MARPOWER®

Power converters

Marpower ESI Energy Storage Inverter

The Marpower ESI is the world's smallest and lightest energy storage inverter for mega yachts. This unique device captures peak loads, offers increased energy efficiency and improves the quality of the onboard network. The Marpower ESI is very suitable for diesel hybrid applications.

The Marpower ESI converts energy bi-directionally from battery set and the onboard AC distribution network. Several peak-shaving possibilities enable reduction of fuel and maintenance costs. The UPS and active filter option provide stable and reliable energy quality.

With the right setup, silent ship is one of the additional possibilities. The galvanic isolation between onboard distribution system and battery offers maximum safety for people and equipment.

In case you have a DC distribution system, the ESI can be used as a shore converter. It will convert any shore voltage and frequency to the DC voltage board.

Advantages Marpower ESI Energy Storage Inverter

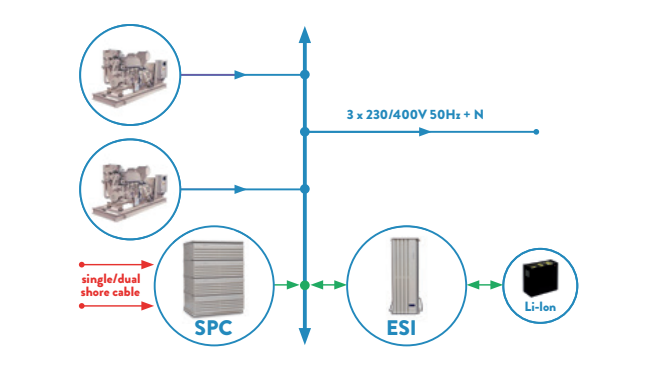
- ✓ World's smallest and lightest Energy Storage Inverter
- ✓ Bi-directional energy flow
- ✓ Galvanic isolation
- ✓ Parallel operation with generators
- ✓ UPS-function
- ✓ Flicker-compensation
- ✓ Passive and active harmonic compensation
- ✓ Shore converter to DC bus
- ✓ Worldwide service and support

MARPOWER®

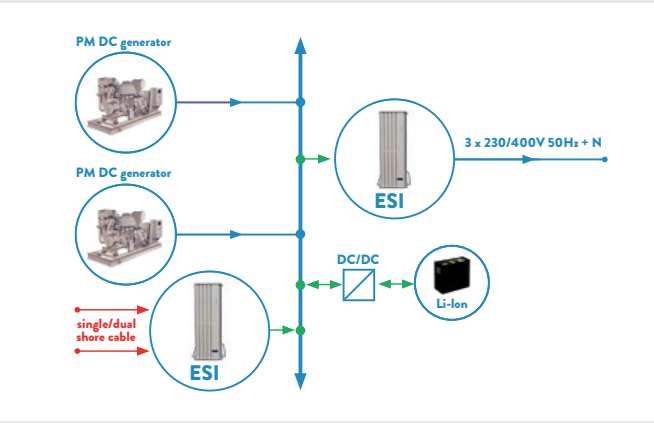
Due to its plug-and-play design the new Marpower ESI facilitates easy and flexible installation, operation, and maintenance of energy storage, UPS, and peakshaving solutions. The modular concept makes it easy to upgrade or expand the system for future demands. In addition, this advanced solution provides the following benefits:

- ✓ 30 - 40 - 50 - 60 kVA of high quality output power.
- ✓ Supports up to 300 kVA from a single system configuration.
- ✓ Provides galvanic isolation for maximum safety.
- ✓ Supports up to at least 1.2 MVA in a multiple system configuration.
- ✓ Contributes to overall system reliability and availability.
- ✓ Supports a variety of applications, including:
  - Parallel operation with onboard generators and converters.
  - Power quality improvement:
    - Harmonic compensation
    - Dips
    - Flicker
    - Reactive power compensation
  - Shore converter to a DC bus
  - UPS functionality
- ✓ Supports different battery types.
- ✓ Bi-directional power transfer (charging battery and generating mains).
- ✓ Modbus control with a powerful set of commands.

AC bus configuration



DC bus configuration



DC

Input voltage	565-750V (other voltages on request)
Nom. current charge mode	105A
Nom. current inverter mode	115A

AC

Voltage nominal	3 x 400V rms + neutral (other voltages on request)
Frequency	50 Hz (other frequencies on request)
Voltage DC distribution	170-520VAC
Frequency DC distribution	40-70Hz
Nom. system power	30kVA-900kVA
Nom. module power	30-40-50-60kVA
Power derating	without liquid cooling derating till 50%
Units in parallel	up to 20 modules
Overload	120% 15 min 150% 10 sec
Voltage distortion	< 3%
Voltage variation	± 1,5% (at min max load)
Frequency accuracy	± 0,05%
Efficiency	> 93% (at nom. battery voltage and full load)
Power losses	typical 70% to liquid 30% to air

INTERFACE/DIAGNOSTICS

LCD display	
Modbus	RTU
USB	
Hard wired IO	potential free contacts

MECHANICAL

Power	Weight	Size (HxWxD) in mm
60kVA* (vertical)	132 kg	900 x 435 x 660
60kVA* (horizontal)	133 kg	395 x 860 x 660
120kVA*	284 kg	950 x 860 x 660
180kVA*	407 kg	1250 x 860 x 660
240kVA*	532 kg	1650 x 860 x 660
300kVA*	655 kg	1950 x 860 x 660

* Uout = 400V cos phi = 0,8

Cooling	forced air + valve controlled liquid (non corrosive, 2 ltr./min flow and between 0°C and 35°C)
Protection degree	IP22 (higher IP value on request)
Temperature	0-45°C, power derating when exceeded
Humidity	0-95% non condensing
Colour	Ral 9010 (other colours on request)
Noise	< 60dBA at 1 mtr