

Compact Pressure Switches

Series 8000

Series 8000 - mechanical pressure switches in diaphragm or piston design. The switch has very low and precise switching point settings.

Features

- ▶ Modular construction
- ▶ Versatile
- ▶ High-quality materials
- ▶ 100% functional test
- ▶ Long pressure spring
- ▶ Approvals: Ex ia, cULus, marine, SIL2/3 (IEC 61508)

Adjustment ranges

0.6...600 bar

Applications

OEM applications,
Mobile- and industrial-hydraulics and pneumatics,
Test bed and apparatus engineering,
Heavy industry

Technical Data

Wetted parts: ¹⁾ standard:	NBR, PTFE with bronze and stainless steel 1.4301; pistons: steel
optional:	FKM, EPDM, CR instead of NBR
Repeatability:	±1 % type, piston pressure switch ±2% type, diaphragm pressure switch
Switching rate:	max. 60/min piston pressure switch max. 30/min diaphragm pressure switch
Temperature range: Piston switch: Diaphragm switch: ATEX version:	-40 °C ... +80 °C (-40 °F ... +176 °F) ²⁾ -20 °C ... +80 °C (-4 °F ... +176 °F) -40 °C ... +75 °C (-40 °F ... +167 °F) ²⁾
Protection class:	IP65 (plug connector), IP68 (cable)
Housing: standard: optional:	Aluminium Stainless steel 1.4305 / AISI 303, Version - VA
Process connection:	flange connection as per ISO 16873-01-01-0-11
Electrical connection:	see dimensions
Gewicht: CETOP flange version:	350 g (0.77 lbs)



Micro switch:	Change-over contact (SPDT)
Set screw:	Aluminium Stainless steel 1.4305 / AISI 303 (SW5), captive
Approvals:	DNV-GL, cULus No. E42816, further approvals on request
Intrinsically safe:	Cert-No: TÜV 20 ATEX 248753X, IECEX TUN 21.0002X Series 8000 with PL1: EX II 1 G Ex ia IIB T6 Ga or II 1 D Ex ia IIIC T ₂₀₀ 100°C Da -40 °C < Ta < +75 °C Ui = 28 V li = 50 mA Pi = 0.84 W Ci, Li = negligibly small Series 8000 with PL2, CA: (Ex) II 1 G Ex ia IIC T6 Ga or II 1 D Ex ia IIIC T ₂₀₀ 100°C Da -40 °C < Ta < +75 °C Ui = 28 V li = 50 mA Pi = 0.84 W Ci, Li = negligibly small

¹⁾ Suitable media: All common hydraulic oils and fluid greases, and, with restrictions, aqueous media or gases. For more information, see operating manual.

²⁾ see order code "sealing"

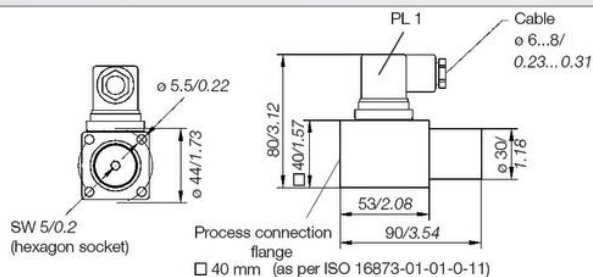
Pressure Ranges and Proof Pressures

Pressure range code		Adjustment range (pressure increasing)		Adjustment range (pressure decreasing)		Max. operating pressure		Proof pressure		Max. hysteresis (end of range)
[bar]	[psi]	[bar]	[psi]	[bar]	[psi]	[bar]	[psi]	[bar]	[psi]	
		Diaphragm		Diaphragm						≤15%
1	A	0.6 ... 6.0	(8.7...87)	0.4... 5.7	(5.8...82)	50	725	80	(1,200)	
2	B	3.0... 20.0	(45.0...290)	2.0... 17.0	(29...246)	50	725	80	(1,200)	
3	C	4.0... 45.0	(60.0...650)	3.0... 41.0	(43...600)	50	725	80	(1,200)	
		Piston		Piston						≤15%
4	D	5.0... 180	(75...2,600)	3.0... 160	(43...2,320)	250	3600	600	(8,700)	
5	E	50.0... 350	(750...5,000)	30.0... 300	(430...4,300)	450	6500	600	(8,700)	
6	F	80.0... 600	(1,200...8,700)	55.0... 520	(800...7,550)	600	8700	900	(15,000)	

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Dimensions (mm / inch)

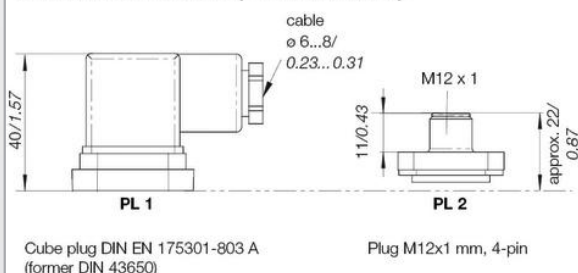


Up to pressure stage 5 or E every pressure switch is supplied with two fastening screws M5x60 mm according to DIN 912 (10.9, galvanized).
The pressure switches of pressure stage 6 or F are supplied with four screws.

