

H₂ – High Pressure Sensor HPS

803327 • 900 bar • voltage ratiometric • high accuracy



Fields of Application

High pressure hydrogen tanks for mobility • fueling stations • stationary hydrogen storage • FCEV and HICE vehicles

Product Description

Our high pressure sensor HPS is specially designed for the use in hydrogen (H₂) applications, such as filling stations and high pressure tanks, as well as measuring and testing technology.

Our HPS sensor product family is designed for two nominal pressure ranges: 0 to 500 bar and 0 to 900 bar. These sensors are specifically tailored for high pressure hydrogen tanks used in mobility, fueling stations, stationary hydrogen storage, and FCEVs and HICE vehicles.

Materials that come into contact with fluids have been selected in accordance with the requirements for use with hydrogen and withstand the high stresses of use in hydrogen environments, even over long service lives. The HPS sensors are certified according to the H₂ norms EC79 and HG V 3.1.



Features

High pressure hydrogen measurement up to a nominal pressure of 900 bar

- Robust for measuring pressures up to 900 bar
- Monolithic measuring element without welds

Proven track record of reliability in the field

Very good hydrogen compatibility

- Use of fluid-compatible materials
- Certified according to EC79 and HG V 3.1

Technical Specification

Measurement range	
Nominal pressure	0–900 bar
Pressure type	relative
Max. allowed pressure	1050 bar
Min. burst pressure	1750 bar

Operating temperature range	
Media temperature	–40–85 °C
Media temperature extended	85–125 °C ¹
Ambient temperature	–40–125 °C
Compensated temperature	–40–125 °C

Output signal	
Type of output signal	Voltage ratiometric (10–90 % Vs)
Accuracy (–40–85 °C)	+/- 0.65 % FSS ^{2,3}
Accuracy (85–125 °C)	+/- 2.0 % FSS ^{2,3}
Long-term stability	max. 0.05 % FSS ³ / a ⁴
Response time (t90)	< 2 ms

Electrical characteristics	
Supply voltage	4.75–5.25 V
Supply current	max. 10 mA
Electrical isolation resistance	10 MOhm @ 500 VDC ⁵

Electrical characteristics

Max. allowed over voltage	32 VDC
Reverse voltage protection	Yes
Short circuit protection	Yes
Power-on time	< 20 ms

Interfaces

Electrical connections	MQS-Connector, 3-pole, Code A Contacts silver coated
Process connections	M14 × 1 with cone sealing (Metal / Metal)

Mechanical characteristics

Material in media contact	Stainless steel 1.4435
Housing material	Stainless steel 1.4435
Vibration (EN 60068-2-64)	3 g rms @ 20–2000 Hz
Mechanical shock (EN 60068-2-27)	50 g (11 ms)

Protection class (EN 60529)	IP6K6K / IP6K7 / IP6K9K ⁶
Weight	60 g

Certifications

EC79-2009	yes
HGV 3.1-2015	yes
RoHS / Reach	yes
Functional safety	QM

Accompanying documents

Technical specification No.	E_1100342 ⁷
Handling specification No.	E_1100336 ⁷

¹ limited to max. 5 % of life time

² total error including non-linearity, hysteresis, repeatability, zero point and final value deviation (according to IEC 61298-2) excluding long-term stability; valid at stationary temperature conditions

³ FSS = Full Scale Span (difference between output signal at the minimum and maximum specified pressure)

⁴ life time tested with 1.000 h @ 125 °C

⁵ test conditions: 60 s, R > 10 MΩ

⁶ tightness only ensured with sealed mating connector

⁷ in the latest version

⁸ unspecified tolerances according to ISO 14405- (E), ISO 2767-2:1989mK, Dim. < 0,5 = ± 0,1

Dimensions⁸

