

Amphenol Sensors

Delivering Value-Added  Sensors

SGX Sensortech - Solid Polymer Electrolyte Gas Sensors



THERMOMETRICS

TELAIRE

NOVA
SENSOR

 **PROTIMETER**

KAYE

SGX
SENSORTECH

PIHER *sensing systems*

Wilcoxon
SENSING TECHNOLOGIES

 **Piezo**
Technologies

 **All Sensors**
an Amphenol company

i2s
an Amphenol company



SSI Technologies, LLC
— an Amphenol Company —

EXATHERMOMETRICS

 **PCB PIEZOTRONICS**
AN AMPHENOL COMPANY

 **IMI SENSORS**
A PCB DIVISION

 **ENDEVCO**
AN AMPHENOL COMPANY

 **THE MODAL SHOP**
AN AMPHENOL COMPANY

 **ACCUMETRICS**
AN AMPHENOL COMPANY

 **LARSON DAVIS**
A PCB DIVISION

 **Temposonics**
AN AMPHENOL COMPANY

Protecting Health by Smart Sensing Solutions

Amphenol Sensors

- Headquarter in Neuchatel , Switzerland
- R&D and Production Facilities in Switzerland, Poland and China
- Gas Sensing technologies since 1961

60 years of experience



Industrial



Portable Gas Detector

Automotive



Car HVAC System

Building



Room Ventilation System



Neuchâtel - Switzerland



Nuremberg - Germany



Katowice - Poland

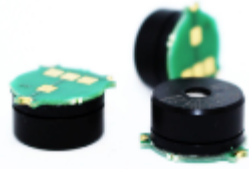


Shanghai - China

