sensors

Emissions
Measurement
Solutions

SEMTECH®–PFS

Particulate Filter System

A SEMTECH ECOSTAR Product

On Board Emissions Analyzers

Test Cell Emissions Analyzers

Emissions Testing Services

Environmental Applications

The SEMTECH-PFS is an all-new design that accurately measures particulate matter using the gravimetric method. The innovative filter holder uses the industry standard 47 mm filter cartridge along with custom inlet and outlet cones to achieve required filter face velocities for a wide range of flow rates. The system is controlled by a microprocessor, which directs the sample through one of three filters, or through a bypass using solenoid valves. The design is optimized to be lightweight and compact, enabling laboratory quality measurements both on- and off-road. The Particulate Filter System works directly with the SEMTECH-MPS, with diluted sample entering through a port from the bottom of the MPS to the top of the filter system unit. When the modules are stacked, the side handles lock the units together for a secure system setup. A full color touch screen enables system setup and a live view for system monitoring.

System Features and Benefits

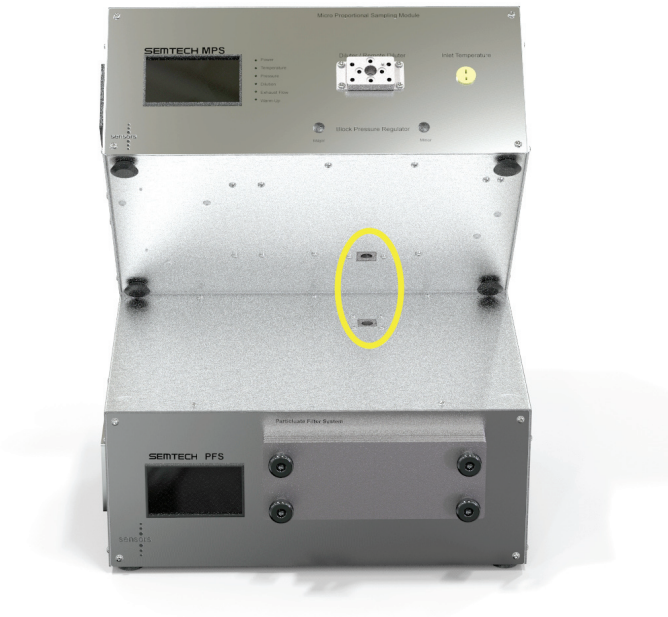
Direct Sample Path: Diluted sample is routed directly from the MPS to the PFS through a gas interconnect, which joins the bottom outlet of the MPS module to the top inlet of the PFS module.

Quick-Release Filter Holder Assembly: Easily change both filters and filter holders with this quick-release design to access all three filters at once.

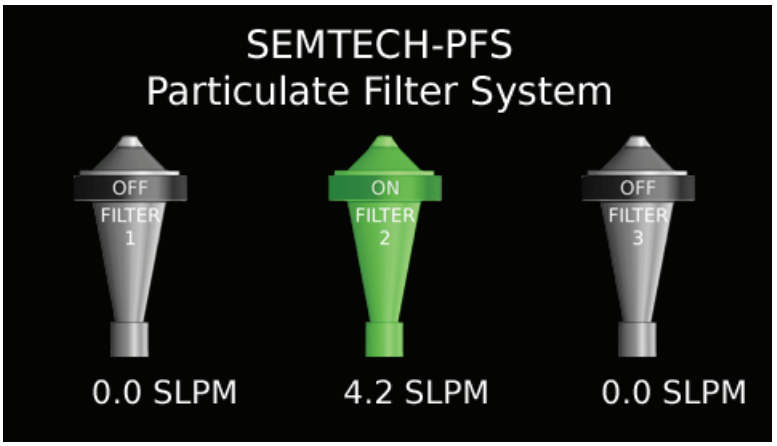
Graphical Panel Display: A full color graphic touch screen displays live data, and enables system setup and basic functions to be performed in real-time.

Power Supply Monitoring: Power can be either 12 VDC, 110 VAC or 220 VAC, with both current and voltage monitoring.

