





Hydrogen sensor Datasheet

SGX Solid Polymer Electrolyte Gas Sensors

The SGX series of PS1 and PS4 Electrochemical gas sensors are using a revolutionary 'Solid Polymer Electrolyte' technology that is based on the principle of catalytic reaction. The target gas to be measured generates a very small current, proportional to the gas concentration. Our technology offers a stable, high quality and cost-effective manufacturing process. The SGX solid polymer electrolyte gas sensors are available in a very small size, are highly sensitive, do not use power and have very low cross sensitivity from other gases.





SGX Europe Sp. z o.o. Building 11 Ligocka St. 103, 40-568 Katowice, Poland

T: +48 (0) 32 438 4778

E: sales.is@sgxsensortech.com www.sgxsensortech.com

Technical Specifications

Performance

Sensitivity)	11 ± 3 n A / ppm	
Measurement Range)	0 – 1000 ppm	
Zero Current)	± 100 nA	
Maximum Overload)	2000 ppm	
Response Time)	T50 < 10s, T90 < 30s	
Repeatability)	1%	
Lower Detectable Limit (LDL))	≤ 2 ppm	
Linear Range)	1000 ppm	
Resolution (16Bit ADC))	0.1ppm	

Environmental Details

Temperature Range	-40°C to +55°C
Pressure Range	800 to 1200 hPA
Operating Humidity Range	15-95% RH
Storage Temperature	0 to 20℃

Lifetime Details

Long-Term Drift		< 1 %/month
Expected Lifetime		> 5 years in air
Zero Drift in Clean Air	\supset	< 10 ppm
Storage conditions		0-20°C
Storage Life		12 months
Warranty	$\overline{}$	12 months

Operation

Operating Principle	Amperometric, 3-electrode	
Bias Voltage	0 mV	
Recommended Load Resistor	100 Ω	
Warm Up Time	< 60 s	

Housing

Housing Material	PPO
Weight	PS1-H2-1000 < 0.7g PS4-H2-1000 < 6g





PS1-H2-1000

PS4-H2-1000

Features

- Small size
- Wide temperature range
- Fast response time
- No electrolyte leakage
- Excellent sensitivity at low temperatures
- Low cost at large volumes
- Strong signal to noise

Key applications

- · Ambient Monitoring
- Very Sensitive Leak Detection
- Battery Produce
- Semiconductor
- Data Center Protect
- Propellent Detection

Important Notes

- All performance is based on conditions at 20°C, 50% RH and 1 atm, flow rate>150qcm/min, using SGX recommended circuitry.
- Sensor performance is temperature dependant; please contact SGX for temperature performance other than 20°C.
- Do not solder to the connector pins as this may damage the sensor and thereby invalidate the warranty.
- Details on recommended connector pins can be found in the Frequently Asked Questions within the Gas Sensor section of the SGX website.







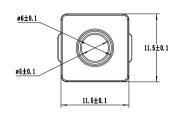


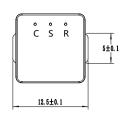


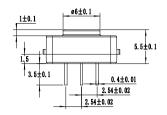
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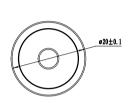
Dimensions

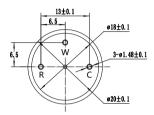


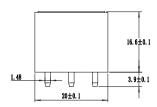




PS1-H2-1000







PS4-H2-1000

Cross Sensitivity

Gas	Formula	Test Concentration	Sensor Reading
Ammonia	NH ₃	50ppm	0ppm
Carbon Dioxide	CO ₂	1000ppm	0ррт
Carbon Monoxide	СО	200ppm	1000ppm
Chlorine	CL ₂	5ppm	0ррт
Hydrogen Chloride	HCL	20ppm	0ррт
Hydrogen Cyanide	HCN	10ppm	0ррт
Hydrogen Fluoride	HF	3ppm	0ррт
Hydrogen Sulphide	H₂S	10ppm	0ррт
Isopropanol	C₃H ₈ O	10ppm	0ррт
Methane	CH₄	1%vol	0ррт
Nitric Oxide	NO	25ppm	0ррт
Nitrogen Dioxide	NO ₂	10ppm	0ррт
Silane	SiH ₄	5ppm	0ррт
Sulphur Dioxide	SO ₂	10ppm	0ррт

Note

- 1) The above interference factors may vary due to different sensors and service life, please refer to the actual test results.
- 2) This table is not complete for all cross gases, other gas please contact with us.

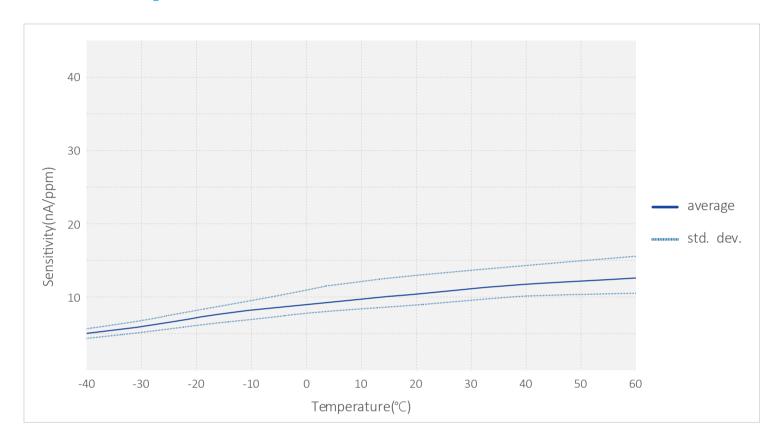


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Temperature Curve



DISCLAIMER:

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SGX Europe Sp. z o.o. sensors are designed to operate in a wide range of harsh environments and conditions. However, it is important that exposure to high concentrations of solvent vapours is to be avoided, both during storage, fitting into instruments and operation. When using sensors on printed circuit boards (PCBs), degreasing agents should be used prior to the sensor being fitted. SGX Europe Sp. z o.o. makes every effort to ensure the reliability of its products. Where life safety is a performance requirement of the product, we recommend that all sensors and instruments using these sensors are checked for response to gas before use.

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