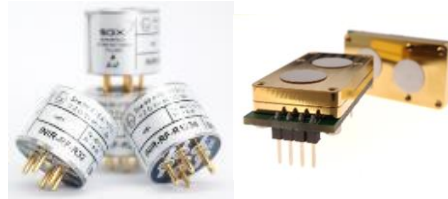
Catalytic Sensors



MEMS Pellistor



InfraRed Sensors



Thermal Conductivity Sensors



Electrochemical Cells



Solid Polymer Sensors



PID VOC Sensors



Metal Oxide Sensors



Automotive AQS Modules



H2 & Battery Leakage Detection



Indoor Air Quality



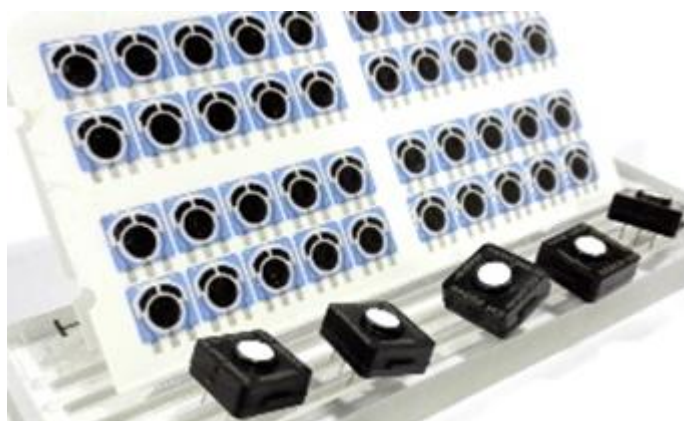
Evaluation Kits





SGX Solid Polymer Electrolyte Gas Sensors

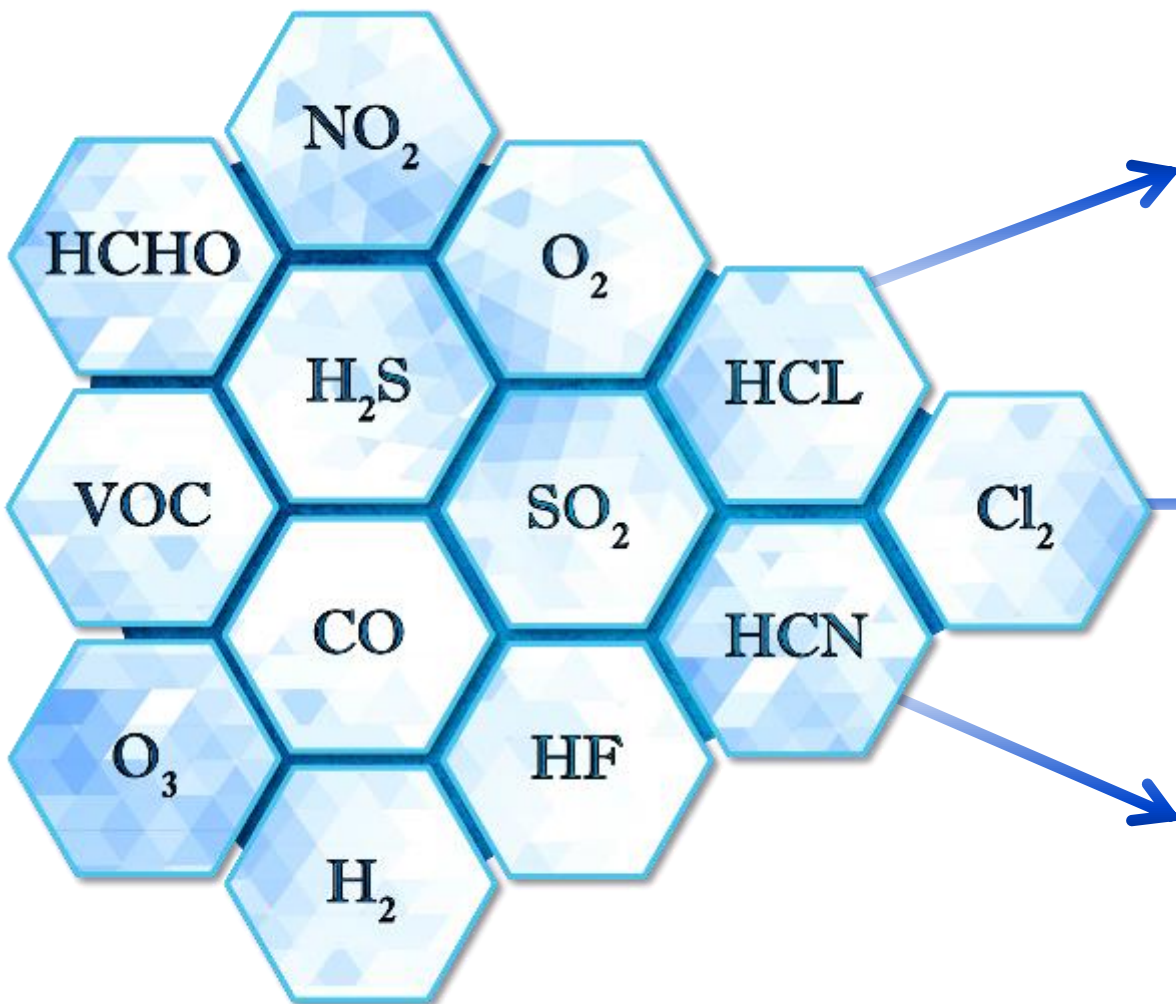
Our sensor technology is based on the principle of **electrochemical catalytic reaction**. The sensor respond to the target gas and delivers a very small current that is proportional to the gas concentration. The SGX solid polymer sensors have a **dry core design of three electrodes** in contact with the **solid electrolyte**. A typical electrode consists of a surface area of precious metal and other materials. The electrode, electrolyte and the surrounding air are in contact while the gas diffuses through the back of the porous membrane into the working electrode of the sensor. At this working electrode, the gas is oxidized or reduced. This electrochemical reaction causes a current to flow.



