eekels | TBI

MARPOWER ESI

Eekels MarPower ESI series of Energy Storage Inverters, the optimal battery interface for a.o. Diesel-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.

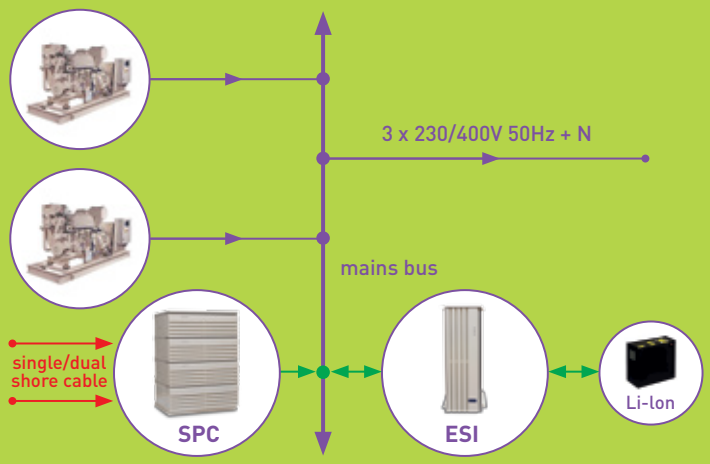
eekels | TBI

SENSATIONAL HIGHLIGHTS MARPOWER ESI

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.
  - > UPS functionality.
- Supports different battery types.
- Bi-directional power transfer (charging battery and generating mains).
- MODBUS control with a powerful set of commands.
- Low heat dissipation.
- Hybrid liquid-air cooling system: meaning normally liquid cooled, with ride-through capability in case of liquid cooling system malfunctioning.
- Shore converter function for DC-bus application.

System configuration example AC bus coupling



Specifications ESI

DC			Interface / diagnostics		
input voltage	330-450V, 565-750V (other voltage on request)		LCD display		
nom. current charge mode	180A		MOD bus	RTU	
nom. current inverter mode	195A		hard wired IO	potential free contacts	
AC			**Mechanical**	**Weight**	**Size (HxWxD) in mm****
voltage nominal	3 x 400V rms + neutral (other voltages on request)		60kVA*	130 kg	915 x 600 x 290
voltage DC Power supply	170-520V		120kVA*	300 kg	860 x 915 x 660
frequency	50 Hz (other frequencies on request)		180kVA*	435 kg	1115 x 915 x 660
frequency DC Power supply	40-70-Hz		240kVA*	575 kg	1465 x 915 x 660
nom. system power	30kVA-900kVA		300kVA*	710 kg	1720 x 915 x 660
nom. module power	30-40-50-60kVA		* Uout = 400V cos phi = 0,8		** W excl. Water connection
power derating	without liquid cooling derating till 50%				
units in parallel	up to 15 modules		**Cooling**	forced air + valve controlled liquid	
overload	120%	15 min	(non corrosive, 5-6 ltr./min flow and between 0°C and 35°C***)		
	150%	10 sec	*** lower temperature dependant on used coolant		
voltage distortion	< 3%				
voltage variation	± 1,5% (at min max load)		Protection degree	IP22 (higher IP value on request)	
frequency accuracy	± 0,05%		Temperature	0-45 degrees Celsius, above reduced power	
efficiency	> 94% (at nom. Battery voltage and full load)		Humidity	0 - 95% non condensing	
power losses	typical 70% to liquid 30% to air		Colour	RAL 9010 (other colours on request)	
			Noise	< 60dBA at 1 mtr	