

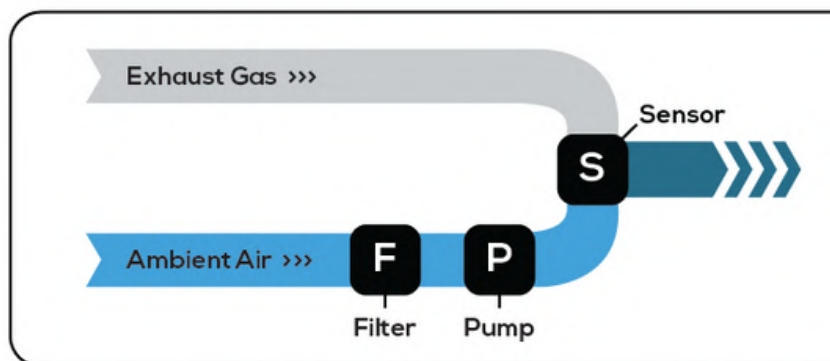


**Certified
PNC
Sensor!**

World's First PNC + 4-gas + NO_x Analyzer!

Flexible iPEMS: Design The Best Solution For YOU

The 3DATX parSYNC® FLEX-PNC iPEMS (integrated Portable Emissions Measurement System) provides gaseous AND nanoparticle measurements with a proprietary cartridge system. The gaseous side utilizes a “hot-swap” cartridge system for traditional 4-gas measurement (CO₂, CO, HC, O₂) plus NO_x (NO and NO₂). The particulate matter side utilizes NMI, METAS, and PTB certified particle number concentration (PNC) sensor based on the extended diffusion charging principle.



Soot-Free PNC Solution

Benefits

- No soot build-up
- No flammable operating liquid
- Insensitive to vibrations
- No need of compressed air

New! Further customize your parSYNC® FLEX-PNC to allow for real-time acquisition of:

- ☒ Wireless OBD Data Logger: User-defined ECU Data for LD and HD
- ☒ Real-time GPS and Ambient Meteorology Data (pressure, temperature, humidity)
- ☒ Ports for Additional Measurements (ie - exhaust flow rate, after-treatment temperature)

The parSYNC® Series of devices are powered by a common software interface, either directly on the imbedded LCD screen or from a linked laptop, which provides a familiar and adaptable platform to each unique transportation challenge presented.

The software and hardware embedded in parSYNC® is completely customizable and extremely valuable for the 3DATX user community. This broad spectrum and flexibility of analytical and reporting functions for fleet managers, manufacturers, consultants and regulatory compliance specialists is particularly useful as national and international Governments and Authorities ramp up new emissions standards.

Also available: Robust, field-ready, PNC calibrator with adjustable particle concentration range from 0 to 10⁷ #/cm³. Fast and simple setup. Includes salt generator.



FEATURES AND BENEFITS

- Small Size/Lightweight = Easily transported to job site
 - Size: 40 cm x 55 cm x 24 cm
 - Weight:
 - 16.5 kg (w/dual Milwaukee M18 8.0 Ah batteries)
 - 14.3 kg (w/o batteries)
- Battery Life: More than 1.5 hours typically (20°C ambient, warm-up using wall-power)
- Operation via interactive LCD display or from linked laptop
- Built-in WiFi Access-point to transmit data in real-time to laptop
- Fully Automated Software (customizable for specific requirements)
- Simple and Quick Calibration Process (BAR97 Hi/Lo, etc)
- Internal Power Supply: Two (2) 18V 8.0Ah Standard Lithium-Ion Battery Packs
- Measurement Cartridges with Monitored and Stabilized Temperatures
- Hot-Swap Replaceable Gas-side Sensor Cartridges (4-gas and NO_x) eliminates downtime in the field
- Built-in Exhaust Sample Condensate Removal
- Volatile Particle Reduction
- Rugged and Weather Resistant
- Easy to Maintain and Operate



SENSOR SPECIFICATIONS

Gases		Non-Dispersive Infrared (NDIR)			Individual Electro-Chemical Cells		
		CO ₂	CO	HC	NO	NO ₂	O ₂
Range		0-20%	0-15%	0-4000 ppm ¹	0-5000 ppm	0-300 ppm	0-100%
T ₀₋₉₀ Time (s)		< 3.5	< 3.5	< 3.5	< 5	< 35	< 6
Resolution		0.01%	0.01%	1 ppm	1-2 ppm	0.1 ppm	0.01%
Accuracy	Abs	± 0.3%	± 0.02%	± 8 ppm	± 15 ppm	± 5 ppm	± 0.1%
	Rel	± 3%	± 3%	± 3%	± 2%	± 2%	2%
Repeatability	Abs	± 0.1%	± 0.02%	± 6 ppm	± 5 ppm	± 5 ppm	± 0.1%
	Rel	± 2%	± 2%	± 2%	± 2%	± 2%	± 2%

¹ Propane mode, extends to 30,000 ppm (lower accuracy)

PNC	
Details	Data
Range	5,000 - 5,000,000 #/cm ³
Resolution	1,000 #/cm ³
Accuracy	25,000 #/cm ³ absolute or ± 25% relative
Counting Efficiency	23nm±5% : 20-60%
	50nm±5% : 60-130%
	80nm±5% : 70-130%



ACCESSORIES

Take your parSYNC® to the next level by enhancing your emission testing capabilities!

