Global MRV is proud to introduce the Axion™R/S+PM Generation 4 with PM capabilities in the same compact package.

Global MRV continually improves Micro “Portable Emissions Measurement System” (PEMS) for real world driving emissions, providing real-time, real-world fixed and mobile, including marine emissions, engine, and performance analysis.

The Axion™R/S+PM measures mass-flow emissions of CO, CO₂, NO, HC, and PM in real time. The Axion™R/S+PM provides accurate and timely information for decision making. Large fleet data set collection is now possible due to the Axion™R/S+PM flexibility, minimal set-up time, and rapid deployment.

The Axion™ series is powered by LabVIEW® based proprietary software which translates into cutting-edge vehicle emissions testing methodology.

The Axion™ Micro PEMS passed a rigorous evaluation by the United States Environmental Protection Agency (USEPA) Environmental Technology Verification (ETV) Program, demonstrating that Global MRV continues to set the standard for continuous PEMS field-testing.

The Axion™ reports data in “grams-per-second” and provides all data for calculating “grams-per-mile, gallon, kg”. Using a proprietary (and patented) flow calculation method, accurate PEMS flow data is provided. This reduces extraneous equipment. On-board engine information is captured with either vehicle or vessel OBD hardware and software or an Engine Sensor Array.

**+PM Module:** Particulate Matter (PM) is measured utilizing the process of a laser light scattering technique. The fully integrated PM module easily fits into the existing Axion™R/S footprint.

**+NH₃ Module:** (Additional Option) The fully integrated Ammonia (NH₃) module easily fits into the existing Axion™R/S+PM footprint. See the Axion™R/S+PM+NH₃ datasheet for more specifications.

Online, phone, and email support are included in the warranty with the purchase of every Axion™R/S+PM.
Axion RS+PM
Technical Specifications

<table>
<thead>
<tr>
<th>Gas</th>
<th>Range</th>
<th>Accuracy</th>
<th>Repeatability</th>
<th>Noise</th>
<th>Resolution</th>
<th>Measurement and T90</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC</td>
<td>0 - 2000 ppm</td>
<td>±4 ppm abs or ±3% rel</td>
<td>±3 ppm abs or ±2% rel</td>
<td>2 ppm abs or 0.8% rel</td>
<td>1 ppm</td>
<td>NDIR &lt; 3.5</td>
</tr>
<tr>
<td>CO</td>
<td>0.00 - 10.00%</td>
<td>±0.02% abs or ±3% rel</td>
<td>±0.02% abs or ±2% rel</td>
<td>0.01% abs or 0.8% rel</td>
<td>0.001 vol. %</td>
<td>NDIR &lt; 3.5</td>
</tr>
<tr>
<td>CO₂</td>
<td>0.00 - 16.00%</td>
<td>±0.3% abs or ±3% rel</td>
<td>±0.1% abs or ±2% rel</td>
<td>±0.1% abs or 0.8% rel</td>
<td>0.01 vol. %</td>
<td>NDIR &lt; 3.5</td>
</tr>
<tr>
<td>NO</td>
<td>0 - 5000 ppm</td>
<td>±5 ppm abs or ±1% rel</td>
<td>±5 ppm abs or ±1% rel</td>
<td>5 ppm abs or 1% rel</td>
<td>1 ppm</td>
<td>Electrochemical</td>
</tr>
<tr>
<td>O₂</td>
<td>0.00 - 25.00%</td>
<td>±0.02% abs or ±1% rel</td>
<td>±0.02% abs or ±1% rel</td>
<td>0.02% abs or 1% rel</td>
<td>0.01 vol. %</td>
<td>Electrochemical &lt; 6s</td>
</tr>
<tr>
<td>PM</td>
<td>0.00 mg/m³ to 250 g/m³</td>
<td>±2% rel</td>
<td>&lt;±0.2% of reading</td>
<td>&lt;2 μg/m³</td>
<td>0.01 mg/m³</td>
<td>Laser Scattering 2s</td>
</tr>
</tbody>
</table>

Optional Add-Ons to AxionRS

**Dimensions:** 21.7”L x 16.9”W x 8.5”H (550mm x 430mm x 215mm)

**Weight:** 39lbs. (17.6kg)
**Accessory Case:** 30lbs. (13.6kg)

**Power:** 12-14VDC
**Amperage:** 5-8 Amperes

**Gas Data Sampling Rate:** 1 Hertz
**Sample Flow:** 15 liters/min

**System Computer:** Windows 7 Embedded

**User Interface:** Push Button Power, keyboard and mouse

**Data Output:** Instantaneous Sub-module Display; 12-second delay for compiled results (standard configuration); Real-time graphical display; ASCII delimited text file easily loaded into Microsoft Excel

**Measured Parameters:** Time, Vehicle speed, RPM, Intake Air Temperature, Manifold Absolute Pressure and/or Mass Air Flow, HC, CO, NO, CO₂, O₂, and PM

**Additional Parameters:** Grams of pollutant per second (g/s), Intake air flow, Exhaust air flow, Fuel consumption

**Optimal Instrument Conditions:**
5°C to 35°C (40°F to 95°F)
0-90% relative humidity (RH), non-condensing

**Position Identification:** GPS

**Emission Collection:** Condensation bowls, probes, handles, and hoses.

**Applicable Operational Engines:** Axion has been successfully utilized in the operation of lawn equipment, motorcycles, ATVs, passenger vehicles, trucks, construction equipment, marine vessels, semi-trucks, locomotives, operating in real world driving conditions.

**Engine Information Acquisition:** Light Duty ECU, Heavy Duty ECU, or Engine Sensor Array: Data Acquisition Box, Data Acquisition Box Cable, Manifold Absolute Pressure Transducer, Transducer Extension Cable, Thermistor, Piezoelectric Tachometer, Optical Tachometer, Inductive Tachometer

**Driver’s Aid**

**PM Module:**
PM10, PM2.5

**Optional Modules:**
- TDLS NH₃ (Ammonia) Module
- Weather Station Module:
  - Temperature, Humidity, Pressure