



# SGX

## SENSORTECH

An Amphenol Company



**PS1-VOC-10**



**PS4-VOC-10**

# VOC 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	55 ± 15 nA / ppm
Measurement Range	0 – 10ppm
Zero Current	± 100 nA
Maximum Overload	100 ppm
Response Time	T50 < 10s, T90 < 30s
Repeatability	1%
Lower Detectable Limit (LDL)	< 1 ppm
Linear Range	10 ppm
Resolution (16Bit ADC)	0.01ppm

## 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	> 3 years in air
Zero Drift in Clean Air	< 2 ppm
Storage conditions	0-20 °C
Storage Life	12 months
Warranty	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-VOC-10 < 0.7g PS4-VOC-10 < 6g



## Features

- Small size
- High sensitivity
- Wide temperature range
- Fast response time
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated (including test report)



## Key applications

- General Gas Detection
- Consumer Market
- VOC Gas Detection
- Mobile Phone Nose
- Indoor & Outdoor Air Quality
- Low Power Nose

## 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.

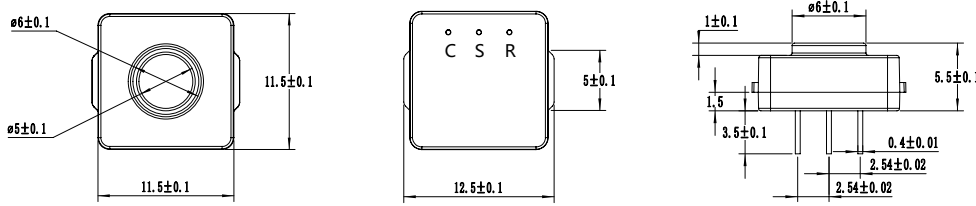
# Cross Sensitivity

Gas	Formula	Test Concentration	Sensor Reading
Acetaldehyde	C <sub>2</sub> H <sub>4</sub> O	5ppm	3.84ppm
Acetic Acid	CH <sub>3</sub> COOH	5ppm	1.1ppm
Acetylene	C <sub>2</sub> H <sub>2</sub>	5ppm	1.64ppm
Acrylonitrile	C <sub>3</sub> H <sub>3</sub> N	5ppm	0.4ppm
Ammonia	NH <sub>3</sub>	5ppm	1.5ppm
Benzene	C <sub>6</sub> H <sub>6</sub>	5ppm	1.1ppm
Butadiene	C <sub>4</sub> H <sub>6</sub>	5ppm	8.68ppm
Carbon Disulfide	CS <sub>2</sub>	5ppm	1.23ppm
Carbon Monoxide	CO	5ppm	3.38ppm
Dimethyl Disulfide	C <sub>2</sub> H <sub>6</sub> S <sub>2</sub>	2ppm	6.79ppm
Dining Lampblack (Dimensionless)	Unsaturated hydrocarbons	/	4.65ppm
Ethanol	C <sub>2</sub> H <sub>6</sub> O	5ppm	1.83ppm
Ethyl Mercaptan	C <sub>2</sub> H <sub>6</sub> S	5ppm	8.97ppm
Ethylene	C <sub>2</sub> H <sub>4</sub>	5ppm	0.59ppm
Formaldehyde	HCHO	5ppm	5.29ppm
Formic Acid	HCOOH	5ppm	5.37ppm
Gasoline Volatilization (Dimensionless)	Aliphatic hydrocarbons, cycloalkanes, aromatic hydrocarbons	/	5.5ppm
Hydrogen	H <sub>2</sub>	5ppm	1.15ppm
Hydrogen Chloride	HCL	5ppm	0.27ppm
Hydrogen Cyanide	HCN	5ppm	0.36ppm
Isobutene	C <sub>4</sub> H <sub>8</sub>	5ppm	5ppm
Methanol	CH <sub>4</sub> O	5ppm	5.96ppm
Methyl Mercaptan	CH <sub>4</sub> S	5ppm	7ppm
P-xylene	C <sub>8</sub> H <sub>10</sub>	5ppm	0.59ppm
Styrene	C <sub>8</sub> H <sub>8</sub>	0.5ppm	7.5ppm
Sulphur Dioxide	C <sub>3</sub> H <sub>8</sub> O	5ppm	5ppm
Toluene	C <sub>7</sub> H <sub>8</sub>	5ppm	0.81ppm
Trimethylamine	C <sub>3</sub> H <sub>9</sub> N	5ppm	0.65ppm

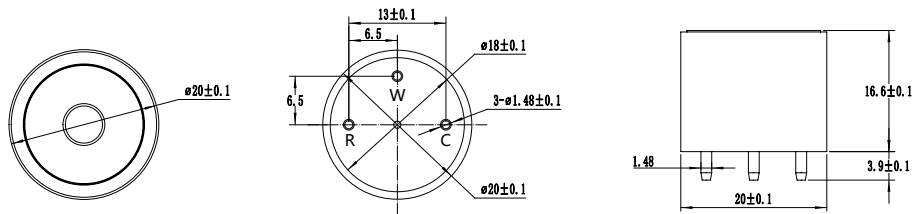
**Note:**

- 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.

# Dimensions

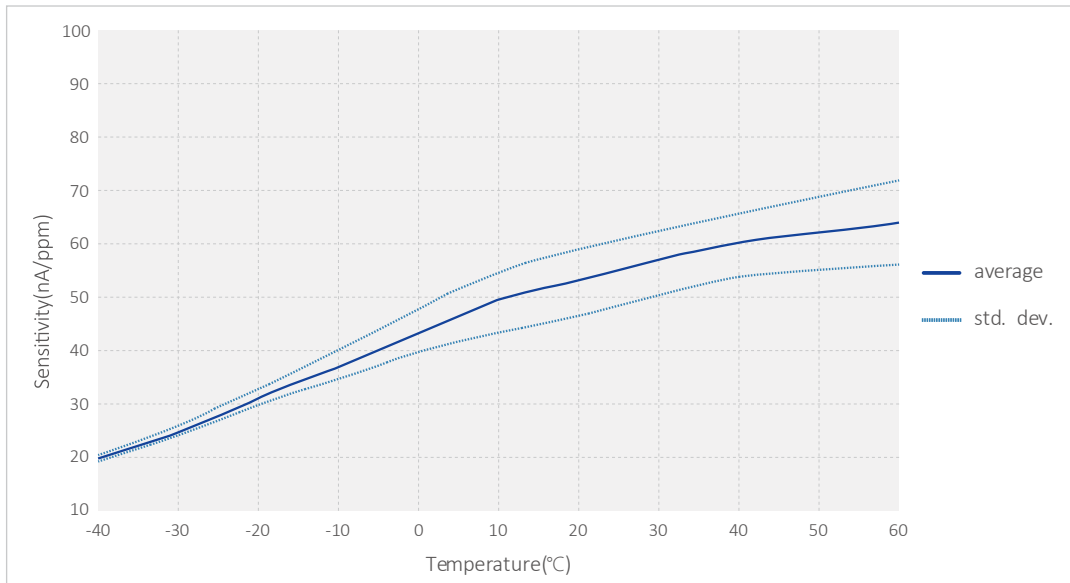


## PS1-VOC-10



## PS4-VOC-10

# 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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