

Solar and Fuel Cell Power Supply System

Stand-alone power supply system



Description

- Stand-alone power supply system
- Hybrid solution combining fuel cell and solar modules with strong batteries
- Space for LiDAR device inside the trailer

The stand-alone power supply system is especially made to supply and host a LiDAR device. The power supply system is recommended for all climates, except arctic conditions with only little hours of sunshine.

The system combines a powerful Methanol-based EFOY Pro fuel cell and three solar modules. The system is equipped with two 28 liters fuel cell cartridges.

In order to monitor and control the EFOY Pro fuel cell, a GSM-2-GPIO modem is installed. Hence, the modem sends current system data to the web viewer. The frequency can be configured via the web viewer. Alarms, such as low fuel or low battery voltage, can be configured. Thus the system automatically informs via email or SMS, in case of triggering alarms. At default settings, the typical monthly data traffic (GPRS) is approx. 2 MB.

The trailer is designed to host a LiDAR device. It has a removable hatch on its top for the laser beam.

In very remote sites the trailer can be moved by a helicopter using straps or lifting brackets (optional).

Specifications

Characteristic	Description
Total output power	200 W
Output voltage	12 VDC
Battery bank	440 Ah / 24 V Weight: 260 kg Note Battery bank can easily be removed for transport by helicopter.

Characteristic	Description
Solar supply	3 modules @ 260 W / 24 V (Total: 780 W) Solar controller
DC/DC converter	24 V to 12 V
Remote control	udomi-m2m-portal for system and fuel cell monitoring / control via GSM-2-GPIO modem (quad-band) including antenna

Fuel cell	
Type	EFOY Pro 2400 Duo with GPIO modem
Power output max. / min.	110 W / 80 W
Nominal voltage	24 V
Charging current at 24 V	max. 4.58 A min. 3.3 A
Nominal Methanol consumption	0.9 liters/kWh
Classification of Methanol	Index: 603-00100-X; EINECS, ELINCS, NLP: 200-659-6; CAS 67-56-1
Fuel cell cartridge	2x 28 liters Methanol, M28 cartridge (2x M28 adapter)
Fuel cell cartridge capacity	62.2 kWh @ 56 liters Methanol

Trailer	
Operating temperature	-40 ... 60 °C
Total dimensions	3.78 m x 1.81 m x 2.11 m (length x width x height)
Total weight	approx. 850 kg