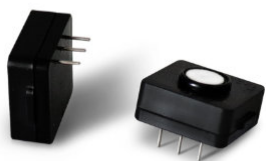




**SENSORTECH**

An Amphenol Company



**PS1-O2-25%**



**PS4-O2-25%**

# Oxygen 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                  | 0.2 ± 0.03 nA / ppm    |
| Measurement Range            | 0 – 25 %vol            |
| Zero Current                 | 40-60 µA               |
| Maximum Overload             | 30 %vol                |
| Response Time                | T50 < 5s,<br>T90 < 10s |
| Lower Detectable Limit (LDL) | ≤ 0.5 %vol             |
| Resolution (16Bit ADC)       | 0.01 %vol              |

## Environmental Details

|                          |                 |
|--------------------------|-----------------|
| Temperature Range        | -20°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   |
| Zero Drift in Clean Air | < 0.2 %vol  |
| Storage conditions      | 0-20°C      |
| Storage Life            | 12 months   |
| Warranty                | 12 months   |

## Operation

|                           |                              |
|---------------------------|------------------------------|
| Operating Principle       | Amperometric,<br>3-electrode |
| Bias Voltage              | -400 to -600 mV              |
| Recommended Load Resistor | 220 Ω                        |
| Warm Up Time              | < 15 min                     |

## Housing

|                  |                                      |
|------------------|--------------------------------------|
| Housing Material | PPO                                  |
| Weight           | PS1-O2-25% < 0.7g<br>PS4-O2-25% < 6g |



**PS1-O2-25%**



**PS4-O2-25%**

## Features

- Response time typically 4s
- Small size
- Wide temperature range
- Capillary sensor
- Lead free
- Low power consumption
- 400-600 mV bias voltage



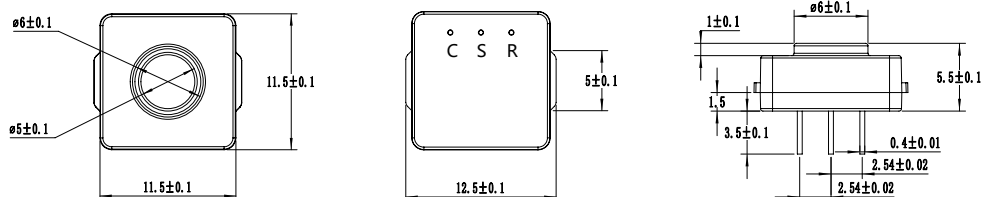
## Key applications

- Medical
- Industrial
- Combustion Control
- Food Industry
- General Gas Detection

