

Mobile Monitoring Vehicle

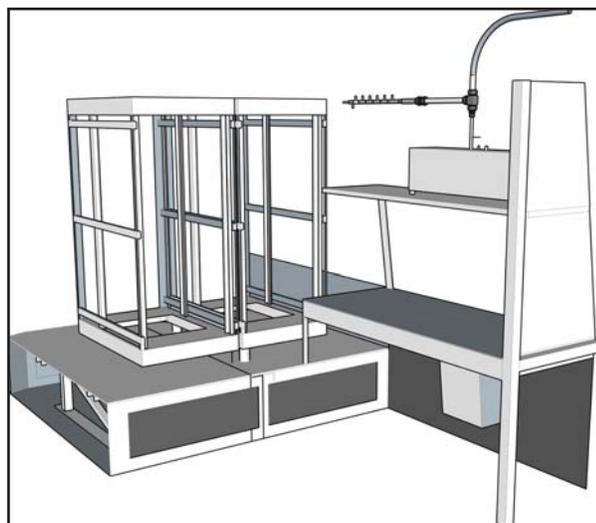
Measurement of ambient air quality parameters is traditionally conducted using permanent and semi-permanent stationary enclosures. However, when there is a requirement for the quantification of site or area level impacts, short-term event monitoring, peak exposure assessments, or comparative analysis, the Ambilabs Mobile Monitoring Vehicle is the ideal solution.

Key aspects of a mobile monitoring platform are; the system’s ability to perform to a quantifiable standard in its requisite uses, to be autonomous in operation, have the ability to measure both stationary and in motion, versatility in travel surface capability (on and off-road in all-weather conditions), maintaining a “ready” state for rapid deployment, and to have remote capabilities for data collection, instrument control, and remote maintenance.

The Ambilabs Mobile Monitoring Vehicle has been designed to meet and exceed these requirements. The expertly engineered solutions include the construction of the vehicle in a 3/4-ton four-wheel drive over height van to enable travel on both on and off roadway surfaces in all-weather conditions, installation of a vibration isolated versatile instrument racking system, an onboard combined power system enabling up to 3 days of autonomous operation under extreme climatic conditions, a split stream pressure stabilizing sampling manifold to sample both gases and aerosols from one inlet, and a remote management suite including instrument control, diagnostic monitoring, and data transfer for real-time quantification and response control.



Instrument Rack shown inside of Vehicle



Vehicle Interior Cutaway

Specifications

1 ton 4x4 Mercedes Sprinter Chassis

- Bluetec 6 cylinder diesel engine with emission control (cleanest engine ever built)
- Side Door and full opening rear doors
- R20 walls and roof (spray foam insulation with Mylar layer & FRP interior paneling)
- Hybrid 3000W/6000W Inverter system
- 16000W of onboard battery storage (4x8D 330amp hour lithium batteries) with Battery management system
- Additional Alternator capacity (240Amp@ 13.6VDC output at 1500rpm), 100Amp @ 13.6VDC at 800rpm) with programmable charge regulator
- Rack mounted Utility power grade, double conversion, Smart uninterruptible Power Supply
- Automated vehicle restart on low battery conditions
- HVAC system with 14000 BTU cooling, 1500W heating
- Custom interior aluminum work structure
- LED lighting system (task lighting at bench and front and rear of rack)
- Gas cylinder mounting for 6x Size 50 or 100 gas cylinders
- Dual, closable, intrusion protected 240cfm exhaust fans

Real-time Mobile Monitoring with Single Inlet Split Aerosol, Gas Sampling.

- Seamless Stainless steel intake with Borosilicate glass distribution manifold
- 3 sampling manifolds
- Real-time manifold pressure monitoring and emergency dump valve

Sampling for Primary Components

- H₂S
- SO₂
- THC (total hydrocarbon via FID)
- Aerosols (3 wavelength neph with backscatter and angstrom calculation)
- Canister sampler for TO-14 laboratory analysis
- Ultrasonic Wind speed and direction



Vehicle Positioning and Remote Communication

- GPS located (GPS and cellular backup)
- 4G/LTE plus fallback Cellular communication
- Roof mounted 10MP 350 deg rotation, pan/tilt/zoom camera with programmable tour settings

On-board Data Acquisition System

- Digital communication with primary instrumentation
- Analog and relay control for additional peripherals
- Web server
- Camera Streaming
- Heads-up display for driver