Compact, Lightweight PM PEMS solution: The SEMTECH particulate matter PEMS solution is light weight and compact, capable of meeting the measurement requirements of small and large engines alike.



Gas Connection to SEMTECH-MPS



Graphical Touchscreen

In-Use Features

1065 Compliant: The SEMTECH-PMF meets the EPA's 1065 compliance requirements for in-use testing.

Weatherproof Construction: The unit can be used off-road and in other harsh environments. All components are weatherproof to IP54 (NEMA 3) standards.

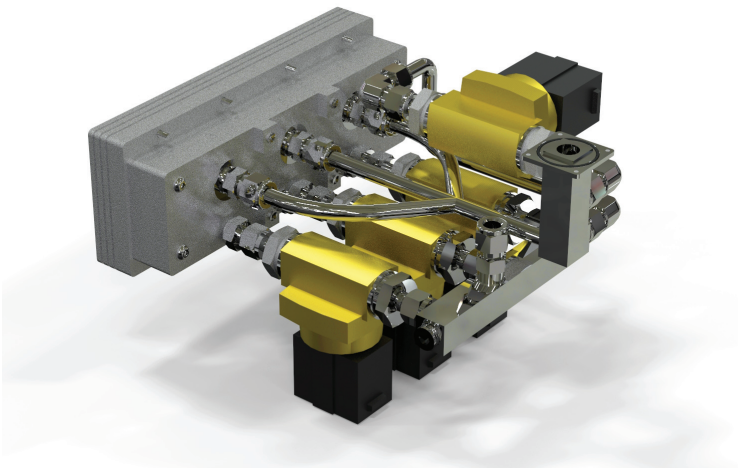
Shock Resistance: The mechanical design has been optimized for resistance to shock and vibration, ensuring accurate data in the most rugged of in-use environments.

Design Details: Over a decade of experience in in-use emissions testing has gone into the design details of the SEMTECH ECOSTAR system, including:

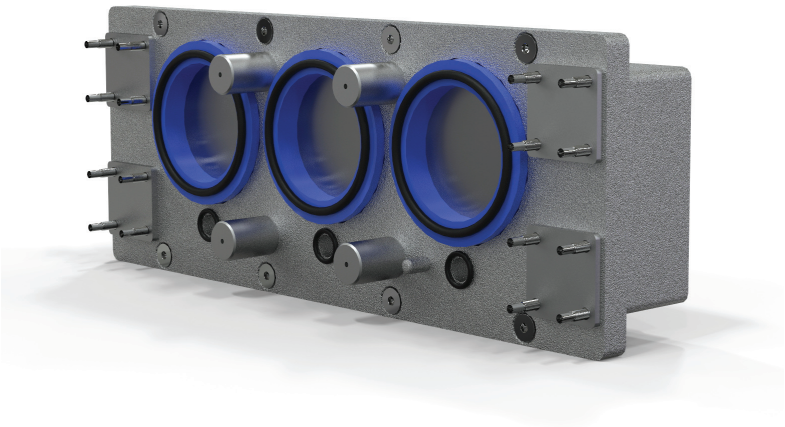
- EMI protection, including gaskets, filters and capped connectors
- Stress relief for pneumatic connections
- Channels for cable management
- Standard Swagelok™ bulkhead connectors
- Rugged Deutsch connectors for power and auxiliary connectors
- Handles that lock to other SEMTECH ECOSTAR modules for stable system integration