Solid Polymer Electrolyte Gas Sensors

Amphenol Sensors

Detectable gases



PS1-gas-ppm



PS4-gas-ppm



PSX-gas-ppm-MOD

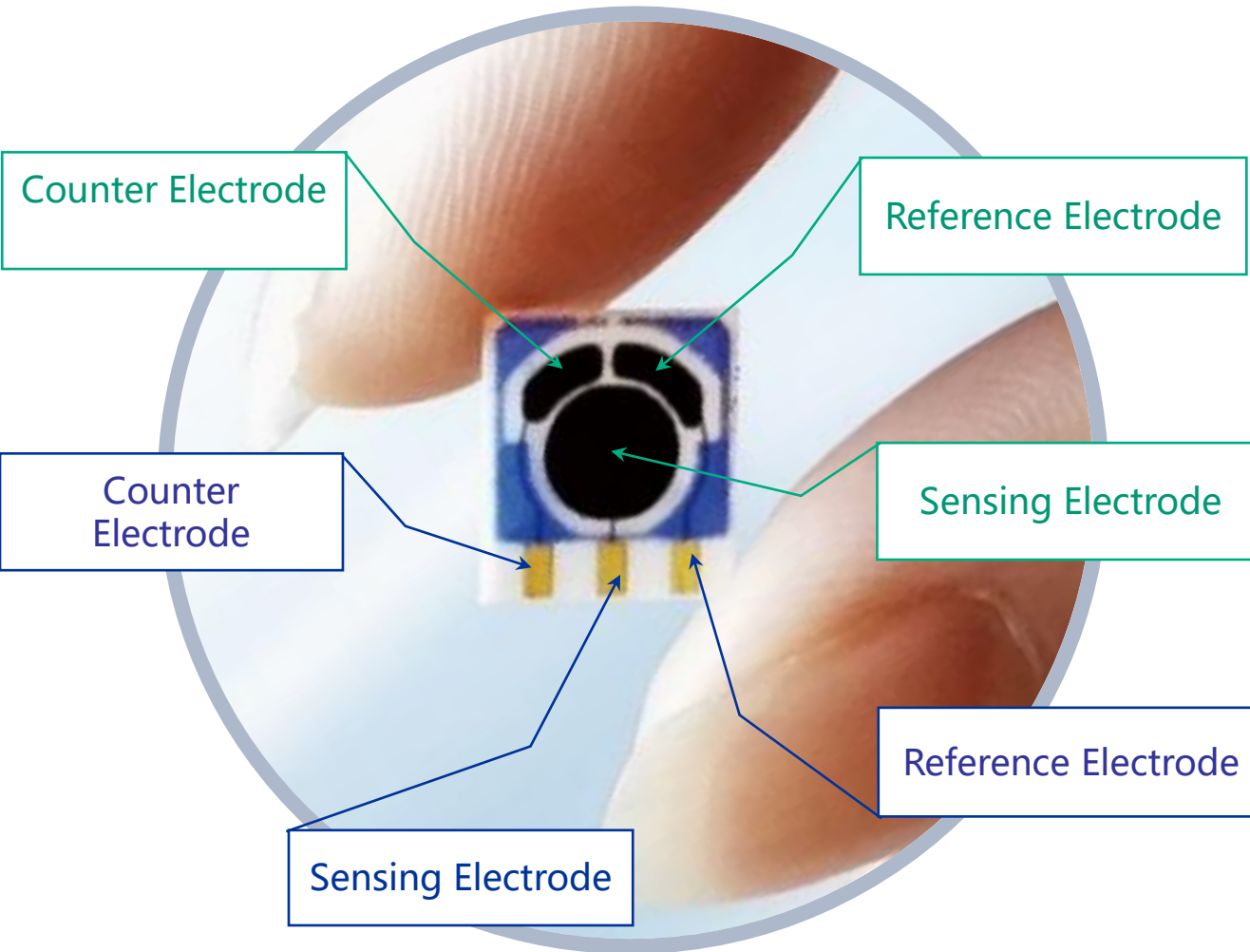
Typical Applications

- Air quality monitor
- Parking garages
- Air Purifier
- Leakage detection
- Environmental Monitoring
- Industrial Safety Monitoring
- Portable gas detectors
- Oil & Petrochemical Industry
- Fire early warning systems

