



# AxionGO

**Data is the lifeblood of vehicle improvement and emissions reduction.**

**GlobalMRV continue excellence with the Axion™GO**

**New capabilities — same great ultra-compact package**

GlobalMRV is continually improving mini “Portable Emissions Measurement System” (mini-PEMS) for real-world driving emissions. Our PEMS units provide real-time, real-world fixed and mobile emissions testing for HDV and LDV: on-road, off-road, and non-road; our PEMS can be used for land, track, and marine applications to enable vehicle performance and analysis.

The Axion™GO measures mass-flow emissions of CO, CO<sub>2</sub>, NO, HC, and O<sub>2</sub>, in real time. The Axion™GO provides accurate and timely information for decision-making. Large fleet dataset collection is now possible due to the Axion™GO's flexibility, minimal set-up time, and rapid deployment.

The Axion™GO is an excellent device for the most compact of locations. It's a PEMS device, so it's compact and adjustable. It can be placed on motorcycles, ATVs, mopeds, and small off-road vehicles without the usual hassle of excessive weight — weight that would throw off actual vehicle performance and power sources.

The Axion™GO can be utilized just like the Axion™R/S, but it offers a smaller footprint. The Axion™GO does allow for expansion for minimal Particulate Matter recording but is unable to include NH<sub>3</sub>.

See the Axion™R/S for further details on other specifications.

The Axion™ series has LabVIEW®-based proprietary software, which allows for cutting-edge vehicle emissions testing methodologies. The Axion™ series easily syncs with CAN broadcast software — such as INCA from ETAS — to provide municipalities, researchers, and OEMs with a fully comprehensive data package for measurement verification and predictive analysis.

#### Redesigned to include:

- Electromagnetic Interference (EMI) Protection from external devices, as these devices can cause erroneous readings
- Multiple USB connections for integration with external devices and additional vehicle data collection products
- Remote data collection, analysis, and storage in real-time for increased security from data loss
- PM and PN Capabilities
- Multi-point calibrations for more accurate range testing

**The Axion™ Micro PEMS passed a rigorous evaluation by the United States Environmental Protection Agency (USEPA) Environmental Technology Verification (ETV) Program and has been satisfying rigorous demands for over 25 years. GlobalMRV 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, and kg.” Using a proprietary (and patented) flow calculation method, accurate PEMS flow data is provided. The data provided reduces the need for extraneous equipment. On-board engine information is captured with either vehicle/vessel OBD hardware, software, or an Engine Sensor Array.

Online, phone, and email support are included in the warranty with the purchase of every Axion™ GO.



