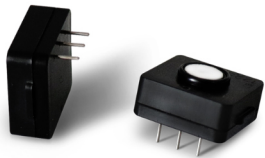




# SGX

## SENSORTECH

An Amphenol Company



**PS1-H2-1000**



**PS4-H2-1000**

# 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.



*Quality, Safety, Responsibility*

# Technical Specifications

## Performance

|                              |                         |
|------------------------------|-------------------------|
| Sensitivity                  | 11 ± 3 nA / ppm         |
| Measurement Range            | 0 – 1000 ppm            |
| Zero Current                 | ± 100 nA                |
| Maximum Overload             | 2000 ppm                |
| Response Time                | T50 < 10s,<br>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°C       |

## Lifetime Details

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

## Operation

|                           |                              |
|---------------------------|------------------------------|
| Operating Principle       | Amperometric,<br>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<br>PS4-H2-1000 < 6g |



## 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



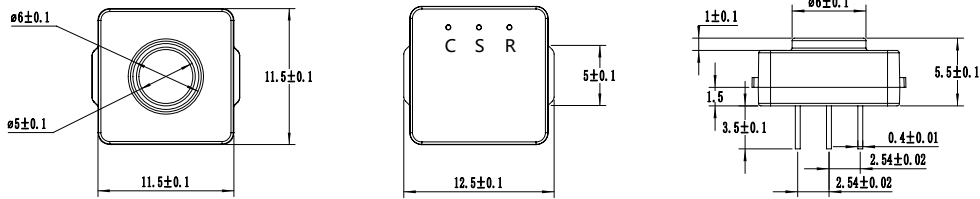
## Key applications

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

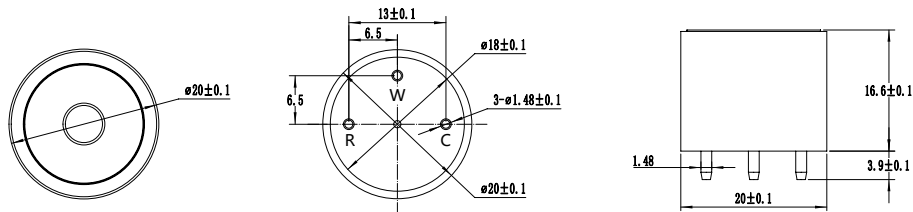
## Important Notes

- All performance is based on conditions at 20°C, 50% RH and 1 atm, flow rate > 150 qcm/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.