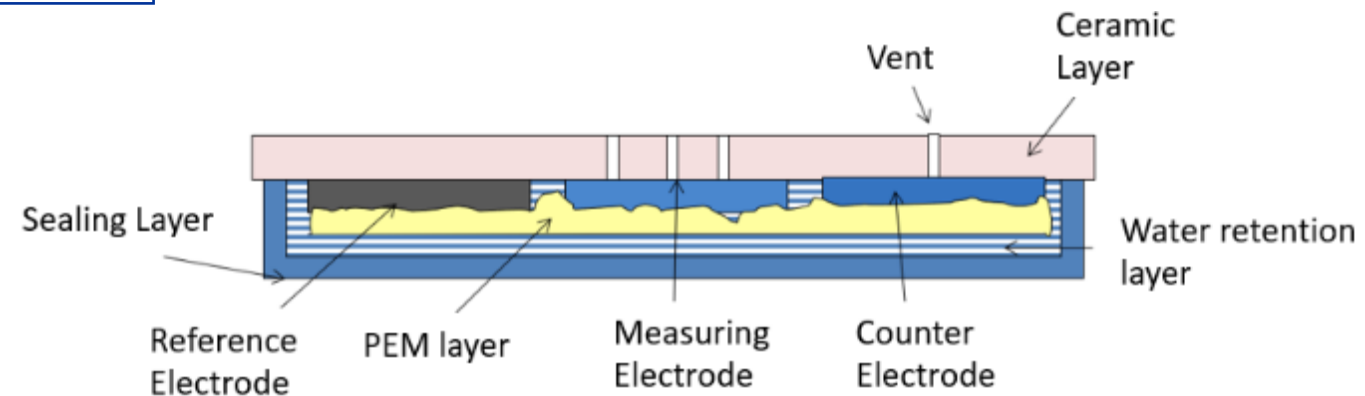


Solid Polymer Electrolyte Gas Sensors

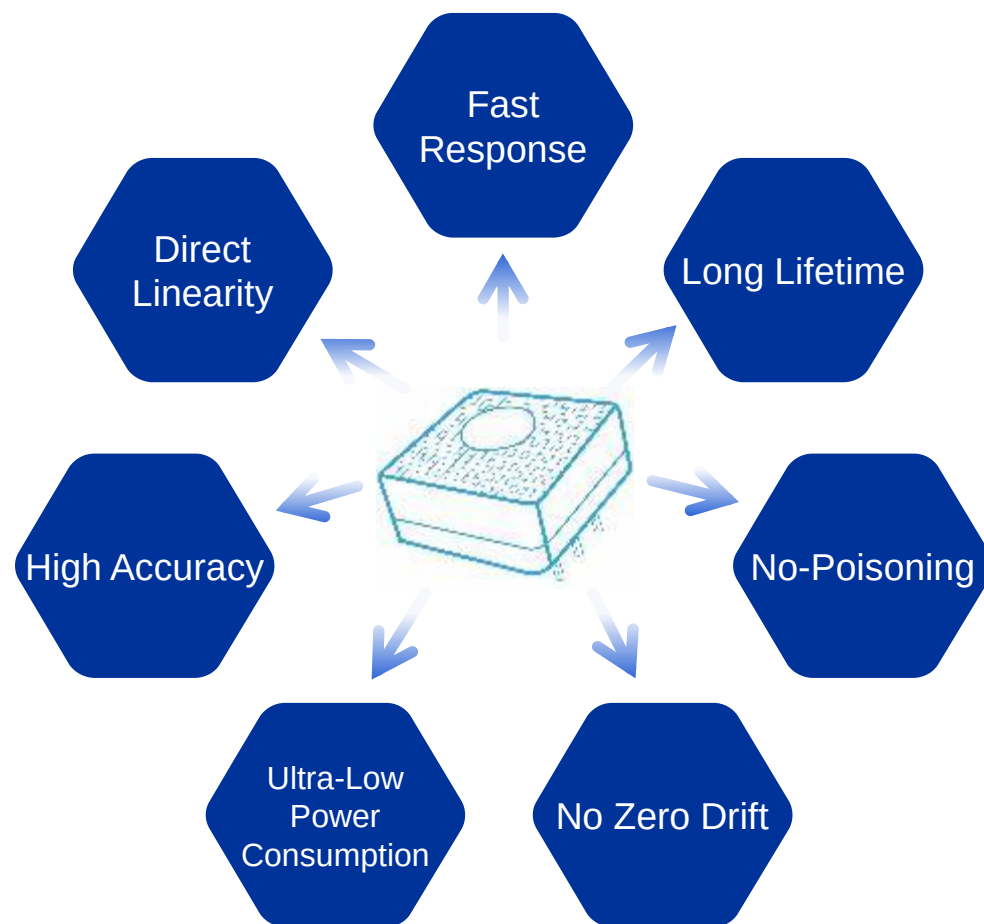
Amphenol Sensors



Gas Diffusion Hole



Solid Polymer Electrochemical Technology



- Long lifetime > 5 years
- Detect a wide variety of gases with high selectivity
- Small size housing (PS1)
- 4-series Industry standard housing (PS4)
- No power consumption
- Requires no recalibration if used at altitude
- Linear output
- They offer a real zero
- No electrolyte leakage
- Wide temperature operation (-40C to +55C)
- Fast response time $T_{90} < 30$ sec
- RoHS

