

Marpower SPC-II HYBRID Shore Power Converter



Light, compact and powerful. Discover the Marpower SPC-II HYBRID Shore Power Converter. This air- and water-cooled system converts different shore voltages and frequencies to provide a fixed, reliable, and safe power supply on board. The converter is compatible with all ports worldwide.

The SPC-II HYBRID Shore Power Converter is the solution for mega yachts and other applications where size, weight and flexibility are important. The system is extremely compact and lightweight making it easy to install while saving space.

The hybrid cooling offers optimal cooling and therefore almost twice the output power than the standard SPC-II. It is also possible to run the converter without water cooling, but output power will be limited. The galvanic isolation prevents electrolytic corrosion and ensures a safe electrical system. Optionally, the shore converter can be used as an active harmonic filter during sailing.

We deliver worldwide service and support. With a flexible service team, agents worldwide, and stock at various locations.



Advantages of the Marpower SPC-II Hybrid Shore Power Converter

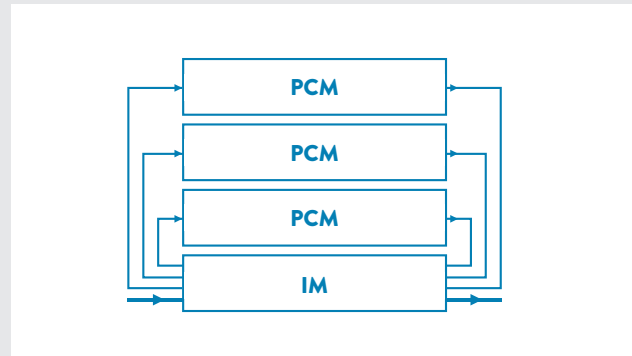
- ✓ Almost twice the output power compared to the standard SPC-II
- ✓ Hybrid cooling: air and water
- ✓ Small size: up to 50% reduction compared to a transformer
- ✓ Low weight: up to 65% reduction
- ✓ Without water cooling the system can run at 60% power
- ✓ Galvanic isolation for optimal safety
- ✓ Modular concept
- ✓ Seamless transfer function
- ✓ Worldwide service and support
- ✓ Optional: active harmonic compensation

Due to its plug-and-play design the Marpower SPC-II HYBRID facilitates easy and flexible installation, operation, and maintenance of shore power converter 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:

- ✓ Supports a wide variety of input voltages and frequencies
- ✓ Provides galvanic isolation for optimal safety
- ✓ Provides power conditioning of input power
- ✓ Supports from 30-300kVA in a single tower
- ✓ Supports up to at least 1.2MVA from multiple system configuration
- ✓ Supports multiple shore cords from different dockside supplies, without feedback risks.
- ✓ Supports a variety of applications, including: Frequency Converter and Power Conditioner
- ✓ Extremely low heat dissipation to the air
- ✓ Contributes to overall system reliability and availability
- ✓ Seamless power transfer

System configuration

Marpower Shore Power Converter is a flexible and modular solution. The figure shows a basic conversion system with a single shore cord input and a single connection towards the vessel.



PCM: the PCM is the power converter module and available in a 40kVA, 50kVA and 60kVA configuration. These PCMs can be paralleled up to at least 20 units (5 per system).

IM: the IM is the interface module and provides a safe and reliable way to distribute incoming and delivered power over individual PCMs with a maximum of 5 modules.

Single and Dual shore cord can be provided with optionally a switch to make the selection between the input cords. It also provides every powerblock on the input and output with a circuit breaker for safety and ability to disconnect a PCM to run on reduced power.

(remark: the liquid cooling installation is not part of the delivery)

INPUT

Input line voltages	170-520V, 1 or 3 phase
Frequency range	40-70Hz
Input power factor	> 0,99 at full load
Input current	95A per power module
Inrush current	<100% at rated current
Earth leakage current	< 2 mA per power module

OUTPUT

Output voltage	3 x 400V rms + neutral 50 Hz 3 x 208V rms + neutral 60Hz (other voltages and frequencies on request)
Nominal system power	30kVA – 1,2MVA
Nom. module power	40kVA / 50kVA / 60kVA at $U_{in} > 320V$ rms
Power derating	at input voltage 170-350V current limit till 95A (without liquid cooling derating till 60%)
Units in parallel	up to 20 modules
Overload	120% 15 min 150% 1 min
Voltage distortion	< 3%
Voltage variation	± 1% (at min max load)
Frequency accuracy	± 0,05% (at fixed load)
Efficiency	> 92%
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)	151 kg	900 x 435 x 685
60kVA* (horizontal)	150 kg	395 x 860 x 685
120kVA*	320 kg	950 x 860 x 685
180kVA*	461 kg	1250 x 860 x 685
240kVA*	604 kg	1650 x 860 x 685
300kVA*	745 kg	1950 x 860 x 685

* $U_{out} = 400V \cos \phi = 0.8$

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 per module