

# DS 217

## Pressure Switch with welded Stainless Steel Sensor

### Characteristics:

- ▶ accuracy according to EN IEC 62828-2:  
0.5 % span
- ▶ nominal pressure ranges  
from 0 ... 6 bar up to 0 ... 600 bar
- ▶ 1 analogue output and up to  
2 contacts
- ▶ display and housing rotatable
- ▶ suitable for oxygen applications



### Technical Data



| Input pressure range  |  |    |    |     |     |     |     |     |       |       |       |  |
|---|--|----|----|-----|-----|-----|-----|-----|-------|-------|-------|--|
| Nominal pressure gauge [bar]  | 6  | 10 | 16 | 25  | 40  | 60  | 100 | 160 | 250   | 400   | 600   |  |
| Overpressure (static) [bar]   | 12   | 20 | 32 | 50  | 80  | 120 | 200 | 320 | 500   | 800   | 1 200 |  |
| Burst pressure $\geq$ [bar]   | 30   | 50 | 80 | 125 | 200 | 300 | 500 | 800 | 1 400 | 2 000 | 3 000 |  |
| Vacuum resistance   | unlimited  |    |    |     |     |     |     |     |       |       |       |  |
| Contact   |  |    |    |     |     |     |     |     |       |       |       |  |
| Number / type   | standard: 1 PNP contact<br>optionally: max. 2 independent PNP contact; 1 analogue output     |    |    |     |     |     |     |     |       |       |       |  |
| Switching current   | standard: contact rating max. 125 mA, short-circuit resistant                                |    |    |     |     |     |     |     |       |       |       |  |
| Accuracy of switching points <sup>1</sup>   | $\leq \pm 1.5$ % span  |    |    |     |     |     |     |     |       |       |       |  |
| Repeatability   | $\leq \pm 0.5$ % span  |    |    |     |     |     |     |     |       |       |       |  |
| Switching frequency   | max. 10 Hz   |    |    |     |     |     |     |     |       |       |       |  |
| Switching cycles  | $> 100 \times 10^6$  |    |    |     |     |     |     |     |       |       |       |  |
| Delay time  | 0 ... 100 sec  |    |    |     |     |     |     |     |       |       |       |  |
| Analogue output (optionally) / Supply   |  |    |    |     |     |     |     |     |       |       |       |  |
| 3-wire current signal   | 4 ... 20 mA / $V_S = 24 V_{DC} \pm 10$ %   |    |    |     |     |     |     |     |       |       |       |  |
| Accuracy <sup>1</sup>   | $\leq \pm 0.5$ % span  |    |    |     |     |     |     |     |       |       |       |  |
| Permissible load  | 3-wire: $R_{max} = 500 \Omega$   |    |    |     |     |     |     |     |       |       |       |  |
| Influence effects   | supply: 0.05 % span / 10 V<br>load: 0.05 % span / k $\Omega$                                 |    |    |     |     |     |     |     |       |       |       |  |
| Measuring rate  | 10 Hz  |    |    |     |     |     |     |     |       |       |       |  |
| <sup>1</sup> accuracy according to EN IEC 62828-2 – limit point adjustment (non-linearity, hysteresis, repeatability) |  |    |    |     |     |     |     |     |       |       |       |  |
| Thermal effects (Offset and Span) / Permissible temperatures  |  |    |    |     |     |     |     |     |       |       |       |  |
| Thermal error   | $\leq \pm 0.5$ % span / 10 K in compensated range -25 ... 85 °C                              |    |    |     |     |     |     |     |       |       |       |  |
| Permissible temperatures  | medium: -25 ... 125 °C<br>electronics / environment: -25 ... 85 °C<br>storage: -40 ... 85 °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 (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 / housing  | stainless steel 1.4571 (316 Ti) / stainless steel 1.4301 (304)   |   |
| Display housing  | PA 6.6, polycarbonate  |   |
| Seal sensor  | none (welded)  |   |
| Diaphragm  | stainless steel 1.4542 (17-4PH)  |   |
| Media wetted parts   | pressure port, seal pressure port, diaphragm   |   |
| Miscellaneous  |  |   |
| Weight   | approx. 160 g  |   |
| Display  | 4-digit, red LED display, digit height 7 mm, digit width 4.85 mm (angle 10°); 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) |   |
| Long term stability  | ≤ ± 0.3 % span / year at reference conditions  |   |
| Operational life   | 100 million load cycles  |   |
| CE-conformity  | EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) <sup>2</sup>   |   |
| <sup>2</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar. |  |   |
| Wiring diagrams  |  |   |
| 3-wire-system (current)  |  |   |
|  |  |   |
| Pin configuration  |  |   |
| Electrical connections   | M12x1 (5-pin) plastic  |   |
| supply +   | 1  |   |
| supply -   | 3  |   |
| signal + (only for 3-wire)   | 2  |   |
| contact 1  | 4  |   |
| contact 2  | 5  |   |
| shield   | via pressure port  |   |
|  |  |   |
| Connections (dimensions in mm)   |  |   |
|  | <b>Mechanical connections - optional</b><br>   | <b>Rotatability of display module</b><br> |
|  |  |   |

The manufacturer provides the EU declaration of conformity.