Solid Polymer Electrolyte Gas Sensors

Amphenol Sensors



Lower Temp.
 -40°C

Continues to work in lower temperature



Higher Temp.
 $+55^{\circ}\text{C}$



Solid Polymer Electrolyte Gas Sensors

Amphenol Sensors



No leakage in long-term high humidity environment

High Humidity

15 ~ 95%RH

Lifetime

5 ~ 10 years



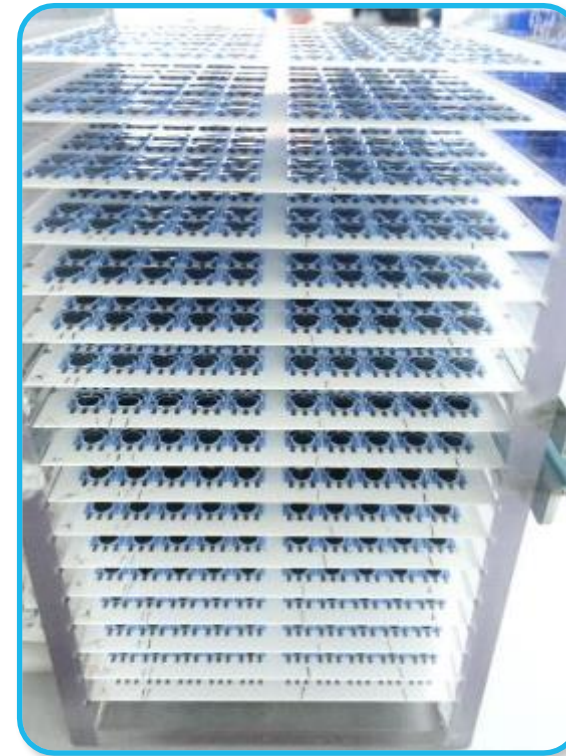
Industrial > 3 years

Non-industrial indoor 5 -10 years

High Volume Production Capacity



100% QC



- * Printed production process
- * Fully automated process
- * Smart Quality control systems

Solid Polymer Electrolyte - Ammonia (NH₃) probe

Amphenol Sensors



Ammonia (**NH₃**) probe for livestock, leak and cooling storage applications:

- Coulometric Solid Polymer Electrolyte technology
- Long lifetime (>2years)
- Free zero line
- No calibration required
- High temperature option (-20 to 200C)
- Integrated pump for sampling
- No Temperature and humidity impact
- RS485 Modbus output
- Self-check function



NH3-500-Probe



Category	SGX Partnumber	Gas Type	Description
Solid Polymer Probes	NH3-500-Probe	Ammonia	Ammonia probe for Animal Farming

Solid Polymer Electrolyte Gas Sensors – PS1

Amphenol Sensors



Category	SGX Partnumber	Gas Type	Description
Solid Polymer 1-series	PS1-CO-1000	Carbon Monoxide	Carbon Monoxide 1000ppm
Solid Polymer 1-series	PS1-CO-100	Carbon Monoxide	Carbon Monoxide 100ppm
Solid Polymer 1-series	PS1-CO-10000	Carbon Monoxide	Carbon Monoxide 10Kppm
Solid Polymer 1-series	PS1-H2S-500	Hydrogen Sulfide	Hydrogen Sulfide 500ppm
Solid Polymer 1-series	PS1-H2S-100	Hydrogen Sulfide	Hydrogen Sulfide 100ppm
Solid Polymer 1-series	PS1-H2S-5000	Hydrogen Sulfide	Hydrogen Sulfide 5Kppm
Solid Polymer 1-series	PS1-HCN-5	Hydrogen Cyanide	Hydrogen Cyanide 5ppm
Solid Polymer 1-series	PS1-HCN-50	Hydrogen Cyanide	Hydrogen Cyanide 50ppm
Solid Polymer 1-series	PS1-H2-15VOL	Hydrogen	Hydrogen 15%
Solid Polymer 1-series	PS1-H2-20000	Hydrogen	Hydrogen 20Kppm
Solid Polymer 1-series	PS1-H2-1000	Hydrogen	Hydrogen 1000ppm
Solid Polymer 1-series	PS1-NO2-100	Nitrogen Dioxide	Nitrogen Dioxide 100ppm
Solid Polymer 1-series	PS1-NO2-50	Nitrogen Dioxide	Nitrogen Dioxide 50ppm
Solid Polymer 1-series	PS1-NO2-1000	Nitrogen Dioxide	Nitrogen Dioxide 1000ppm
Solid Polymer 1-series	PS1-O3-5	Ozone	Ozone 5ppm
Solid Polymer 1-series	PS1-O3-100	Ozone	Ozone 100ppm
Solid Polymer 1-series	PS1-VOC-1000	VOC	VOC 1000ppm
Solid Polymer 1-series	PS1-VOC-10	VOC	VOC 10ppm
Solid Polymer 1-series	PS1-VOC-200	VOC	VOC 200ppm
Solid Polymer 1-series	PS1-VOC-2000	VOC	VOC 2000ppm
Solid Polymer 1-series	PS1-VOC-10000	VOC	VOC 10Kppm
Solid Polymer 1-series	PS1-SO2-50	Sulfur Dioxide	Sulfur Dioxide 50ppm
Solid Polymer 1-series	PS1-O2-25%	Oxygen	Oxygen 25%
Solid Polymer 1-series	PS1-HCHO-5	Formaldehyde	Formaldehyde 5ppm
Solid Polymer 1-series	PS1-CL2-5	Chlorine	Chlorine 5ppm

