



DS 200P

Electronic Pressure Switch

Pressure Ports and Process Connections with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 61298-2:
standard: 0.35 % FSO
option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 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
- ▶ configurable contacts (switch on / switch off points, hysteresis / window mode, switch on / switch off delay)

Optional versions

- ▶ IS-version
Ex ia = intrinsically safe for gases
- ▶ customer specific versions

The electronic pressure switch DS 200P is the successful combination of

- ▶ intelligent pressure switch
- ▶ digital display

and is suitable for the usage with viscous and pasty media.

As standard the DS 200P 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



Food industry



Pharmacy



Input pressure range ¹																	
Nominal pressure gauge	[bar]	-1 ... 0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40	
Nominal pressure absolute	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40	
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40	40	80	80	105	
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120	210	
Vacuum resistance		$p_N \geq 1$ bar: unlimited vacuum resistance									$p_N < 1$ bar: on request						

¹ consider the pressure resistance of fitting and clamps

Contact ²	
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 ³	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

² 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

³ accuracy according to IEC 61298-2 – limit point adjustment (non-linearity, hysteresis, repeatability)

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) ⁴ permissible load: $R_{max} = 500 \Omega$ response time: < 0.5 sec
3-wire voltage signal	0 ... 10 V / $V_S = 15 \dots 36 V_{DC}$ permissible load: $R_{min} = 10 k\Omega$ response time: < 10 msec
Without analogue output	$V_S = 15 \dots 36 V_{DC}$
Accuracy ³	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

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

Thermal errors (offset and span) ⁵				
Nominal pressure p _N	[bar]	-1 ... 0	< 0.40	≥ 0.40
Tolerance band	[% FSO]	± 0.75	± 1.5	± 0.75
In compensated range	[°C]	-20 ... 85	0 ... 50	-20 ... 85

⁵ an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions

Permissible temperatures		
Filling fluid	silicone oil	food compatible oil
Medium ⁶	-40 ... 125 °C	-10 ... 125 °C
Medium with cooling element ⁷	overpressure: -40 ... 300 °C vacuum: -40 ... 150 °C ⁸	overpressure: -10 ... 250 °C vacuum: -10 ... 150 °C ⁸
Electronics / environment	-40 ... 85 °C	
Storage	-40 ... 100 °C	

⁶ max. temperature of the medium for overpressure > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C

⁷ max. temperature depends on the used sealing material, type of seal and installation

⁸ also for $p_{abs} \leq 1$ bar

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	20 g RMS / 10 ... 2000 Hz according to DIN EN 60068-2-6 10 g RMS / 10 ... 2000 Hz according to DIN EN 60068-2-6 (with cooling element)
Shock	500 g / 1 msec half sine according to DIN EN 60068-2-27

Filling fluids	
Standard	silicone oil
Options	food compatible oil according to 21CFR178.3570 (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500)

Materials					
Pressure port	inch thread: stainless steel 1.4404 (316 L) G1" cone, Clamp, dairy pipe, Varivent®: stainless steel 1.4435 (316 L)				
Housing	stainless steel 1.4404 (316 L)				
Display housing	PA 6.6, Polycarbonate				
Seals (media wetted)	standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures < 260 °C) others on request Clamp, dairy pipe, Varivent®: without				
Diaphragm	standard: stainless steel 1.4435 (316 L) option: Hastelloy® C-276 (2.4819); Tantalum on request				
Media wetted parts	pressure port, seals, diaphragm				
Explosion protection (only for 4 ... 20 mA / 2-wire)					
Approval AX14-DS 200P	IBExU06ATEX1050 X zone 1: II 2G Ex ia IIC T4 Gb				
Safety technical maximum values	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C ≈ 0 nF, L _i ≈ 0 μH				
Max. switching current ⁹	70 mA				
Permissible temperatures for environment	-25 ... 70 °C				
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 100 pF/m cable inductance: signal line/shield also signal line/signal line: 1 μH/m				
⁹ the real switching current in the application depends on the power supply unit					
Miscellaneous					
EHEDG certificate Type EL Class I	EHEDG conformity is only ensured in combination with an approved seal. This is e.g. for - Clamp (C61, C62, C63): T-ring-seal from Combifit International B.V. - Varivent® (P41): EPDM-O-ring which is FDA-listed - dairy pipe (M73, M75, M76): ASEPTO-STAR k-flex upgrade seal by Kieselmann GmbH				
Display	4-digit, red 7-segment-LED display; digit height 7 mm; range of indication -1999 ... +9999; accuracy 0.1 % ± 1 digit; digital damping 0.3 ... 30 sec (programmable); measured value update 0.0 ... 10 sec (programmable)				
Current consumption (without contacts)	2-wire signal output current: max. 25 mA 3-wire signal output voltage: approx. 45 mA 3-wire signal output current: approx. 45 mA + signal current				
Ingress protection	IP 65				
Installation position	any (standard calibration in a vertical position with the pressure port connection down; different installation position for p _N ≤ 2 bar have to be specified in the order)				
Surface roughness	pressure port R _a < 0.8 μm (media wetted parts) diaphragm R _a < 0.15 μm weld seam R _a < 0.8 μm				
Weight	approx. 160 ... 250 g				
Operational life	100 million load cycles				
CE-conformity	EMC Directive: 2014/30/EU				
ATEX Directive	2014/34/EU				
Wiring diagrams					
2-wire-system (current)	3-wire-system (current/voltage)				
Pin configuration					
Electrical connection	M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12x1 plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)
Supply +	1	1	1	1	1
Supply -	3	3	3	2	3
Signal + (only 3-wire)	2	2	2	3	2
Contact 1	4	4	4	3	4
Contact 2	5	5	5	-	5
Contact 3	-	-	6	-	-
Contact 4	-	-	7	-	-
Shield	via pressure port	plug housing/ pressure port	via pressure port	ground contact	plug housing/ pressure port