Gas	Range	Accuracy	Repeatability	Noise	Resolution	Measurement and T90
HC Propane	0 - 4000 ppm 4k to 10kppm 10k to 30kppm	±8 ppm abs or ±3% rel ±5% rel ±10% rel	±6ppm abs or ± 2% rel ±3% rel ±5% rel	4ppm abs or 0.8% rel	1 ppm	NDIR < 3.5 sec
CO	0.00 - 10.00% 10.01 to 15.0%	±0.02% abs or ±3% rel ±5% rel	±0.02% abs or ± 2% rel ±3% rel	0.01% abs or 0.8% rel	0.001 vol. %	NDIR < 3.5 sec
CO <sub>2</sub>	0.00 - 16.00% 16.01% to 20%	±0.3% abs or ±3% rel ±5% rel	±0.1% abs or ± 2% rel ±3% rel	0.1% abs or 0.8% rel 2% rel	0.01 vol. %	NDIR < 3.5sec
NO	0 - 5000 ppm	±15 ppm abs or ±3% rel	±2% rel	5 ppm abs or 1% rel	1 ppm	Electrochemical < 5s
O <sub>2</sub>	0.00 - 25.00%	±0.02% abs or ±1% rel	±0.02% abs or ±1% rel	0.02% abs or 1% rel	0.01 vol. %	Electrochemical < 6s
Optional Add-Ons to Select Devices						
NO	0 – 3000 ppm	±2ppm abs or ±2% rel	±2ppm abs or ±2% rel	<2ppm abs or 2% rel	0.1 ppm	UVRAS < 3 sec
PM and PN						
	PM and PN		PM		PM	
Operating Principle	Laser Scattering		Laser Scattering		Laser Scattering	
Measurement Range	0~30,000µg/m³ (0~30mg/m3)		0~50,000µg/m³ 0~50mg/m³ Maximum display 1000mg/m³		0 - 250,000µg/m³ (0-2,500mg/m3)	
Output Channels	PM1.0, PM2.5, PM4.25(optional), PM10 and TSP		PM2.5, PM10 and TSP		PM2.5, PM10 and TSP	
Resolution	1 µg/m³ (0.001 mg/m³)		1 µg/m³ (0.001 mg/m³)		1 µg/m³ (0.001 mg/m³)	
Working Condition	-30°C ~ 70°C, 0-95%RH (non-condensing)		-30°C ~ 70°C, 0-95%RH (non-condensing)		0-55°C (32°-131°F)	
Particle Measurement Results						
PM1.0 [ug/m3]	Yes		No		Optional	
PM2.5 [ug/m3]	Yes		Yes		Optional	
PM10.0 [ug/m3]	Yes		Yes		Yes	
TPS [ug/m3]	Yes		Yes		Optional	
0.3um [ct/L]	Yes		No		No	
0.5um [ct/L]	Yes		No		No	
1.0um [ct/L]	Yes		No		No	
2.5um [ct/L]	Yes		No		No	
5.0um [ct/L]	Yes		No		No	
10.0um [ct/L]	Yes		No		No	
GlobalMRV Compatibility Matrix						
Axion R/S	Yes		Yes		No	
Axion R/S+	Yes		Yes		Yes	
Axion R/S+ NH <sub>3</sub>	Yes		Yes		Yes	
Axion GO	Yes		Yes		No	
Backpack	Yes		Yes		No	
Firefly	Yes		Yes		No	
Rack or Cabinet	Yes		Yes		Yes	
SCS	Yes		Yes		No	

**Dimensions:** 15.0"L x 10.5"W x 6.2"H (381mm x 267mm x 157mm)

**Weight:** 22 lbs. (9.9 kg)

**Accessory Case:** 30 lbs. (13.6 kg)

**Power:** 12-14 VDC

**Amperage:** 3-5 Amperes

**Data Reporting Rate:** 1 Hertz

**Sample Flow:** 10 liters/minute

**System Computer:** Selected Computer

**User Interface:** Push Button Power

**Data Output:**

**Data Reported:** Real-time DAQ, aligned results, test configuration (vehicle, engine, fuel, and DAQs), aggregate test results (bags)

**Reporting Formats:** Software UI, .txt Files, CAN Broadcasts, PEMSNet

**Measured Parameters:** Geolocation (GPS), Vehicle Performance/Operation (OBD/ECU, Sensor Array), engine exhaust gaseous constituents, and ambient conditions

**Additional Parameters:** Grams of pollutant per second (g/s), Intake air flow, exhaust air flow, and fuel consumption (not all inclusive)

**Optimal Instrument Conditions:**

5°C to 35°C (40°F to 95°F)

0-90% relative humidity (RH), non-condensing

**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, and locomotives operating in real-world driving conditions.

**Engine Information Acquisition:**

Vehicle Communication Protocols (J1979 OBDII, J1587, J1939, and as requested)

Engine Sensor Array: Manifold Absolute Pressure Transducer, Thermistor, Piezoelectric Tachometer, Optical Tachometer, and Inductive Tachometer

**Driver's Aid**

**Optional Modules:**

- CAN Output
- Particulate Matter and Particle Number Module
- Ambient Sensor
  - Temperature
  - Humidity
  - Pressure