sensors

Emissions
Measurement
Solutions

SEMTECH® ECOSTAR *PLUS*

Mobile Test System for On-Road and Non-Road Applications

On Board Emissions Analyzers

Test Cell Emissions Analyzers

Emissions Testing Services

Environmental Applications

UN/ECE Reg. 49 and Commission Regulation (EU) No. 582/2011 and 40 CFR part 1065 compliant for gases regulated under these rules.

Building on over forty years of experience in gas and exhaust flow measurement and as the world's pre-eminent PEMS equipment supplier, Sensors has developed the SEMTECH ECOSTAR product line. This rugged, compact and portable suite of gaseous and particulate measurement devices meets world-wide laboratory grade performance requirements, enabling its use in both test cell and on-vehicle applications.

The SEMTECH ECOSTAR product suite comprises a range of individual, self-contained modules, each with a specific functionality, which may be operated as stand-alone analytical devices or as part of a fully integrated measurement package. Each module has been designed to maintain its high-grade analytical performance while operating under extreme testing environments with minimal space, weight and energy requirements. This powerful design approach offers optimum flexibility, performance and ease of use in multiple real-world applications and under harsh testing conditions. Whether used in the test-cell or in the field, SEMTECH ECOSTAR, the 4th generation PEMS system from Sensors, represents today's best available commercial technology.

System Features and Benefits

Regulatory Compliance: The SEMTECH® ECOSTAR system is compliant for the gases regulated under UN/ECE. Reg. 49 and commission Regulation (EU) No. 582/2011 as well as under 40 CFR part 1065.

Modular Design: Each unit works as a stand-alone device, with the ability to be integrated with any or all of the other modules to meet unique emissions testing requirements. Plug-and-play capabilities ensure that each additional module is automatically recognized on connection.

Rugged Construction: All modules can be used in off-road applications and other harsh environments.

Graphical Touch Screen Display: Each module has a full color, graphic touch screen for the display of live data, and enabling system setup and basic functions, such as zero and span.

Dual Sample Lines: A heated line is dedicated to the SEMTECH-FID, ensuring that the sample is maintained at the required temperature prior to THC analysis. A separate line carries the sample for NO, NO_2, CO, CO_2 and O_2 measurement.

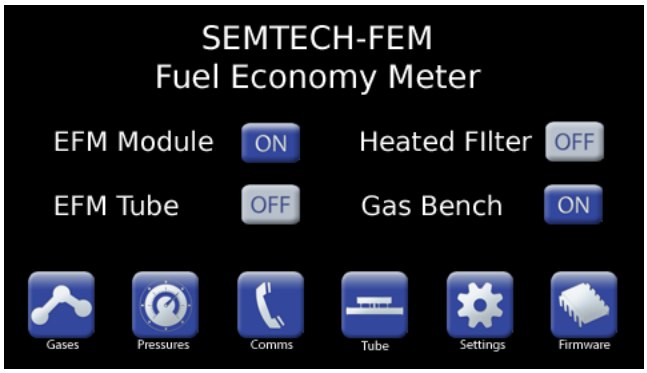
Standard Connectors: All power and auxiliary connectors are rugged Deutsch connectors, while all pneumatics use standard Swagelok™ bulkhead connectors.

Cable Management: Brackets on the rear of each module provide a channel for cables, ensuring that connectors remain protected. Strain relief brackets are included for the pneumatic harness. Both brackets are easily removable if required.

