

# All about EZA lithium-ferrous power-packs

Anyone who relies on batteries for 12V power in their vehicle or boat knows about the problems that come with lead-acid batteries. They're easy to damage through over-charging or under-charging, they're very heavy, they should only be discharged to 50%, they self-discharge, they need to be maintained correctly and they have a surprisingly short life if used heavily. And those are only some of the disadvantages!!

Mind you, lead-acid batteries have been around for well over a century so it's not before time that something more efficient, convenient, practical and cost-effective has become available.

Designed in France, the EZA 12V Lithium power-pack system is the ultimate power source for anyone who relies on 12 volts when living in a vehicle or boat. An EZA system will usually fit in the space that's occupied by the leisure battery / batteries and connects to the same cables that were attached to them. There are only two additional cables needed which run between the EZA unit and the vehicle's starter battery. There are no connections to the vehicle itself. The batteries used in EZA power-packs are LiFePO4 (Lithium Iron Phosphate) and are the safest type of lithium batteries. They will not overheat and, even when punctured, do not catch fire.

EZA power-packs have been on sale in France for several years and have proved very popular with motorhomers especially. When you consider the advantages that they offer over lead-acid, it's not hard to see why.

## Here are just some of the advantages of an EZA 130 power- pack:



- 125 Amps of usable energy (when full).
  - Can be discharged to 5%.
  - Built-in safety circuitry prevents damage from short-circuiting, over-charging & under-charging, over-voltage & under-voltage.
  - Built-in DC-DC charger means that the power-pack can be fully charged from 5% in approximately 2 hours when the vehicle's engine is running. **Note:** *The rate of charge will vary from vehicle to vehicle, especially when a "smart" alternator is being used.*
  - 25 - 30 Amps can be put back into the power-pack by running the vehicle engine for just 15 - 20 minutes. **Note:** *The rate of charge will vary from vehicle to vehicle, especially when a "smart" alternator is being used.*
  - Pre-wired for connection to a solar panel and with 400 watt MPPT solar regulator built in.
- Ideal for use with a 1500 watt inverter, enabling use of many 230V domestic appliances. A built-in switching system allows the inverter to be safely connected to a vehicle's 230V system. (An additional cable is required to activate this feature.) **Note:** *This option may not be available on every vehicle.*
  - Suitable for use in ambient temperatures from -10°C - +45°C.
  - 100% maintenance-free. **Note:** *An annual check at an installing dealer is required for the warranty to be maintained.*
  - Annual self-discharge rate of approx. 3%.
  - Minimum expected life of 2,500 full charge and discharge cycles. This is equivalent to using the power-pack to supply 50 Amps per day, every day, for almost 20 years.
  - All cables and connectors supplied - except for cables between power-pack and starter battery. **Note:** *cable is charged for as an additional item and the cost depends on the length of the cable required.*
  - One simple connection to the vehicle itself: to ignition + or D+.
  - Removes the need for a generator or fuel-cell so there's no need to carry additional fuel.
  - Completely silent when not being charged with no risk of fire or harmful fumes.
  - Completely safe in normal operation.
  - Works in combination with vehicle's built-in 12V / 230V charging system.
  - Approximately half the weight of an equivalent lead-acid battery bank.
  - Monitoring via a phone / tablet app. Which is available for Apple and Android systems. **Note:** *Apple operating system is due in early 2017.*
  - Can be moved between vehicles, allowing original batteries to be put back in position.
  - Euro 6 compatible.

An EZA power-pack isn't cheap but, for anyone who prefers or needs to rely on on-board 12V power, it can make a lot of sense. A two-year warranty is standard and that can be extended to five years for an additional cost. To keep the warranty valid, an EZA unit must be checked by an approved dealer on an annual basis. See below for more information on the warranty.

### Comparison of EZA power-pack with a similarly priced fuel cell and a small generator.

| Topic   | EFOY Comfort 80   | 1kW portable generator  | EZA 130  |
|---|---|---|--|
| Cost  | £2,250.00-ish   | £250.00 - £800.00   | £2,800.00-ish  |
| Expected lifetime   | Uncertain but should be at least 5,000 operating hours  | Depends on model but could be anything between one and ten years or more.               | At least 2,000 full cycles of discharge & charge. Assuming 50 Amps used per day, this is equivalent to 14 years of continuous use. |
| Weight  | 62Kgs including 2 x 115Ah lead-acid batteries   | Typically around 12 - 14 Kgs in addition to the regular batteries                       | 25Kgs  |
| Maximum Ah output per day   | 80Ah  | 192Ah   | In practical terms, almost unlimited as long as there is fuel for the engine and / or solar power.                                 |
| Typical time to fully charge lead-acid batteries (2 x 115Ah) / EZA from 50% state of charge | 35 hours  | 14 hours  | 1 hour   |
| Fuel required   | Methanol – hazardous and not easy to get. Insurance companies don't allow more than a small quantity to be carried at one time.   | Petrol – dangerous to carry and only legal to carry in small amounts.                   | Diesel / petrol (for engine) + solar or wind.  |
| Using a 1,500W inverter and a similarly rated 230V appliance                                | Not practical for more than short periods at a time. Using an inverter can greatly reduce the useful life of a lead-acid battery. | Use of a generator means that an inverter is not required when running 230V appliances. | EZA power pack is not affected by use of an inverter and can be reliably used regularly and often.                                 |
| Would a 230V generator still be a useful accessory if 230V is required?                     | Yes.  | N/A   | In most circumstances in a motorhome, no.  |
| Noise level in operation  | Low but may be heard at night when running.   | Noisy!  | Silent.  |

### Warranty terms for EZA units.

- The standard warranty is for two years. A warranty form must be completed at the time of purchase and returned to RoadPro.
- An extended warranty for an additional 3 years is available. The cost of this is £320.00. The extended warranty must be taken out within one week of the date of installation.
- To maintain the warranty – and it's a good idea anyway – an annual inspection of the EZA unit is required. This can be done at the place where the EZA was purchased or at various locations throughout the UK. There's no cost for the check.