Weather Station + GPS

Designed to seamlessly integrate with the parSYNC®, the 3DATX Scotty is an optional GPS + Weather Station hybrid add-on that will elevate your emissions testing! This powerful accessory is modeled to enhance the evaluation and interpretation of real-time emissions by providing crucial information about ambient weather and geographical location.

Key Features:

- ✓ Global Location Coverage
- ✓ Easy and Secure Magnetic Mounting System
- ✓ High Accuracy Positioning: $\leq 25\text{m}$ Horizontally
- ✓ Fast Update rate: $\leq 10\text{Hz}$
- ✓ Wide Temperature Range: -40°C to 125°C
- ✓ High Accuracy Measurements: $\pm 2\%$ RH and $\pm 0.5^{\circ}\text{C}$ and $\pm 1.0\text{ hPa}$ for pressure
- ✓ Response Time: $< 1\text{ second}$
- ✓ Power Consumption: $< \mu\text{W}$



OBD Data Logger

The OBD Logger is an optional device used to capture vehicle activity data. This means that vehicle and engine speed, air flow rate, throttle position, lambda, air intake temperature and much more can be captured straight from the vehicle. In-house software is available to time align this data to the parSYNC® emissions data, and then calculate mass-based emission results.

Key Features:

- ✓ Real-time data with 1Hz acquisition frequency
- ✓ Adapter to allow access to both light and heavy-duty vehicles
- ✓ Access to a wide range of different ECU parameters/ On-board diagnostics (OBD)
- ✓ Low vehicle power consumption



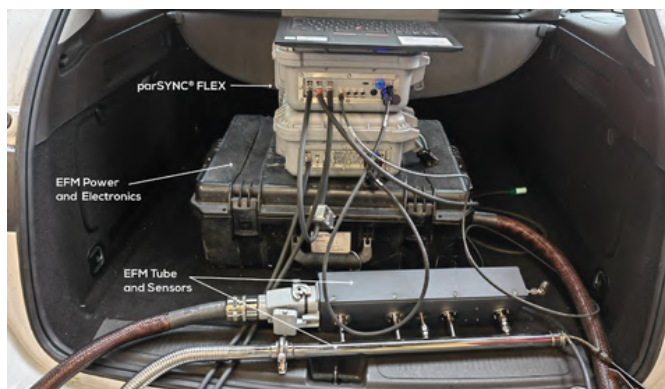
Exhaust Flow Meter (EFM) Adapter

Did you know you can connect a third-party exhaust flow meter to the parSYNC®? This feature means that exhaust flow rate can be incorporated in real-time and used to calculate accurate mass emission rates from the measured concentration values.

Shown here, is a setup combining the FLEX and a third-party EFM.

Key Features:

- ✓ Real-time data at high acquisition frequency
- ✓ Ability to attach any chosen exhaust flow meter, allowing bespoke access to both light and heavy-duty vehicle exhaust flow measurement
- ✓ In-house software allows calculation of mass emission rates



Onboard NH₃ and NO_x Sensor Adapters

Modern diesel vehicles with SCR are equipped with onboard NH₃ and NO_x sensors but their readings are typically unavailable from OBD. parSYNC® users can install similar sensors in a tailpipe extension and directly read concentration data in real-time.

Key Features:

- ✓ Enhance your testing capabilities with minimum effort
- ✓ Pre-configured to work with leading sensor models
- ✓ Custom development options for other models



CAN Port Adapter

Are you ready to make your parSYNC® virtually limitless?

Simply connect a 5-port expansion accessory to one or all the 4 CAN native ports on the parSYNC® iPEMS unit to accommodate up to 20 different sensors or devices. With options like GPS, weather station, thermocouple, and flow meter, your emissions testing possibilities are endless!



Fuel Flow Meter Adapter

Ability to directly measure fuel flow facilitates calculation of mass-based emission rates even when air flow, exhaust flow, or OBD fuel flow are not available. This is valuable addition for any application where OBD is unavailable and EFM is hard to install. We have already integrated Horiba RealFlow and Keyence Micro Flow FD-XS and continue to add more models!

Key Features:

- ✓ Plug&Play compatibility with real-time data at 1 hz
- ✓ User editable config files to match meter settings



- ✓ Custom development options to integrate any user choice fuel flow meter