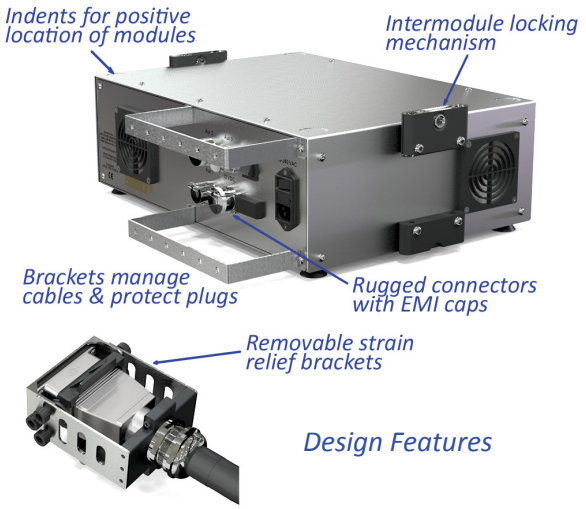
EMI Protection: Each module is built with EMI gaskets, filters and connector caps. Meets CE standards: IEC 61326:2002-2.

Power: Each module contains a relay switch and diode protection. The power supply can be either 110 VAC, 220 VAC or 12 VDC. Each module has voltage and current monitoring capabilities.

Locking Handles: As modules are stacked on top of each other, the side handles lock together to keep them secure.



Graphical Touch Screen Display



Design Features

Remote Dilution

When measuring exhaust particulate mass directly, the full flow of exhaust must be maintained at the exhaust temperature, and the exhaust sample may only be transported a limited distance prior to dilution for measurement. To mitigate the installation difficulties that this requirement imposes, the remote diluter can be mounted at the exhaust outlet and the diluted sample can then be directed to the Micro-Proportional Sample system and the Particulate Mass Filter system for analysis.

Remote Diluter

Accessories

The entire SEMTECH ECOSTAR system easily fits in a subcompact car.

The following accessories are also available with the SEMTECH® ECOSTAR system:

Global Positioning System (GPS): Emissions data can be overlaid with route and elevation information. A dead reckoning GPS interface is supported.

Weather Probe: Accurate ambient humidity and temperature data is provided with a plug-and-play weather probe. With a measuring range of -80 to +60 °C (-112 to +140 °F).

Vehicle Interface: Interface with any of a wide variety of protocols, including SAE-J1708, SAE-J1939, SAE-J1587, and OBDII (most light and heavy duty communication protocols are supported; complete list available from Sensors) as well as ISO 27145.

Vibration Isolation: SEMTECH® ECOSTAR products are equipped with a shock mount plate to complement the vibration damping technology incorporated into each module.

Communications: A host software is available for all SEMTECH® ECOSTAR modules, though it is not required for system operation. Communications to the host computer and software application are available via Ethernet or USB (serial). Each module contains a compact flash card for local data storage as well.

INCA®: The ECOSTAR INCA Adaptor enables real-time broadcast of all data collected using an ECOSTAR Gaseous (and/or PM) PEMS analyzer to an INCA user. The adaptor enables seamless integration of the ECOSTAR PEMS analyzer as a peripheral to an INCA user main data acquisitions system by means of standard ETAS CAN module (e.g. the ETAS Module ES581.3.

The SEMTECH ® ECOSTAR meets test performance cell requirements as well. Its standard 19" rack form factor allows easy integration in existing test cells infrastructure.

SEMTECH ® ECOSTAR modules in a 19 in. rack cabinet

User Support

As with all SEMTECH products, the SEMTECH® ECOSTAR modules come with a wide range of customer support, including WebEx and a customer portal with tips, forums and more.

Sensors, Inc. • 6812 State Rd. • Saline, Michigan 48176 • PH:(734) 429-2100 • FX:(734) 429-4080 • www.sensors-inc.com
Sensors Europe GmbH • Feldheider Str. 60 • 40699 Erkrath • Germany • PH: +49 (0) 2104-14188-0 • FX: +49 (0) 2104-14188-14

