

## VSP pressure sensor

For oil pressure applications

### DESCRIPTION

One of our smallest pressure sensors, the VSP has a robust and submersible design which makes it a reliable partner for any oil pressure application in motor and commercial vehicles. The VSP is able to measure absolute or relative pressure in a nominal pressure range of up to 600 bar. The specially developed evaluation electronics make it possible to take very precise and stable measurements at temperatures of up to 150 °C, even under tough conditions. In addition, the VSP also complies with the high ESD and EMC standards applicable in the automobile industry. Our assembly machines have a wide range of flexible settings enabling a customised production of the sensor and an optimal adaption to the respective application.



### FIELDS OF APPLICATION

Oil pressure applications in motor and commercial vehicles

- Braking systems
- Powertrain

Measurement and testing technology



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### KEY FEATURES

Robust, minimised design

Specially developed measurement element and evaluation electronics

Numerous electrical connections and output signals available

### BENEFITS

- Submersible, oil-proof version available
- Compatible with standard oils used in the automotive industry
- Suitable for applications with limited installation space
- Optionally with lightweight aluminium housing

- High-precision version available
- For use at temperatures up to 150 °C
- Reliable, stable measurements over the entire life cycle
- Automotive-tested EMC / ESD resistance

- Simple and flexible integration, also in existing systems

## Technical specification

VSP pressure sensor



### Pressure ranges

|                         |   |
|-------------------------|---|
| Nominal pressure        | 0.2 ... 50 bar, absolute<br>0.2 ... 600 bar, relative <sup>1)</sup> |
| Pressure reference type | Relative and absolute pressure                                      |
| Overpressure            | 2x nominal pressure   |
| Bursting pressure       | 3x nominal pressure   |

### Electrical characteristics

|   |  |
|---|--|
| Supply voltage                            | 9 ... 30 V<br>12 ... 30 V<br>5 ± 0.5 V   |
| Supply current                            | typ. 10 mA   |
| Output signal                             | 4 ... 20 mA, 2 wire system<br>0 ... 5 V, 1 ... 6 V, 0 ... 10 V<br>0.5 ... 4.5 V, ratiometric |
| Overvoltage protection <sup>2)</sup>      | ± 30 V   |
| Reverse polarity protection <sup>2)</sup> | ± 30 V   |

### Mechanical characteristics

|                       |  |
|-----------------------|--|
| Measurement element   | Stainless steel<br>Silicon sensing element<br>(also with stainless steel<br>membrane and oil filled) |
| Case material         | Stainless steel, aluminium   |
| Pressure connection   | HEX 19, M10x1, G1/4"<br>male thread <sup>3)</sup>  |
| Electrical connection | MQS plug, Packard plug,<br>M12x1 plug <sup>3)</sup>  |
| Installation position | Arbitrary  |
| Weight                | Approx. 30 g (stainless steel)<br>Approx. 15 g (aluminium)   |

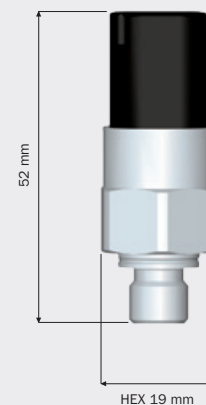
### Accuracy

|   |   |
|---|---|
| Total error <sup>4)</sup><br>(Standard version)       | ± 1 % FS (0 ... 90 °C)<br>± 2 % FS (-40 ... 125 °C) |
| Total error <sup>4)</sup><br>(High-precision version) | ± 0.2 % FS  |

### Environmental conditions

|                                      |   |
|--------------------------------------|---|
| Operating temperature range          | -40 ... 125 °C (150 °C)                                     |
| Media temperature range              | -40 ... 125 °C (150 °C)                                     |
| Media compatibility                  | Engine and gear oils, major-<br>ity of liquid and gas media |
| ESD (DIN EN 61000-4-2) <sup>2)</sup> | ± 8 kV to contacts<br>± 15 kV to case                       |
| EMC (ISO 11452) <sup>2)</sup>        | 250 V/m<br>200 mA (BCI)                                     |

### Dimension



1) Initial value of -1 bar possible for relative pressure

2) Depending on the output signal and application

3) Other pressure connections and electrical connections available on request

4) Covers repeatability, hysteresis, non-linearity (TBL), calibration and temperature effects; depending on the pressure and temperature range

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