Switching- and connection diagram (pressureless)

	PL1	PL2
C	1	1
NC	2	2
NO	3	4
PE	---	3

Electrical connection (PL1 = standard)

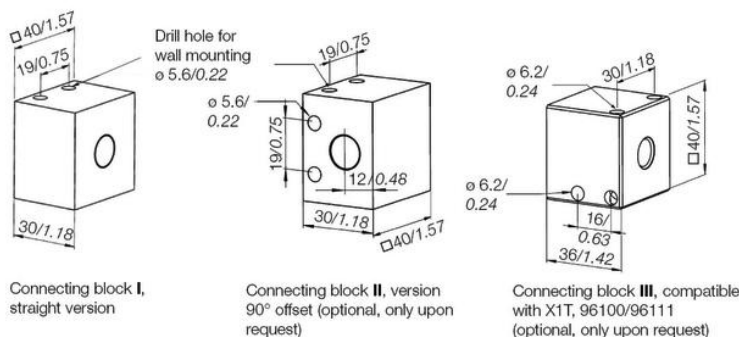


Cube plug DIN EN 175301-803 A (former DIN 43650)

Plug M12x1 mm, 4-pin

Process connections

Complete assembly with pressure switch only upon request



Connecting block I, straight version

Connecting block II, version 90° offset (optional, only upon request)

Connecting block III, compatible with X1T, 96100/96111 (optional, only upon request)

Electrical Ratings

Micro switch	Special features	Volt AC 50/60 Hz	Ind. Load A	Res. Load A	Volt DC	Ind. Load A	Res. Load A	Minimum capacitance	Intrinsic safety Ex ia
1	Silver contacts	250 V ~ 125 V ~	2.0 2.0	5.0 5.0	30 V= 250 V=	2.0 0.03	5.0 0.2	10 mA at 12 VDC	U _{max} = 28 V I _{max} = 50 mA
2	Gold contacts*	U x I = max. 0.12 VA			≤ 300 mV = ≤ 30 V =	--- ---	≤ 400 mA ≤ 4 mA	0 mA / 0 VDC	

* e.g. suitable for PLC and/or Ex ia

Seal

Code	Seal
B	NBR
N	CR
E	EPDM
V	FKM

Options

Code	Version
VA	Housing 1.4305
D	damping bore in the process connection, only at pressure range code 4, 5, 6
LH	Small hysteresis, only for pressure range code 4, 5, 6
HP	Test pressure 200 bar ³⁾ , only for pressure range code 1, 2, 3
HD	Hand knob with scale, only for pressure range code 4, 5, 6

Approvals

EXI	Ex ia
GL	Germanischer Lloyd
UL	cULus approval

Accessories

Process connection	Designation	Material	Connecting block no.	Order No.
G 1/4" female	straight	St passivated	I	906-0954
G 1/4" female	straight	1.4305	I	906-0947
G 1/4" female	90° offset	1.4305	II	906-0926
G 1/4" female	straight	AlMg4,5 Mn0,7	III	906-0919
1/4" NPT female	straight	St passivated	I	906-0953
1/4" NPT female	straight	1.4305	I	906-0946
1/4" NPT female	90° offset	1.4305	II	906-0927
Flange connector 23x40 mm	90° offset	1.4301	-	906-1221
Protection cap	black	Vinyl	-	924-0241

³⁾ Test pressure 200 bar (2,900 psi) upon request, results in less lifetime of the switch.

Order Code

8		Base Model
1		Process connection
		Flange 40x40 mm (as per ISO 16873-01-01-0-11)
bar (for psi)		Pressure Ranges, bar (psi)
1	A	0.6 ... 6.0 (8.7...87)
2	B	3.0... 20.0 (45.0...290)
3	C	4.0... 45.0 (60.0...650)
4	D	5.0... 180 (75...2,600)
5	E	50.0... 350 (750...5,000)
6	F	80.0... 600 (1,200...8,700)
1		Micro Switch Contact
2		Silver contacts
		Gold contacts
PL1		Electrical connection
PL2		Cube plug DIN EN 175301-803A (IP65)
CA1		Plug M12x1, 4-pol. (IP65)
CA3		Cable gland with 0.7 m silicon cable (IP68)
		Cable gland with 0.7 m neopren cable (IP68)
B		Sealing
N		NBR (fluid temp. range -25°...+80°C)
E		CR (fluid temp. range -20°...+80°C)
V		EPDM (fluid temp. range -40°...+80°C)
		FKM (fluid temp. range -20°...+80°C)
VA		Options
D		Housing 1.4305
LH		Damping bore in the process connection (only at pressure ranges code 4, 5, 6)
HP		Low hysteresis (only at pressure ranges code 4, 5, 6)
HD		Test pressure 200 bar (only at pressure ranges code 1, 2, 3)
		Hand knob with scale (only at pressure ranges code 4, 5, 6)
		Approvals ⁴⁾
Exi		Ex ia
GL		German Lloyd
UL		cULus

Example for order code

8 1 5 2 - PL2 - B - VA - Exi

⁴⁾ Possible combination:

- GL + Exi = yes
- UL + Exi = no
- GL + UL = no