

par SYNC[®]

Pollutant Activity Relay Synchronization

Meet the Next Generation iPEMS

Measuring and evaluating vehicle emissions for research, compliance, or defect identification is a challenging application that demands modern emissions testing capabilities. The 3DATX parSYNC[®] (an integrated Portable Emissions Measurement System or iPEMS) provides the capability of providing gaseous AND nanoparticle measurements using a proprietary cartridge system. This unique "hot-swap" cartridge system delivers emissions measurement for: CO, CO₂, NO_x, NO, NO₂, particulate matter (PM), and particle number (PN).

The 3DATX patented multi-plex particle sensor system provides the ability to capture multiple, dissimilar "images" of particles using Ionization, Scattering, and Opacity sensors in addition to outputs for Particle Number (PN) and Particulate Mass (PM).

The parSYNC[®] Series of devices are powered by a common software interface, which provides a familiar and adaptable platform to each unique transportation challenge presented.

The software and hardware embedded in the 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 state, federal, and international Governments ramp up new emissions standards.

The integrated Portable Emissions Measurement Systems (iPEMS) that represents the next generation.



We Make Transportation Decisions Easy

Features and Benefits of the 3DATX parSYNC® iPEMS Unit

- Small-size/Light-weight = Easily transported to job site
- parSYNC®
 - Dimensions: 12cm x 22cm x 13cm
 - Weight: 4.1 kg (9 lb)
 - Battery Life: 8-10 hours
- CUBE (the gas sample condensation removal unit)
 - Weight: 2.6 kg (5.7 lb)
 - Battery Life: 4-5 hours
- Internal Power Supply: 12V Lithium Ion Polymer Battery
- Low Power Consumption: 1.0 amps typically, 2.5 amps peak@12VDC
- Rugged and weather resistant
- Wireless/Bluetooth capabilities
- Easy to maintain and operate
- Simple and quick calibration process (BAR97 Hi/Lo, etc)
- Fully automated LabVIEW® based software (customizable for specific requirements)
- Replaceable sensor cartridges (GasMOD™ and PM/PN) eliminates downtime in the field



Gas Cartridge

3 Electrode Electro-Chemical	Nitric Oxide (NO)	Nitrogen Dioxide (NO ₂)
Linear Measurement Range	0-5000 ppm	0-300 ppm
T ₉₀ Response Time	< 5 seconds	< 35 seconds
Resolution	1-2ppm	0.1 ppm
Operating Temperature	-20°C to 50°C	-20°C to 50°C
Repeatability	2% of signal	2% of signal
Non-Dispersive Infrared Spectrometer (NDIR)	Carbon Dioxide (CO ₂)	Carbon Monoxide (CO)
Measurement Range	0-20%	0-15%
Accuracy	±0.3% absolute or ± 3% relative	± 0.02% absolute or ± 3% relative
Repeatability	±0.1% absolute or ± 2% relative	± 0.02% absolute or ± 2% relative

PM Cartridge

Details	Data
Particle Size	10 to 10,000 nm = 0.01 to 10 µm
Optimal Particle Size Range	
Ionization Sensor	Ultra-fine: 10 to 250 nm / peak@ <80 nm
Opacity Sensor	Medium: 80 to 7,000 nm / peak@ ~800 nm
Scattering Sensor	Coarse: 250 to 10,000 nm / peak@ ~2,500 nm