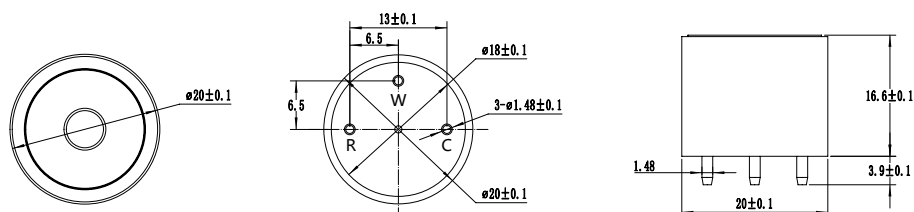
## Important Notes

- 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-O2-25%**



**PS4-O2-25%**

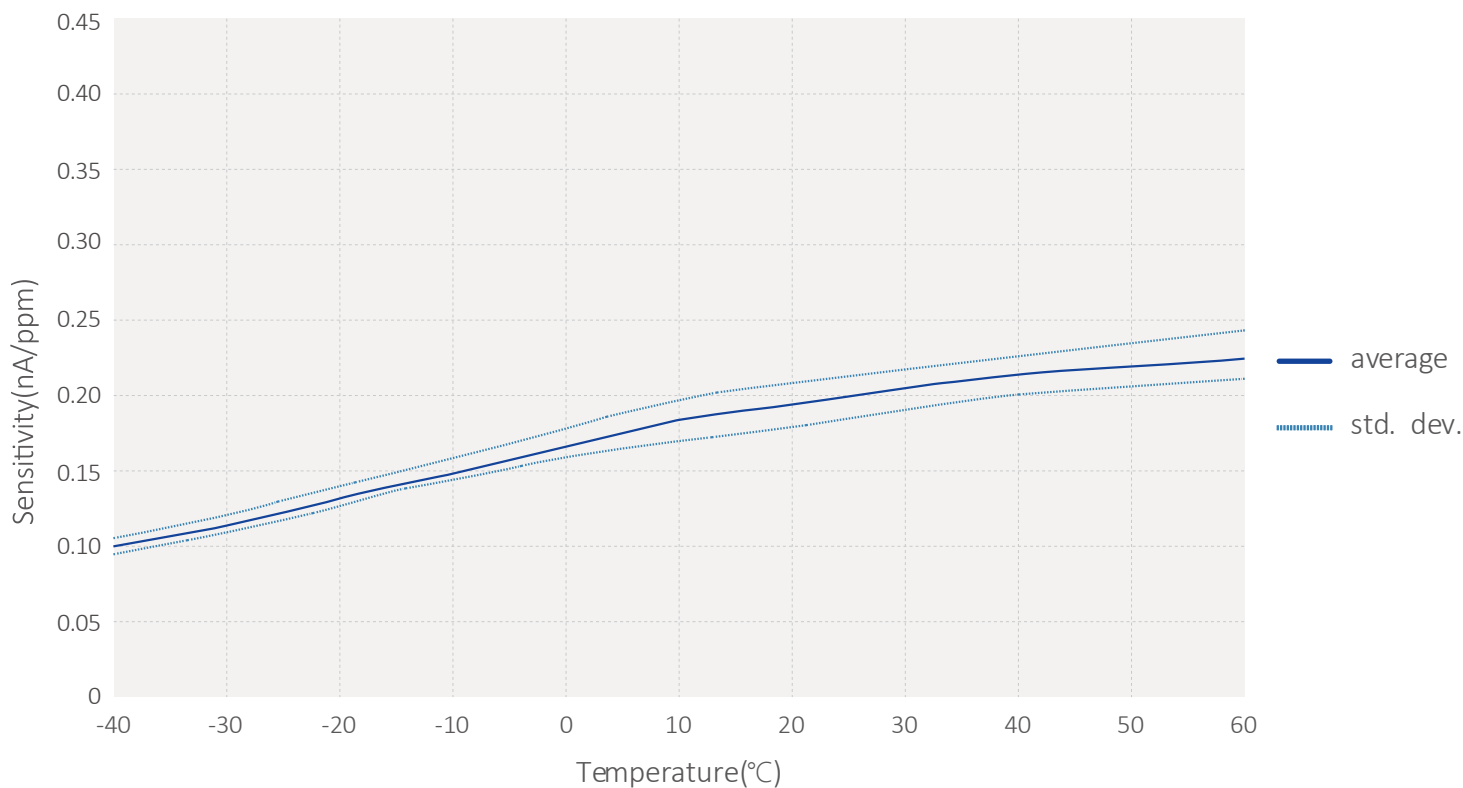
# Cross Sensitivity

| Gas                        | Formula                         | Test Concentration | Sensor Reading |
|----------------------------|---------------------------------|--------------------|----------------|
| Ammonia                    | NH <sub>3</sub>                 | 20ppm              | 0ppm           |
| Carbon Dioxide             | CO <sub>2</sub>                 | 5000ppm            | 0ppm           |
| Carbon Monoxide            | CO                              | 50ppm              | 0ppm           |
| Chlorine                   | CL <sub>2</sub>                 | 1ppm               | 0ppm           |
| Hydrocarbons (unsaturated) | /                               | 1%vol              | 0ppm           |
| Hydrogen Cyanide           | HCN                             | 10ppm              | 0ppm           |
| Hydrogen                   | H <sub>2</sub>                  | 100ppm             | 0ppm           |
| Isopropanol                | C <sub>3</sub> H <sub>8</sub> O | 1000ppm            | 0ppm           |
| Nitric Oxide               | NO                              | 25ppm              | 0ppm           |
| Nitrogen Dioxide           | NO <sub>2</sub>                 | 10ppm              | 0ppm           |
| Ozone                      | O <sub>3</sub>                  | 0.5ppm             | 0ppm           |
| Sulphur Dioxide            | SO <sub>2</sub>                 | 20ppm              | 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



## HANDLING PRECAUTION:

Do not solder the sensor directly onto a PCB or to wires, excessive heat could cause damage. Use PCB sockets and firmly push-fit the sensor into the application, so that a correct electrical connection is achieved.

## DISCLAIMER:

SGX Europe Sp. z o.o. reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. SGX Europe Sp. z o.o. accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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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