



# DS 200

## Electronic Pressure Switch

Stainless Steel Sensor

accuracy according to IEC 60770:  
standard: 0.35 % FSO  
option: 0.25 % FSO

### Nominal pressure

from 0 ... 100 mbar up to 0 ... 600 bar

### Contacts

1, 2 or 4 independent PNP contacts,  
freely configurable

### Analogue output

2-wire: 4 ... 20 mA  
3-wire: 4 ... 20 mA / 0 ... 10 V  
others on request

### Special characteristics

- ▶ indication of measured values on a 4-digit LED display
- ▶ rotatable and configurable display module

### Optional versions

- ▶ **IS-version**  
**Ex ia = intrinsically safe for gases**
- ▶ pressure sensor welded
- ▶ customer specific versions




The electronic pressure switch DS 200 is the successful combination of

- ▶ intelligent pressure switch
- ▶ digital display

and has been specially designed for numerous applications in various industrial sectors.

As standard the DS 200 offers a PNP contact and a rotatable display module with 4-digit LED display. Optional versions like e.g. an intrinsically safe version, max. four contacts and an analogue output complete the profile.

### Preferred areas of use are

-  Plant and machine engineering
-  Heating and air conditioning
-  Environmental engineering  
(water – sewage – recycling)



Input pressure range												
Nominal pressure gauge <sup>1</sup>	[bar]	-1...0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Level gauge <sup>1</sup>	[mH <sub>2</sub> O]	-	1	1.6	2.5	4	6	10	16	25	40	60
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

Nominal pressure gauge <sup>1</sup> / absolute	[bar]	10	16	25	40	60	100	160	250	400	600
Level gauge <sup>1</sup>	[mH <sub>2</sub> O]	100	160	250	400	600	-	-	-	-	-
Overpressure	[bar]	40	80	80	105	210	210	600	1000	1000	1000
Burst pressure ≥	[bar]	50	120	120	210	420	420	1000	1250	1250	1250

Vacuum resistance  $p_N \geq 1$  bar: unlimited vacuum resistance;  $p_N < 1$  bar: on request

<sup>1</sup> from 60 bar: measurement starts with ambient pressure

Contact <sup>2</sup>	
Standard	1 PNP contact
Options	2 independent PNP contacts 4 independent PNP contacts (possible with M12x1, 8-pin for 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request)
Max. switching current	4 ... 20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resistant; $V_{switch} = V_S - 2V$ 0 ... 10 V / 3-wire: contact rating 125 mA, short-circuit resistant
Accuracy of contacts <sup>3</sup>	standard: $p_N < 0.4$ bar: $\leq \pm 0.5$ % FSO $p_N \geq 0.4$ bar: $\leq \pm 0.35$ % FSO option: $p_N \geq 0.4$ bar: $\leq \pm 0.25$ % FSO
Repeatability	$\leq \pm 0.1$ % FSO
Switching frequency	max. 10 Hz
Switching cycles	$> 100 \times 10^6$
Delay time	0 ... 100 sec

<sup>2</sup> max. 1 contact for 2-wire current signal with plug ISO 4400 as well as 2-wire current signal with IS-protection  
no contact possible with 3-wire in combination with plug ISO 4400

Analogue output (optionally) / Supply	
2-wire current signal	4 ... 20 mA / $V_S = 13 \dots 36 V_{DC}$ permissible load: $R_{max} = [(V_S - V_{Smin}) / 0.02 A] \Omega$ response time: $< 10$ msec
2-wire current signal with IS-protection	4 ... 20 mA / $V_S = 15 \dots 28 V_{DC}$ permissible load: $R_{max} = [(V_S - V_{Smin}) / 0.02 A] \Omega$ response time: $< 10$ msec
3-wire current signal	4 ... 20 mA / $V_S = 19 \dots 30 V_{DC}$ adjustable (turn-down of span 1:5) <sup>4</sup> permissible load: $R_{max} = 500 \Omega$ response time: $< 3$ sec
3-wire voltage signal	0 ... 10 V / $V_S = 15 \dots 36 V_{DC}$ permissible load: $R_{min} = 10 k\Omega$ response time: $< 3$ msec
without analogue output	$V_S = 15 \dots 36 V_{DC}$
Accuracy <sup>3</sup>	standard: $p_N < 0.4$ bar: $\leq \pm 0.5$ % FSO; $p_N \geq 0.4$ bar: $\leq \pm 0.35$ % FSO option: $p_N \geq 0.4$ bar: $\leq \pm 0.25$ % FSO

<sup>3</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

<sup>4</sup> with turn-down of span the analogue signal is adjusted automatically to the new measuring range

Thermal effects (offset and span)			
Nominal pressure $p_N$	[bar]	-1 ... 0	$< 0.40$ $\geq 0.40$
Tolerance band	[% FSO]	$\leq \pm 0.75$	$\leq \pm 1$ $\leq \pm 0.75$
in compensated range	[°C]	-20 ... 85	0 ... 70 -20 ... 85

Permissible temperatures	
Medium	-40 ... 125 °C
Electronics / environment	-40 ... 85 °C
Storage	-40 ... 100 °C

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

Mechanical stability	
Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27

Materials	
Pressure port	stainless steel 1.4404 (316 L)
Housing	stainless steel 1.4404 (316 L)
Display housing	PA 6.6, polycarbonate
Seals (media wetted)	standard: FKM option: welded version <sup>5</sup> others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seals, diaphragm