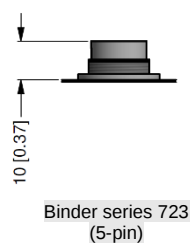
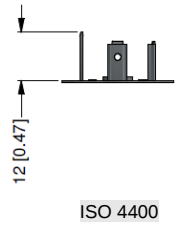
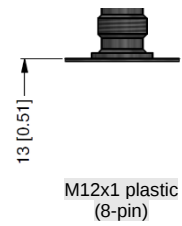
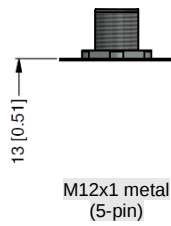
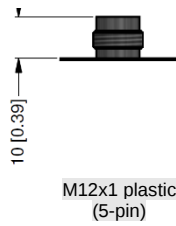
DS 200P

Electronic Pressure Switch

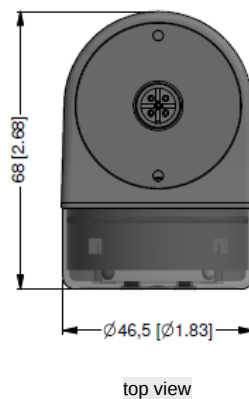
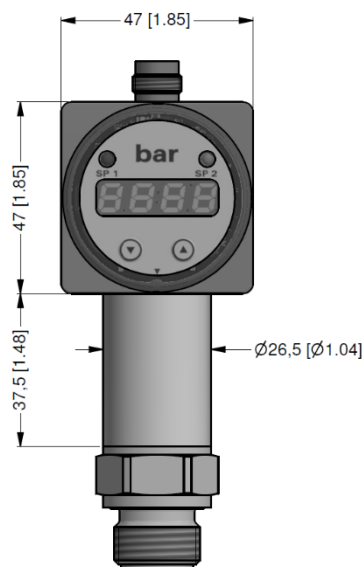
Technical Data

Stork Solutions Ltd | 6 Fortuna Court | Calleva Park | Aldermaston | RG7 8UB | United Kingdom
W: www.stork.solutions | T: +44 (0)118 237 1606

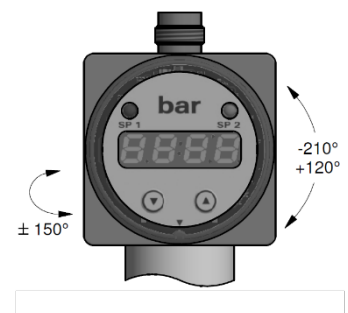
Company number: 10906801 | VAT Number: GB269597140 | Documents are subject to change without notice



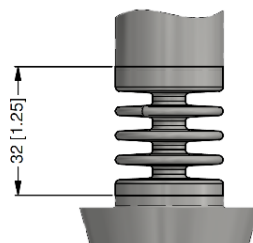
Dimensions (mm / in)



rotatability of display module



Cooling element up to 300 °C ⁷ (optionally)

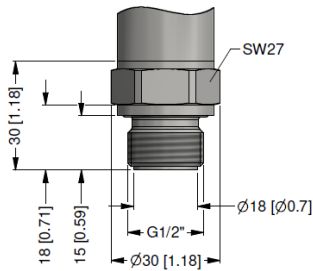


⁷ max. temperature depends on the used sealing material, type of seal and installation

