

## MarPower ESI Energy Storage Inverter



MarPower Energy Storage Inverters, the optimal battery interface for your on board Hybrid application.

### Connecting a battery to the AC-bus by means of the ESI:

- Increases the energy efficiency of the generator with it's peakshaving functions
- Improves the power quality on board
- Provides reliable power by means of its UPS function and enables to have a fully silent ship.

When using a DC-bus on board, the ESI is the ultimate AC/DC shore power converter.

### Energy Storage Inverter

The MarPower ESI energy storage inverter is the ultimate building brick for energy storage, UPS and peakshaving systems due to its small size and extremely low weight and added functionality. This bi-directional and ultra-compact system converts the energy stored in batteries into a reliable power source to safeguard quality of power on board of yachts and mega yachts. But also, when having a high voltage DC-bus on board, the ESI can perfectly be used as a galvanic isolated shore converter or to create the 3-phase + neutral from the DC-bus.

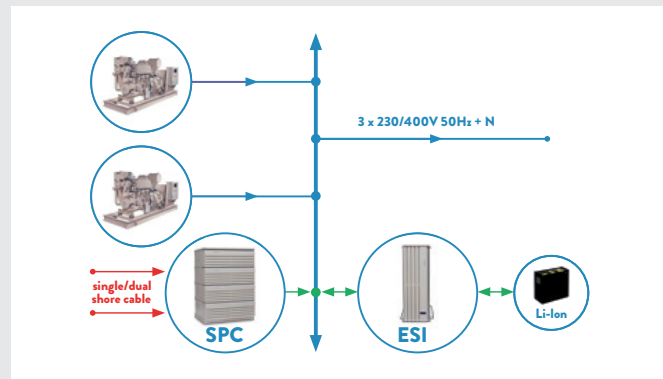


- ✓ World's smallest and lightest Energy Storage Inverter
- ✓ Small size: 0.5 kW / litre, this is up to 60 % reduction (compared to LF-transformer solutions)
- ✓ Low weight: 0.6 kW / kg, this is up to 70% reduction (compared to LF-transformer solutions).
- ✓ Easy installation and maintenance
- ✓ The solution for new built and refit
- ✓ Redundancy
- ✓ Optimal logistics
- ✓ Worldwide service and support

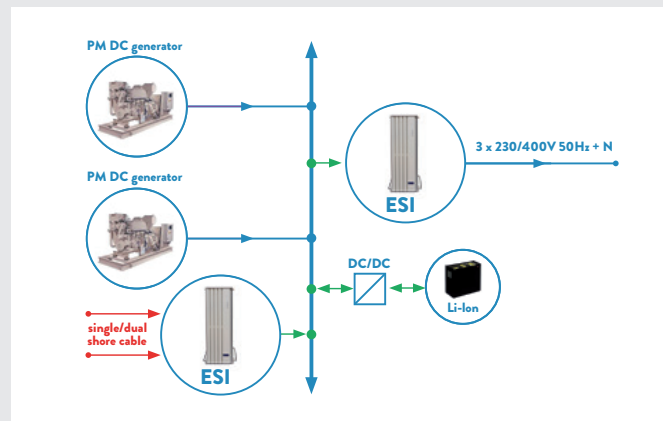
Due to its plug-and-play design the new MarPower ESI facilitates easy and flexible installation, operation and maintenance of energy storage, UPS and peakshaving solutions. The modular concept makes it easy to upgrade or expand the system for future demands. In addition, this advanced solution provides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