<sup>5</sup> welded version only for pressure ports according to EN 837 and NPT; possible for nominal pressure ranges  $p_N \leq 40$  bar

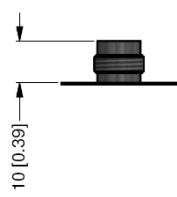


# DS 200

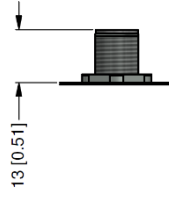
Electronic Pressure Switch

Technical Data

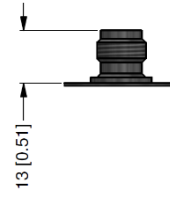
## Electrical connections (dimensions mm / in)



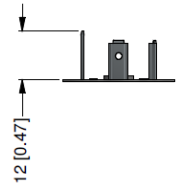
M12x1 plastic  
(5-pin)



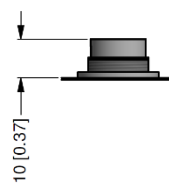
M12x1 metal  
(5-pin)



M12x1 plastic  
(8-pin)

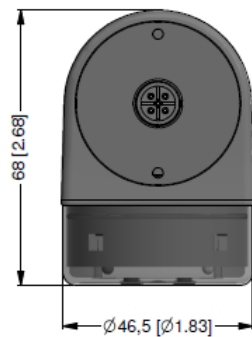
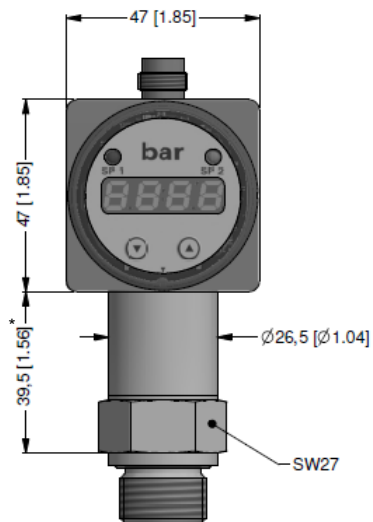


ISO 4400

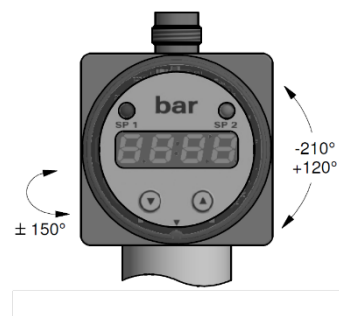


Binder series 723  
(5-pin)

## Dimensions (mm / in)

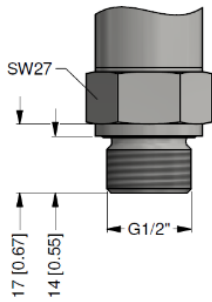


## rotatability of display module

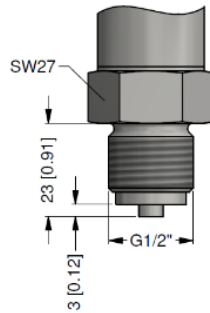


\* for nominal pressure  $p_N > 400$  bar increases the length of device by 19 mm (without explosion protection) or by 39 mm (with explosion protection)

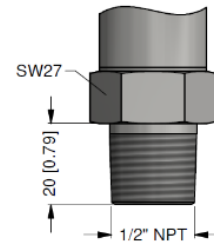
**Mechanical connection (dimensions mm / in)**



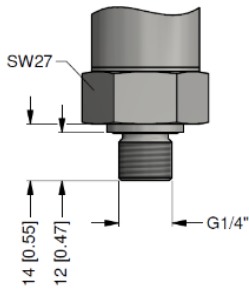
G1/2" DIN 3852



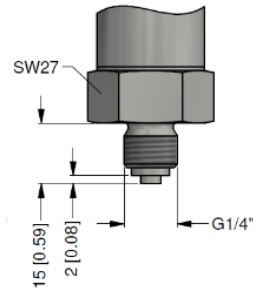
G1/2" EN 837



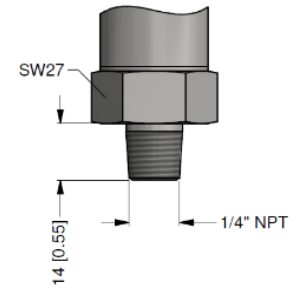
1/2" NPT



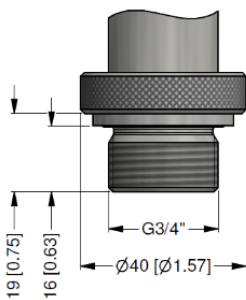
G1/4" DIN 3852



G1/4" EN 837

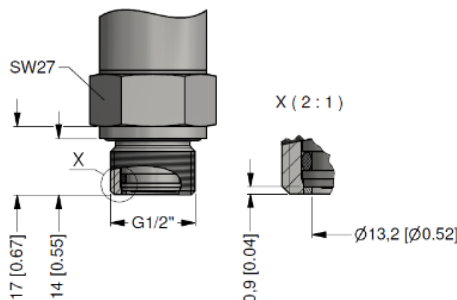


1/4" NPT



G3/4" flush DIN 3852  
(0.1 bar ≤ p<sub>N</sub> ≤ 40 bar)

length of device: 87.5 mm (without plug)



G1/2" flush DIN 3852  
(0.1 bar ≤ p<sub>N</sub> ≤ 40 bar)

length of device: 103 mm (without plug)

⇒ metric threads and other versions on request

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