PS1-gas-ppm



Solid Polymer Electrolyte Gas Sensors – PS4

Amphenol Sensors



PS4-gas-ppm



Category	SGX Partnumber	Gas Type	Description
Solid Polymer 4-series	PS4-CO-1000	Carbon Monoxide	Carbon Monoxide 1000ppm
Solid Polymer 4-series	PS4-CO-100	Carbon Monoxide	Carbon Monoxide 100ppm
Solid Polymer 4-series	PS4-CO-10000	Carbon Monoxide	Carbon Monoxide 10Kppm
Solid Polymer 4-series	PS4-H2S-500	Hydrogen Sulfide	Hydrogen Sulfide 500ppm
Solid Polymer 4-series	PS4-H2S-100	Hydrogen Sulfide	Hydrogen Sulfide 100ppm
Solid Polymer 4-series	PS4-H2S-5000	Hydrogen Sulfide	Hydrogen Sulfide 5Kppm
Solid Polymer 4-series	PS4-HCN-5	Hydrogen Cyanide	Hydrogen Cyanide 5ppm
Solid Polymer 4-series	PS4-HCN-50	Hydrogen Cyanide	Hydrogen Cyanide 50ppm
Solid Polymer 4-series	PS4-H2-20000	Hydrogen	Hydrogen 20Kppm
Solid Polymer 4-series	PS4-H2-1000	Hydrogen	Hydrogen 1000ppm
Solid Polymer 4-series	PS4-NO2-100	Nitrogen Dioxide	Nitrogen Dioxide 100ppm
Solid Polymer 4-series	PS4-NO2-50	Nitrogen Dioxide	Nitrogen Dioxide 50ppm
Solid Polymer 4-series	PS4-NO2-1000	Nitrogen Dioxide	Nitrogen Dioxide 1000ppm
Solid Polymer 4-series	PS4-O3-5	Ozone	Ozone 5ppm
Solid Polymer 4-series	PS4-O3-100	Ozone	Ozone 100ppm
Solid Polymer 4-series	PS4-VOC-1000	VOC	VOC 1000ppm
Solid Polymer 4-series	PS4-VOC-10	VOC	VOC 10ppm
Solid Polymer 4-series	PS4-VOC-200	VOC	VOC 200ppm
Solid Polymer 4-series	PS4-VOC-2000	VOC	VOC 2000ppm
Solid Polymer 4-series	PS4-VOC-10000	VOC	VOC 10Kppm
Solid Polymer 4-series	PS4-SO2-50	Sulfur Dioxide	Sulfur Dioxide 50ppm
Solid Polymer 4-series	PS4-SO2-1000	Sulfur Dioxide	Sulfur Dioxide 1000ppm
Solid Polymer 4-series	PS4-O2-25%	Oxygen	Oxygen 25%
Solid Polymer 4-series	PS4-HCHO-5	Formaldehyde	Formaldehyde 5ppm
Solid Polymer 4-series	PS4-CL2-5	Chlorine	Chlorine 5ppm

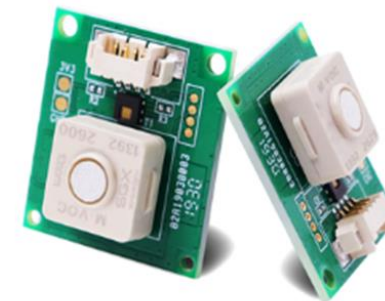
Solid Polymer Electrolyte Gas Sensors –PS1-Module