The Technology

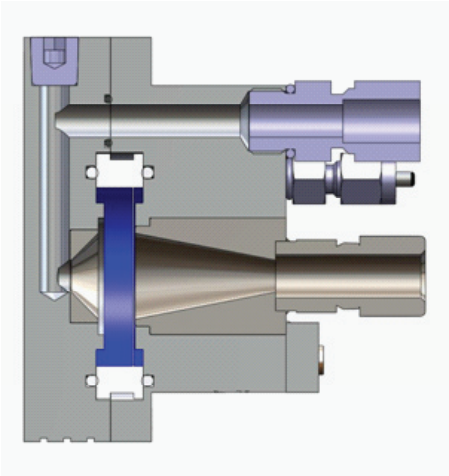
At the heart of the SEMTECH-PFS is a novel filter holder design that enables measurements at low flow rates. A pump at the exhaust draws the sample through the filter holder. The inlet flow is expanded with a cone to define the filter stain area. The size of the inlet cone ensures that a required filter-face velocity can be achieved at low flow rates. The outlet cone also assists in reducing the filter stain area by ensuring that the gas profile through the filter media is directed to the required filter stain area. Both inlet and outlet cones are easily replaceable with different sizes; therefore different flow rates, stain areas, and face velocities can be accommodated in a single filter holder design. Inlet flow is directed to either one of three filters, or to a bypass path via flow solenoids controlled by a microprocessor. Temperature control is maintained with internal cartridge heaters, which are aided by returning the filtered gas steam through the inlet manifold. Temperature sensors feed the microprocessor for stable temperature control. A quick release mechanism on the filter holder assembly ensures easy changeouts of filter cartridges. This filter design enables the filter stain area to be modified while keeping the overall filter size compliant with recommended practice, and with readily available filter cartridge assemblies.



Flow Solenoid Assembly



Filter Holder Assembly

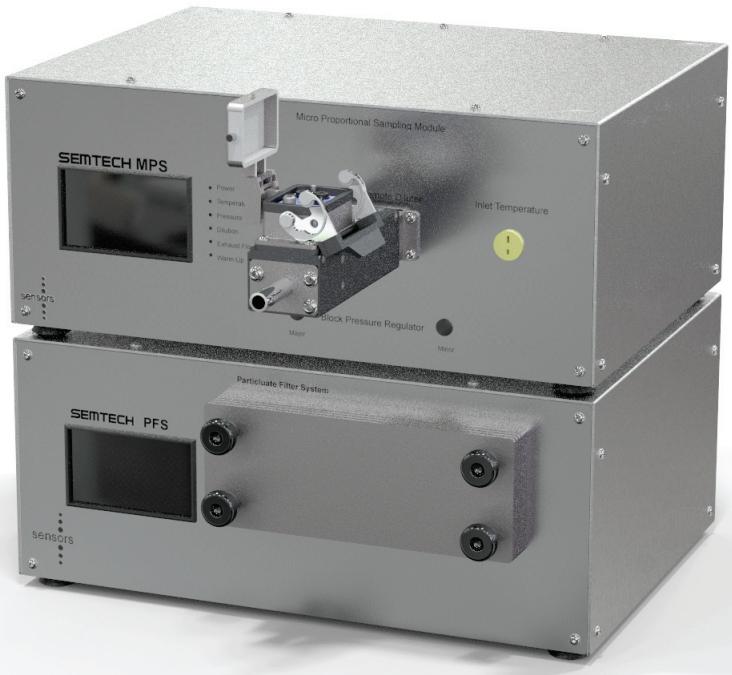


Filter Holder Section View

User Support

As with all SEMTECH products, the Particulate Filter System comes with a wide range of customer support. Sensors' Remote Support, powered by WebEx, enables our trained technicians to view your SEMTECH unit in real-time, to help answer your questions, diagnose issues, and evaluate data, without requiring any additional software. The customer portal contains a forum for users to share insights on best practices for in-use emissions testing, and to stay up to date with the latest software releases, manuals, tehcnical service bulletins and tips and tricks.

SEMTECH-PFS
Particulate Filter System



Micro Proportional Sample System with Particulate Filter System

SEMTECH-PFS Specifications	
Operating temperature	-10°C to 45°C
Storage temperature	-10°C to 60°C
Sample flow rate	5 - 15 SLPM
Warm up time	60 minutes at 20°C ambient
Power requirement	12VDC; 110-220 VAC
Dimensions	43.6cm x 30.8cm x 18.0cm (WxDxH)
Weight	21 kg
Communications	Ethernet, USB
Filter element diameter	47 mm
Holder material (PM contact surface)	stainless steel

NOTE: Specifications are subject to change without notice. While due caution has been exercised in the production of this document, possible errors and omissions can occur.

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