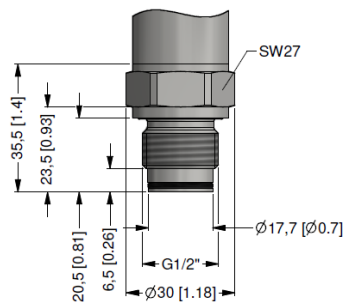
Stork Solutions Ltd | 6 Fortuna Court | Calleva Park | Aldermaston | RG7 8UB | United Kingdom
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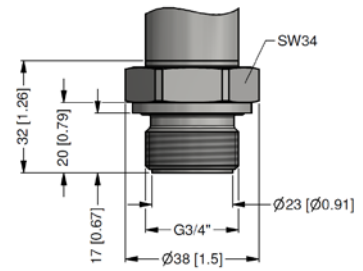
Mechanical connection (dimensions mm / in)



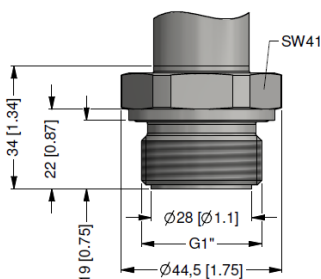
G1/2" flush DIN 3852
 $p_N \geq 1$ bar



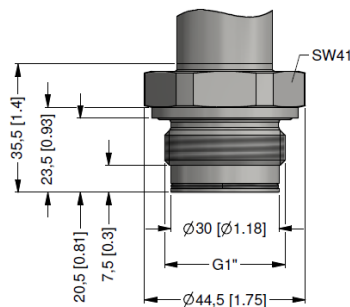
G1/2" flush with radial o-ring
 $p_N \geq 1$ bar



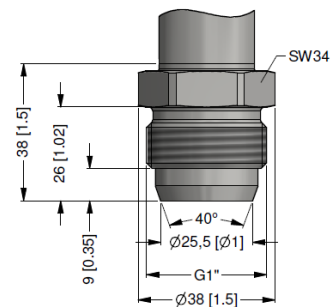
G3/4" flush DIN 3852



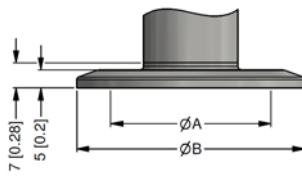
G1" flush DIN 3852



G1" flush with radial o-ring

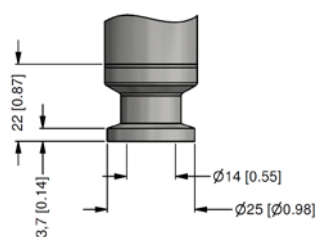


G1" cone

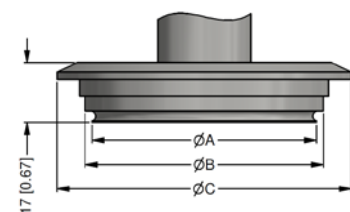


dimensions in mm [in]			
size	DN 25	DN 32	DN 50
A	23.0 [0.91]	23.0 [0.91]	45 [1.77]
B	50.5 [1.99]	50.5 [1.99]	64 [2.52]
p_N [bar]	0.25 ... 16	≤ 16	≤ 16

Clamp (DIN 32676)

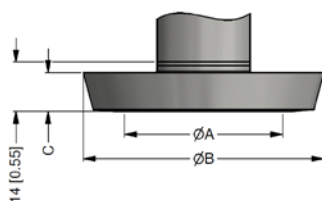


Clamp 3/4" (DIN 32676)
 $4 \text{ bar} \leq p_N \leq 8 \text{ bar}$



dimensions in mm [in]	
size	DN 40/50
A	64 [2.52]
B	68 [2.68]
C	84 [3.31]

Varivent® DN 40/50
 $p_N \leq 25 \text{ bar}$



dimensions in mm [in]			
size	DN 25	DN 40	DN 50
A	23 [0.91]	32 [1.26]	45 [1.77]
B	44 [1.73]	56 [1.20]	68.5 [2.70]
C	10 [0.39]	10 [0.39]	11 [0.43]
p_N [bar]	≤ 40	≤ 40	≤ 25

diary pipe (DIN 11851)

⇒ SIL- and SIL-Ex version: total length increases by 26.5 mm!

⇒ metric threads and other versions on request

Varivent® is a brand name of GEA Tuchenhausen GmbH, Hastelloy® is a brand name of Haynes International Inc.

The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

Ordering code DS 200P

DS 200P

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[illegible]

Varivent[®] is a brand name of GEA Tüschenhagen GmbH. Hastelloy[®] is a brand name of Haynes International Inc.