Amphenol Sensors



Category	SGX Partnumber	Gas Type	Description
Solid Polymer Module 1-series	PS1-IAQ-10-MOD	Air Quality	IndoorAirQuality 10ppm
Solid Polymer Module 1-series	PS1-HCHO-1-MOD	Formaldehyde	Formaldehyde 1ppm
Solid Polymer Module 1-series	PS1-HCHO-5-MOD	Formaldehyde	Formaldehyde 5ppm
Solid Polymer Module 1-series	PS1-VOC-10-MOD	VOC	VOC 10ppm
Solid Polymer Module 1-series	PS1-CO-10-MOD	Carbon Monoxide	Carbon Monoxide 10ppm
Solid Polymer Module 1-series	PS1-SMELL-5-MOD	Smell	Smell 5ppm
Solid Polymer Module 1-series	PS1-H2S-2-MOD	Hydrogen Sulfide	Hydrogen Sulfide 2ppm
Solid Polymer Module 1-series	PS1-SO2-5-MOD	Sulfur Dioxide	Sulfur Dioxide 5ppm
Solid Polymer Module 1-series	PS1-NO2-5-MOD	Nitrogen Dioxide	Nitrogen Dioxide 5ppm
Solid Polymer Module 1-series	PS1-O3-5-MOD	Ozone	Ozone 5ppm
Solid Polymer Module 1-series	PS1-HCHO-100-MOD	Formaldehyde	Formaldehyde 100ppm
Solid Polymer Module 1-series	PS1-VOC-500-MOD	VOC	VOC 500ppm
Solid Polymer Module 1-series	PS1-VOC-2000-MOD	VOC	VOC 2Kppm
Solid Polymer Module 1-series	PS1-H2-1000-MOD	Hydrogen	Hydrogen 1000ppm
Solid Polymer Module 1-series	PS1-H2-4%-MOD	Hydrogen	Hydrogen 4%
Solid Polymer Module 1-series	PS1-CO-1000-MOD	Carbon Monoxide	Carbon Monoxide 1000ppm
Solid Polymer Module 1-series	PS1-CO-500-MOD	Carbon Monoxide	Carbon Monoxide 500ppm
Solid Polymer Module 1-series	PS1-CO-100-MOD	Carbon Monoxide	Carbon Monoxide 100ppm
Solid Polymer Module 1-series	PS1-SMOKE-100-MOD	Smoke	Smoke 100ppm
Solid Polymer Module 1-series	PS1-SMELL-500-MOD	Smell	Smell 500ppm
Solid Polymer Module 1-series	PS1-H2S-100-MOD	Hydrogen Sulfide	Hydrogen Sulfide 100ppm
Solid Polymer Module 1-series	PS1-SO2-50-MOD	Sulfur Dioxide	Sulfur Dioxide 50ppm
Solid Polymer Module 1-series	PS1-SO2-100-MOD	Sulfur Dioxide	Sulfur Dioxide 100ppm
Solid Polymer Module 1-series	PS1-NO2-50-MOD	Nitrogen Dioxide	Nitrogen Dioxide 50ppm
Solid Polymer Module 1-series	PS1-NO2-100-MOD	Nitrogen Dioxide	Nitrogen Dioxide 100ppm
Solid Polymer Module 1-series	PS1-O3-50-MOD	Ozone	Ozone 50ppm
Solid Polymer Module 1-series	PS1-O3-100-MOD	Ozone	Ozone 100ppm

