
	NBR (max. overpressure up to 300 bar)	-40 °C ... +100 °C
	EPDM	-30 °C ... +120 °C
	EPDM-W270 (in diaphragm pressure switch)	-20 °C ... +100 °C
	FKM (in diaphragm pressure switch)	-5 °C ... +120 °C
	FKM (in piston pressure switch)	-15 °C ... +120 °C
	Silicone (in diaphragm pressure switch)	-40 °C ... +120 °C
	HNBR	-30 °C ... +120 °C
Switching frequency:	200 / min.	
Mechanical life expectancy:	1,000,000 cycles (for diaphragm pressure switches, life expectancy value only applies for switching pressures to max. 50 bar)	
Pressure rise rate:	≤ 1 bar / ms	
Hysteresis (only adjustable at factory):	Adjustable average value 10 ... 30 % depending on type Types 0140 and 0141 cannot be adjusted	
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 60068-2-6, DIN EN 60068-2-29	
Protection class:	IP65 with socket device, terminals IP00	
Weight:	approx. 100 g	

Switching performance and materials overview

Type	0140	0141	0170	0171	0180	0181	0183	0186	0187	0190	0191	0196	0197
5 ... 24 VDC										●	●	●	●
10 ... 42 VAC/DC			●	●									
10 ... 250 VAC/DC	●	●			●	●	●	●	●				
3 ... 50 mA										●	●	●	●
10 mA ... 2 A	●	●											
10 mA ... 4 A			●	●	●	●	●	●	●				
Gold contacts										●	●	●	●
Silver contacts	●	●	●	●	●	●	●	●	●				
Adjustable hysteresis			●	●	●	●	●	●	●	●	●	●	●
Zinc-plated steel (CrVI-free)	●	●	●	●	●	●	●			●	●		
Stainless steel 1.4305								●	●			●	●

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Pressure switches hex 27

Electrical values

0140 / 0141

Rated working voltage U_e	Rated working current I_e	Usage category ¹⁾
250 VAC 50 / 60 Hz	2 A	AC 12
24 VDC	2 / 1 A	DC 12 / DC 13
50 VDC	1 / 0.5 A	DC 12 / DC 13
75 VDC	0.5 / 0.25 A	DC 12 / DC 13
125 VDC	0.2 / 0.1 A	DC 12 / DC 13
250 VDC	0.15 / 0.1 A	DC 12 / DC 13
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 and 50/60Hz	
Nominal current of short-circuit mechanism:	to 3.5 A	
Rated short-circuit current:	< 350 A	
IP class of protection according to EN60529:1991+A1:1999:	IP65 with connector	
Tightening torque of terminal screws:	< 0.35 Nm	
Connector cross-section:	0.5 – 1.5 mm ²	

0170 / 0171 / 0180 / 0181 / 0183 / 0186 / 0187 / 0190 / 0191 / 0196 / 0197

Rated working voltage U_e	Rated working current I_e	Usage category ¹⁾
250 VAC 50 / 60 Hz	4 A	AC 12
250 VAC 50 / 60 Hz	1 A	AC 14
24 VDC	4 / 2 A	DC 12 / DC 13
50 VDC	2 / 1 A	DC 12 / DC 13
75 VDC	1 / 0.5 A	DC 12 / DC 13
125 VDC	0.3 / 0.2 A	DC 12 / DC 13
250 VDC	0.25 / 0.2 A	DC 12 / DC 13
Rated insulation voltage U_i :	300 V	
Rated impulse withstand voltage U_{imp} :	2.5 kV	
Conventional thermal current I_{the} :	5 A	
Switching overvoltage:	< 2.5 kV	
Rated frequency:	DC and 50/60Hz	
Nominal current of short-circuit mechanism:	to 5 A	
Rated short-circuit current:	< 350 A	
IP-Protection class nach EN60529:1991+A1:1999:	IP65 with connector	

¹⁾ For technical explanations refer to page 9