SEMTECH® ECOSTAR
Mobile Test Bench

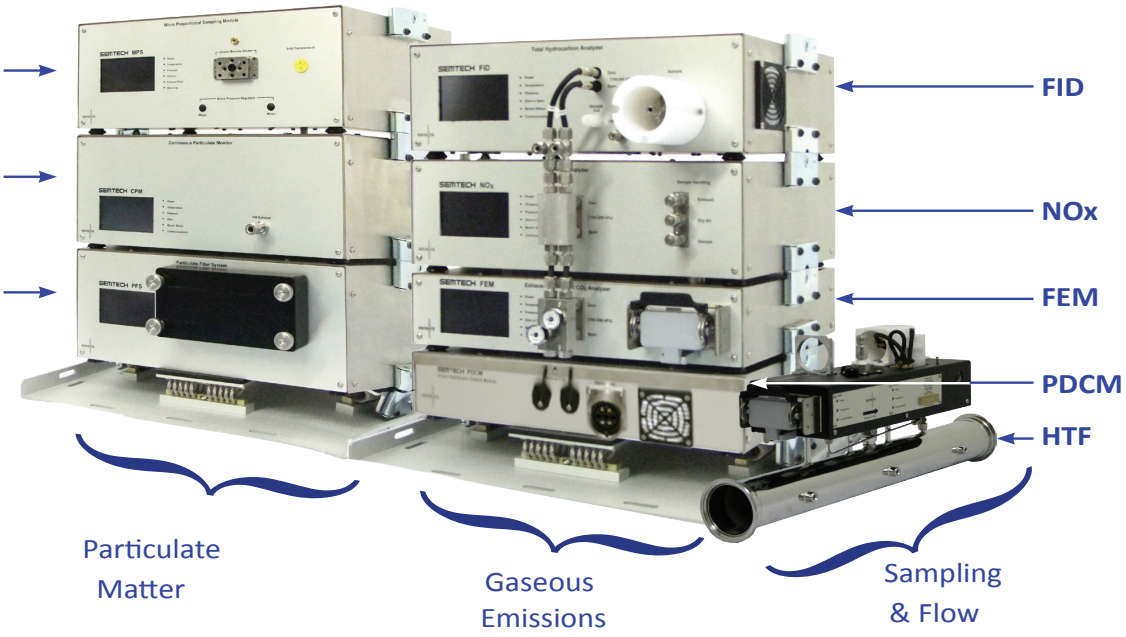
SEMTECH® ECOSTAR *PLUS* Complete System Configuration

Emissions Measurement Solutions for

Automotive
Medium Duty
Heavy Duty

Off-Road
Recreational
Marine

Locomotive
Test Cells



Inputs
- Weather Probe
- GPS
- VI ← ECM
- IO Module

Outputs
- ECOSTAR Host
- INCA
- Post Processors
- IO Module

			Weight (kg)	Compliance
FEM	Fuel Economy Meter CO / CO_2 (Non-dispersive IR) O_2	Measures CO / CO_2 and, with EFM, calculates fuel economy Optionally measures O_2	10.0	US EPA 40 CFR part 1065 UN/ECE. Reg. 49
NOx	NO / NO_2 (Non-dispersive UV)	Measures NO / NO_2	14.2	
FID	Flame Ionization Detector	Measures THC	12.8	
HTF	Flow Tube / Heated Filter	Measures exhaust flow and provides sample conditioning	tube size dependent	CE
MPS	Micro-Proportional Sample System	Dilutes exhaust sample proportionally (with EFM) or fixed	17.5	US EPA CFR40 part 1065 CE
CPM	Continuous Particulate Module	Measures particulate number or mass (continuous)	20.0	
PFS	Particulate Filter System	Measures particulate mass	21.0	
PDCM	Power Distribution Control Module	Distributes power to all modules	10.7	CE

Rev. 20160509

Sensors, Inc. • 6812 State Rd. • Saline, Michigan 48176 • PH:(734) 429-2100 • FX:(734) 429-4080 • www.sensors-inc.com
Sensors Europe GmbH • Feldheider Str. 60 • 40699 Erkrath • Germany • PH: +49 (0) 2104-14188-0 • FX: +49 (0) 2104-14188-14