# Dimensions



**PS1-H2-1000**



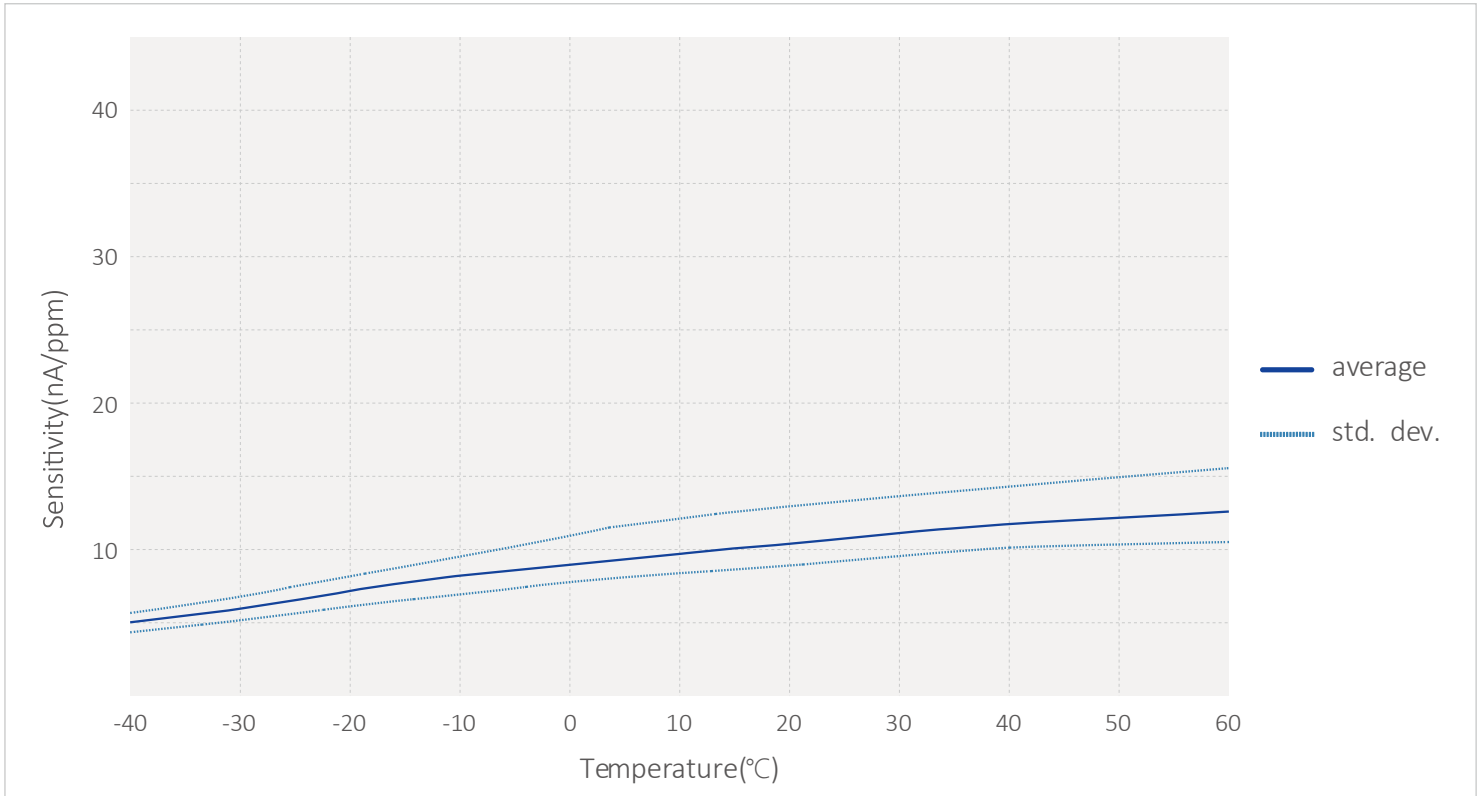
**PS4-H2-1000**

# Cross Sensitivity

| Gas               | Formula                         | Test Concentration | Sensor Reading |
|-------------------|---------------------------------|--------------------|----------------|
| Ammonia           | NH <sub>3</sub>                 | 50ppm              | 0ppm           |
| Carbon Dioxide    | CO <sub>2</sub>                 | 1000ppm            | 0ppm           |
| Carbon Monoxide   | CO                              | 200ppm             | 1000ppm        |
| Chlorine          | CL <sub>2</sub>                 | 5ppm               | 0ppm           |
| Hydrogen Chloride | HCL                             | 20ppm              | 0ppm           |
| Hydrogen Cyanide  | HCN                             | 10ppm              | 0ppm           |
| Hydrogen Fluoride | HF                              | 3ppm               | 0ppm           |
| Hydrogen Sulphide | H <sub>2</sub> S                | 10ppm              | 0ppm           |
| Isopropanol       | C <sub>3</sub> H <sub>8</sub> O | 10ppm              | 0ppm           |
| Methane           | CH <sub>4</sub>                 | 1%vol              | 0ppm           |
| Nitric Oxide      | NO                              | 25ppm              | 0ppm           |
| Nitrogen Dioxide  | NO <sub>2</sub>                 | 10ppm              | 0ppm           |
| Silane            | SiH <sub>4</sub>                | 5ppm               | 0ppm           |
| Sulphur Dioxide   | SO <sub>2</sub>                 | 10ppm              | 0ppm           |

**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.

# 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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