PS1-gas-ppm-MOD



Solid Polymer Electrolyte Gas Sensors –PS4-Module

Amphenol Sensors



PS4-gas-ppm-MOD



Category	SGX Partnumber	Gas Type	Description
Solid Polymer Module 4-series	PS4-O2-25%-MOD	Oxygen	Oxygen 25%
Solid Polymer Module 4-series	PS4-CO-10-MOD	Carbon Monoxide	Carbon Monoxide 10ppm
Solid Polymer Module 4-series	PS4-CO-100-MOD	Carbon Monoxide	Carbon Monoxide 100ppm
Solid Polymer Module 4-series	PS4-CO-1000-MOD	Carbon Monoxide	Carbon Monoxide 1000ppm
Solid Polymer Module 4-series	PS4-CO-2%-MOD	Carbon Monoxide	Carbon Monoxide 2%
Solid Polymer Module 4-series	PS4-CO-10%-MOD	Carbon Monoxide	Carbon Monoxide 10%
Solid Polymer Module 4-series	PS4-TVOC-10-MOD	VOC	VOC 10ppm
Solid Polymer Module 4-series	PS4-TVOC-200-MOD	VOC	VOC 200ppm
Solid Polymer Module 4-series	PS4-TVOC-1000-MOD	VOC	VOC 1000ppm
Solid Polymer Module 4-series	PS4-TVOC-2000-MOD	VOC	VOC 2000ppm
Solid Polymer Module 4-series	PS4-TVOC-10000-MOD	VOC	VOC 10000ppm
Solid Polymer Module 4-series	PS4-H2S-50-MOD	Hydrogen Sulfide	Hydrogen Sulfide 50ppm
Solid Polymer Module 4-series	PS4-H2S-100-MOD	Hydrogen Sulfide	Hydrogen Sulfide 100ppm
Solid Polymer Module 4-series	PS4-H2S-500-MOD	Hydrogen Sulfide	Hydrogen Sulfide 500ppm
Solid Polymer Module 4-series	PS4-H2S-5000-MOD	Hydrogen Sulfide	Hydrogen Sulfide 5000ppm
Solid Polymer Module 4-series	PS4-SMELL-10-MOD	Smell	Smell 10ppm
Solid Polymer Module 4-series	PS4-SMELL-500-MOD	Smell	Smell 500ppm
Solid Polymer Module 4-series	PS4-H2-1000-MOD	Hydrogen	Hydrogen 1000ppm
Solid Polymer Module 4-series	PS4-H2-4%-MOD	Hydrogen	Hydrogen 4%
Solid Polymer Module 4-series	PS4-HCHO-5-MOD	Formaldehyde	Formaldehyde 5ppm
Solid Polymer Module 4-series	PS4-HCHO-100-MOD	Formaldehyde	Formaldehyde 100ppm
Solid Polymer Module 4-series	PS4-NO2-5-MOD	Nitrogen Dioxide	Nitrogen Dioxide 5ppm
Solid Polymer Module 4-series	PS4-NO2-50-MOD	Nitrogen Dioxide	Nitrogen Dioxide 50ppm
Solid Polymer Module 4-series	PS4-NO2-100-MOD	Nitrogen Dioxide	Nitrogen Dioxide 100ppm
Solid Polymer Module 4-series	PS4-NO2-1000-MOD	Nitrogen Dioxide	Nitrogen Dioxide 1000ppm
Solid Polymer Module 4-series	PS4-SO2-5-MOD	Sulfur Dioxide	Sulfur Dioxide 5ppm
Solid Polymer Module 4-series	PS4-SO2-50-MOD	Sulfur Dioxide	Sulfur Dioxide 50ppm
Solid Polymer Module 4-series	PS4-SO2-100-MOD	Sulfur Dioxide	Sulfur Dioxide 100ppm
Solid Polymer Module 4-series	PS4-SO2-1000-MOD	Sulfur Dioxide	Sulfur Dioxide 1000ppm
Solid Polymer Module 4-series	PS4-HCN-50-MOD	Hydrogen Cyanide	Hydrogen Cyanide 50ppm
Solid Polymer Module 4-series	PS4-CH4S-100-MOD	Methyl Mercaptan	Methyl Mercaptan 100ppm
Solid Polymer Module 4-series	PS4-O3-5-MOD	Ozone	Ozone 5ppm
Solid Polymer Module 4-series	PS4-O3-50-MOD	Ozone	Ozone 50ppm
Solid Polymer Module 4-series	PS4-O3-100-MOD	Ozone	Ozone 100ppm
Solid Polymer Module 4-series	PS4-AQI-10-MOD	Air Quality	Indoor Air Quality 10ppm
Solid Polymer Module 4-series	PS4-AQI-200-MOD	Air Quality	Indoor Air Quality 200ppm

Solid Polymer Electrolyte Gas Sensors – Eval Kit

Amphenol Sensors



EK6-PSX: includes Software + UART-USB cable

Sensor module (incl. gas sensor) to be bought separately



Category	SGX Partnumber	Gas Type	Description
Solid Polymer Evaluation Kit	EK6-PSX	Accessories	Evaluation Kit (UART-USB cable + Software)
Solid Polymer Accessoires	PSX-UART-USB	Accessories	UART-USB cable
Solid Polymer Accessoires	MOD-4PIN-Cable	Accessories	Module 4 PIN cable