

Take your lab to the sample

Technical guide

How to install your Epsilon in your vehicle

Epsilon's accuracy and flexibility is available anywhere in the field. This technical guide provides several options to install the spectrometer in your vehicle.

- Suitable for exploration and mobile laboratories
- Choose the installation which fits your requirements
- Technical specifications for the different components
- Suitable solutions for all Epsilon benchtops

Application examples

- Mineral exploration
- Accurate quarry/mine management
- Soil analysis to optimize fertilizers
- Quality assurance (sulfur content in gas station fuel)
- Pre-laboratory site startup

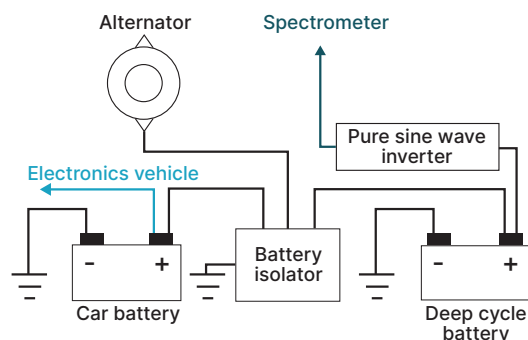
Installations schemes

To install an Epsilon EDXRF benchtop in your vehicle, a pure sine wave inverter is necessary to convert the DC power of the battery into the required AC power. To supply the required power, there are three options.

Recommended solution

Option 1. Power the spectrometer with a dual battery system. Here, a second battery, preferably a deep cycle battery, is installed in the car and connected via a battery isolator to the vehicle's alternator and car battery (see scheme below). Both batteries will be charged by the car's alternator. The car battery remains charged for the vehicle and the second battery is used for the spectrometer.

For option 1, Malvern Panalytical advises that a certified car dealer or mechanic performs the installation.



Recommended wiring scheme for a dual battery system (option 1). This installation is very common for recreation vehicles (mobile homes) and broadcast vehicles.



Alternatives

Option 2. Connect the spectrometer via the inverter to the car battery, and analyze while the engine is running.

Option 3. Put a second battery in your vehicle, which is disconnected from the vehicle's electrical system – this will require the removal and recharging of the battery between trips. Here it is advised to use a deep cycle battery because it can be fully discharged without negative effects on its lifetime.

Essential parts

Pure sine wave inverter

A pure sine wave inverter is necessary. The minimum requirements are an operating capacity of 600 W and an output of 230 VAC at 50 or 60 Hz.

Deep cycle battery

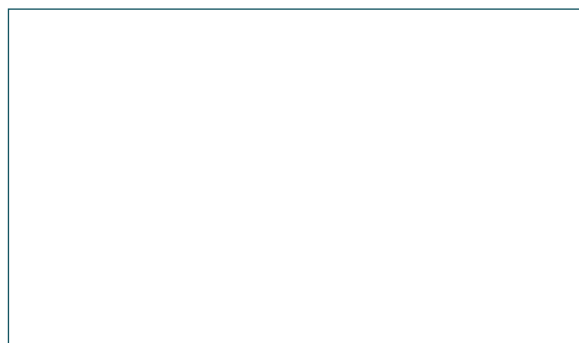
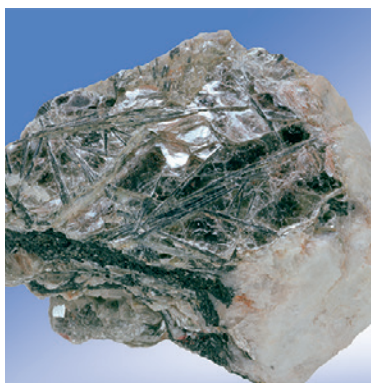
A deep cycle battery with a capacity >75 Ah is sufficient for operation of the different Epsilon benchtops over a working day of 8 hours. This capacity is based on a disconnected configuration (option 2), when the benchtop is constantly operating at maximum power. For Epsilon 3X, Epsilon 4 spectrometers, additional battery capacity is required to power the laptop.

Battery isolator (only for option 1)

The isolator should have the capacity of the alternator, as well as the load required by the spectrometer.

Suitable for all Epsilon benchtops

Malvern Panalytical's Epsilon benchtops are known for their high-quality parts, excellent performance and flexibility. When this accuracy and precision is required in the field, the possibility to operate the benchtops from a car allows the analyst to set up a mobile laboratory. The user will be able to analyze samples according to international norms, and have the access to all advanced software packages Malvern Panalytical offers, such as Omnia, FingerPrint and Oil-Trace.



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