

## MarPower SPC-II HYBRID Shore Power Converter



MarPower Shore Power Converters convert worldwide available shore voltages and frequencies into a reliable power source. This product series is designed to meet the most stringent requirements of demanding installers and professional users.

The MarPower SPC-II HYBRID is the ultimate alternative for isolation transformers due to its small size and extremely low weight and added functionality.

The MarPower SPC-II HYBRID has all the benefits and features of the standard SPC-II, however has at higher input voltages almost double the output power due to the use of a hybrid cooling system, while the size and weight are only increased marginally. Hybrid cooling is an innovative way of cooling, which uses both liquid cooling as well as air cooling. In case the liquid cooling fails, the unit can run with reduced power as a standard SPC-II.



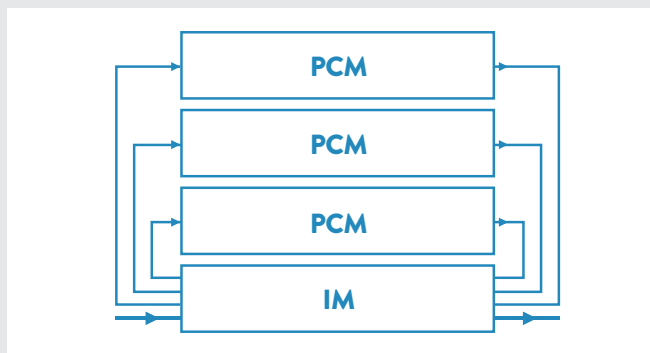
- ✓ Almost double the output power of the standard SPC-II
- ✓ Hybrid cooling: a combination of air and liquid cooling
- ✓ Small size: up to 50% reduction compared to a transformer
- ✓ Low weight: up to 65% reduction compared to a transformer
- ✓ Redundancy
- ✓ Optimal logistics
- ✓ Worldwide service and support

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 1,2MVA from multiple system configuration
- ✓ Supports multiple shore cords from different dockside supplies, without feedback risks.
- ✓ Support a variety of applications, including: Frequency Converter and Power Conditioner
- ✓ Extreme 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 with a maximum of 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	
MOD bus	RTU
USB	
hard wired IO	potential free contacts

### MECHANICAL

Power	Weight	Size (HxWxD) in mm**
60kVA*	145 kg	390 x 800 x 660
120kVA*	313 kg	945 x 800 x 660
180kVA*	453 kg	1245 x 800 x 660
240kVA*	595 kg	1645 x 800 x 660
300kVA*	735 kg	1945 x 800 x 660

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

\*\* W= excl.water valve

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 per module