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 more energy efficiency and improves the quality of the onboard network. The Marpower ESI is very suitable for diesel hybrid applications.

The Marpower ESI transports energy in two directions from battery set to onboard distribution network. This offers both fuel saving and less maintenance on mega yachts with alternating current (AC), because the diesel engines are used efficiently. The UPS function and the option of active THD improvement (Total Harmonic Distortion) provide stable and reliable energy quality.

The energy exchange with the battery set also ensures a more quiet or completely silent ship. The galvanic isolation between onboard distribution system and battery offers safety for people and equipment. The inverter can be used as shore converter with galvanic isolation on ships with a DC distribution (DC) system and it will make a 3-phase with N-net.

Voordelen Marpower ESI Energy Storage Inverter

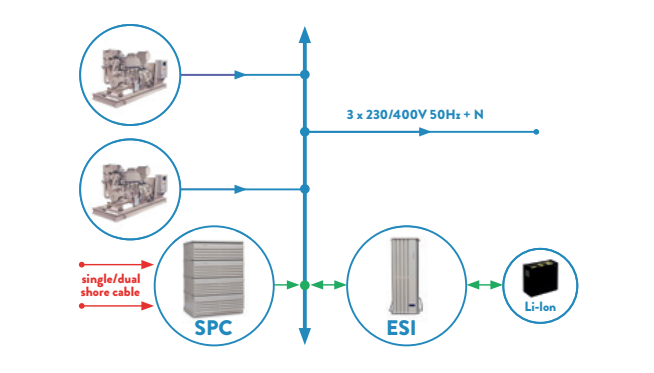
- ✓ World's smallest and lightest Energy Storage Inverter
- ✓ Bi-directional energy flow
- ✓ Galvanic isolation
- ✓ Parallel operation with generators
- ✓ UPS-function
- ✓ Flicker-compensation
- ✓ Passive and active harmonic compensation
- ✓ Fit for new build and for re-fit market
- ✓ Worldwide service and support

MARPOWER®

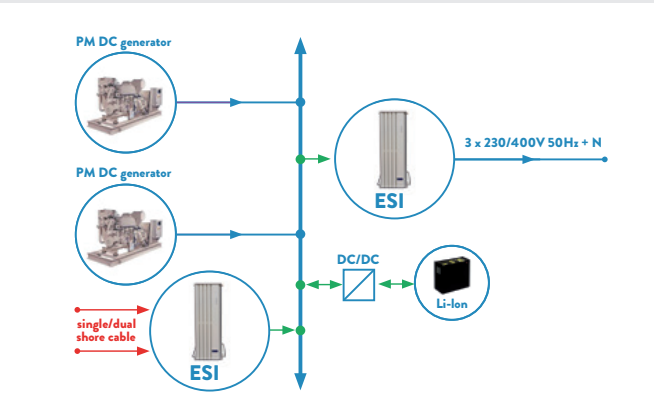
Due to its plug-and-play design the new MarPower ESI facilitates easy and flexible installation, operation and maintenance of energy storage, UPS and peakshaving solutions. The modular concept makes it easy to upgrade or expand the system for future demands. In addition, this advanced solution provides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

- ✓ 30 - 40 - 50 - 60 kVA of high quality output power.
- ✓ Supports up to 300 kW from a single system configuration.
- ✓ Provides galvanic isolation for maximum safety.
- ✓ Supports up to 900 kW from 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 voltage on request)
nom. current charge mode	105A
nom. current inverter mode	115A

AC

voltage nominal	3 x 400V rms + neutral (other voltages on request)	
voltage DC Power supply	170-520V	
frequency	50 Hz (other frequencies on request)	
frequency DC Power supply	40-70-Hz	
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	
MOD bus	RTU
USB	
hard wired IO	potential free contacts

MECHANICAL

Power	Weight	Size (HxWxD) in mm**
60kVA* (tower)	130 kg	900 x 412 x 660
120kVA*	300 kg	945 x 860 x 660
180kVA*	435 kg	1245 x 860 x 660
240kVA*	575 kg	1645 x 860 x 660
300kVA*	710 kg	1945 x 860 x 660

* Uout = 400V cos phi = 0,8

** W excl. Water connection

Cooling	forced air + valve controlled liquid (non corrosive, 5-6 ltr./min flow and between 0°C and 35°C)
Protection degree	IP22 (higher IP value on request)
Temperature	0-45°C, above reduced power
Humidity	0-95% non condensing
Colour	Ral 9010 (other colours on request)
Noise	< 60dBA at 1 mtr