Calibration - All production undergoes output control, which is performed by comparison with standards. The traceability of standards and working gauges is ensured in accordance with Act No. 505/1990, as amended, on metrology.

The manufacturer offers the possibility to supply sensors calibrated in the calibration laboratory of BD SENSORS, accredited according to ČSN EN ISO / IEC 17025: 2018.

## Ordering code DS 217

9.12.2020

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|                              |   |   |   |   |   |   |   |  |  |  |   |       |
|------------------------------|---|---|---|---|---|---|---|--|--|--|---|-------|
| <b>Measured pressure</b>     |   |   |   |   |   |   |   |  |  |  |   |       |
| Gauge                        | 7 | 8 | P |   |   |   |   |  |  |  |   |       |
| <b>Input [bar]</b>           |   |   |   |   |   |   |   |  |  |  |   |       |
| 0 ... 6                      |   |   |   | 6 | 0 | 0 | 1 |  |  |  |   |       |
| 0 ... 10                     |   |   |   | 1 | 0 | 0 | 2 |  |  |  |   |       |
| 0 ... 16                     |   |   |   | 1 | 6 | 0 | 2 |  |  |  |   |       |
| 0 ... 25                     |   |   |   | 2 | 5 | 0 | 2 |  |  |  |   |       |
| 0 ... 40                     |   |   |   | 4 | 0 | 0 | 2 |  |  |  |   |       |
| 0 ... 60                     |   |   |   | 6 | 0 | 0 | 2 |  |  |  |   |       |
| 0 ... 100                    |   |   |   | 1 | 0 | 0 | 3 |  |  |  |   |       |
| 0 ... 160                    |   |   |   | 1 | 6 | 0 | 3 |  |  |  |   |       |
| 0 ... 250                    |   |   |   | 2 | 5 | 0 | 3 |  |  |  |   |       |
| 0 ... 400                    |   |   |   | 4 | 0 | 0 | 3 |  |  |  |   |       |
| 0 ... 600                    |   |   |   | 6 | 0 | 0 | 3 |  |  |  |   |       |
| Customer                     |   |   |   | 9 | 9 | 9 | 9 |  |  |  |   |       |
| Customer - underpressure     |   |   |   | X | X | X | X |  |  |  |   |       |
| <b>Analogue output</b>       |   |   |   |   |   |   |   |  |  |  |   |       |
| Without                      |   |   |   |   |   |   | 0 |  |  |  |   |       |
| 4 ... 20 mA / 2-wire         |   |   |   |   |   |   | 1 |  |  |  |   |       |
| Customer                     |   |   |   |   |   |   | 9 |  |  |  |   |       |
| <b>Switching output</b>      |   |   |   |   |   |   |   |  |  |  |   |       |
| 1 switching contact          |   |   |   |   |   |   |   |  |  |  | 1 |       |
| 2 switching contacts         |   |   |   |   |   |   |   |  |  |  | 2 |       |
| <b>Accuracy</b>              |   |   |   |   |   |   |   |  |  |  |   |       |
| 0,5%                         |   |   |   |   |   |   |   |  |  |  | 5 |       |
| Customer                     |   |   |   |   |   |   |   |  |  |  | 9 |       |
| <b>Electrical connection</b> |   |   |   |   |   |   |   |  |  |  |   |       |
| Connector M 12 x 1 (5-pin)   |   |   |   |   |   |   |   |  |  |  | N | 0 1   |
| Customer                     |   |   |   |   |   |   |   |  |  |  | 9 | 9 9   |
| <b>Mechanical connection</b> |   |   |   |   |   |   |   |  |  |  |   |       |
| G 1/2" EN 837                |   |   |   |   |   |   |   |  |  |  | 2 | 0 0   |
| G 1/4" DIN 3852              |   |   |   |   |   |   |   |  |  |  | 3 | 0 0   |
| G 1/4" EN 837                |   |   |   |   |   |   |   |  |  |  | 4 | 0 0   |
| 1/4" NPT                     |   |   |   |   |   |   |   |  |  |  | N | 4 0   |
| 7/16 - 20 UNF                |   |   |   |   |   |   |   |  |  |  | U | 0 0   |
| Customer                     |   |   |   |   |   |   |   |  |  |  | 9 | 9 9   |
| <b>Seals</b>                 |   |   |   |   |   |   |   |  |  |  |   |       |
| Without - welded             |   |   |   |   |   |   |   |  |  |  |   | 2     |
| Customer                     |   |   |   |   |   |   |   |  |  |  |   | 9     |
| <b>Special version</b>       |   |   |   |   |   |   |   |  |  |  |   |       |
| Standard                     |   |   |   |   |   |   |   |  |  |  |   | 0 0 0 |
| Oxygen application           |   |   |   |   |   |   |   |  |  |  |   | 0 0 7 |
| Customer                     |   |   |   |   |   |   |   |  |  |  |   | 9 9 9 |

0,-...without additional charge      On request...in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change. □

This document contains the specification for ordering the product;

detailed technical parameters of the product and its possible variants are given in the data sheet.

BD SENSORS reserves the right to change sensor specifications without further notice.



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The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.





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