H₂-Pressure Sensors LPS, MPS, HPS
For hydrogen systems and tanks

DESCRIPTION

The pressure sensors LPS, MPS and HPS are specially designed for the use in hydrogen applications (H₂), such as fuel cells, filling stations and high pressure tanks. This product family comprises three versions that measure pressures up to 6 bar (LPS) and 30 bar (MPS) as well as high pressures up to 900 bar (HPS). Hence, these sensors perfectly fulfill all measuring tasks in stationary and mobile hydrogen systems and tanks. All wetted materials are selected to comply with the high standards set for the use in hydrogen applications so that the sensors withstand the harsh environmental conditions of fuel cells and hydrogen tank systems and provide reliable, precise measurements over their entire life time. Therefore, the H₂-pressure sensors are certified according to EC79 or HGV 3.1.

For an optimal integration in systems the LPS, MPS and HPS is available with different analog and digital (SENT/LIN) output signals.

FIELDS OF APPLICATION

- Systems for the production, usage and storage of hydrogen (H₂)
- For industrial and automobile applications
- Fuel cells
- High pressure tanks, storage and filling stations
- Measurement and testing technology

KEY FEATURES

- Hydrogen pressure measurement up to 900 bar
- Robust for pressure ranges up to 900 bar
- Mono-part sensing element without welded parts

- High level of hydrogen compatibility
- Use of media-tested materials
- Burst proof and high durability
- Freezing robust design
- Certified according to EC79 and HGV 3.1

- Numerous design versions available
- Analog output voltage and SENT and LIN output
- Different mechanical connectors available (metric and UNF)
- High pressure sensor with cone seal

BENEFITS
## Technical specification

### H₂-Pressure Sensors LPS, MPS, HPS

<table>
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<tr>
<th><strong>Measurement range</strong></th>
<th><strong>Accuracy</strong></th>
<th><strong>Environmental conditions</strong></th>
<th><strong>Dimension</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Nominal pressure</strong></td>
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<tr>
<td>0…6 bar, absolute ¹) (LPS)</td>
<td>Total error ²) (Standard version) ± 1 % FS (0…85 °C)</td>
<td>Operating temperature range -40…85 °C (125 °C)</td>
<td>LPS</td>
</tr>
<tr>
<td>0…30 bar, relative ¹) (MPS)</td>
<td>± 2 % FS (-40…125 °C)</td>
<td>Media temperature range -50…85 °C (125 °C)</td>
<td>MPS</td>
</tr>
<tr>
<td>0…900 bar, relative ¹) (HPS)</td>
<td>Total error ²) (High-precision version) ± 0.5 % FS</td>
<td>Media compatibility Hydrogen, air, coolant (DI-water, ethylene glycol)</td>
<td>HPS</td>
</tr>
<tr>
<td><strong>Overpressure</strong></td>
<td></td>
<td>ESD (DIN EN 61000-4-2) ²) ± 8 kV to contacts ± 15 kV to case</td>
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<tr>
<td>2x nominal pressure (LPS, MPS), 1,050 bar (HPS)</td>
<td></td>
<td>EMV (ISO 11452)-²) 250 V/m 200 mA (BCI)</td>
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<tr>
<td><strong>Bursting pressure</strong></td>
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<tr>
<td>3x nominal pressure (LPS, MPS), 1,750 bar (HPS)</td>
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### Electrical characteristics

- **Supply voltage**: 5 ± 0.5 V (analog, SENT), 9 … 18 V (LIN)
- **Supply current**: typ. 10 mA
- **Output signal**: 0.5 … 4.5 V, ratiometric SENT, LIN 2:1
- **Overvoltage protection**: ± 30 V
- **Reverse polarity protection**: ± 30 V

### Mechanical characteristics

- **Measurement element**: Stainless steel (MPS, HPS), Silicon with stainless steel membrane and oil filled (LPS)
- **Case material**: Stainless steel
- **Pressure connection**: Flange w. o-ring sealing (LPS) HEX27, M10x1, 7/16-20UNF (MPS) HEX27, M14x1, 7/16-20UNF, 3/8-24UNF (HPS)
- **Electrical connection**: MQS plug, MLK plug
- **Installation position**: Arbitrary ³)
- **Weight**: Approx. 50 g (LPS), Approx. 58 g (MPS, HPS)

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1) Other pressure ranges available on request
2) Depending on the output signal and application
3) Other pressure connections and electrical connections available on request
4) With moisture/condensate in the system – please note installation recommendation
5) Covers repeatability, hysteresis, non-linearity (TBL), calibration and temperature effects; depending on the pressure and temperature range