

# Mass Combi Ultra



Compact and lightweight  
inverter/battery charger

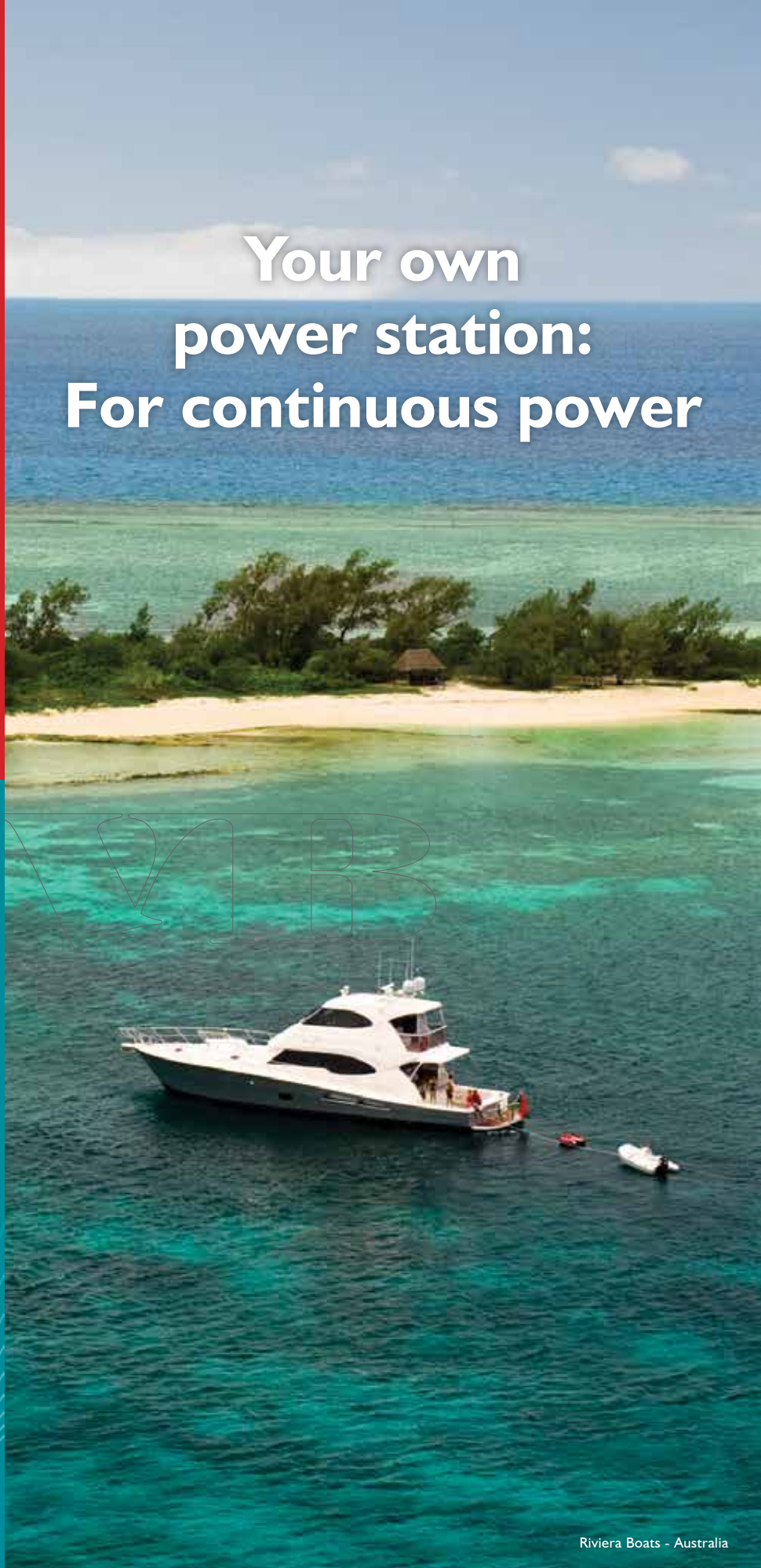
Seamless switching between  
generator and grid

Separate second charger

Integrated MPPT solar  
charge regulator

Parallel & 3-phase operation

## Your own power station: For continuous power



Riviera Boats - Australia

**MASTERVOLT**  
THE POWER TO BE INDEPENDENT





# Mastervolt Mass Combi Ultra

## The new standard in power systems

Mastervolt, the Dutch leader in off-grid electrical systems, has unveiled an innovative new Mass Combi Ultra series. This compact inverter/charger combination with a smart transfer system, highly efficient MPPT solar charge regulator and separate second charger is all enclosed within a robust quality unit that is easy to install.

Following the ever-increasing demand for higher power and greater comfort, systems are becoming more and more complex. In response the Mastervolt team went back to the drawing board to redesign what was already the best product in the market. Our goal was to fulfil the requirements of today and tomorrow, which the Mass Combi Ultra achieves by integrating all the common needs of an electrical system. This simplifies installation, lowers overall costs and significantly increases performance.

## The latest technologies

The Mass Combi Ultra includes revolutionary technology developed by Mastervolt's own engineering team. Notable achievements include combining the latest V6 high frequency converter technology with ultra-fast and powerful DSP controls. This offers major user benefits such as a low 'no load' current, preventing your batteries from draining, and extreme peak power capability which allows high current loads such as air conditioning to start-up easily without power dips or light flickering. Another benefit is the high efficiency, which makes the Mass Combi Ultra the most complete product in its class.

"The Mass Combi Ultra was developed for the rapidly evolving market in which we specialise. The compact unit with advanced electronics offers mobile and maritime businesses a solar input, a generator input, and a parallel connection, all with very quiet operation. Meanwhile the commercial and industrial sectors benefit from having more power to hand along with the option for three phase operation. The Mass Combi Ultra is available in a series of models, with capacities from 3000 Watt to 7000 Watt. This product is a great leap forward that raises the bar and sets new industry standards."

*Daan Hobbelen, Product Manager Power Conversion & Storage Mastervolt*

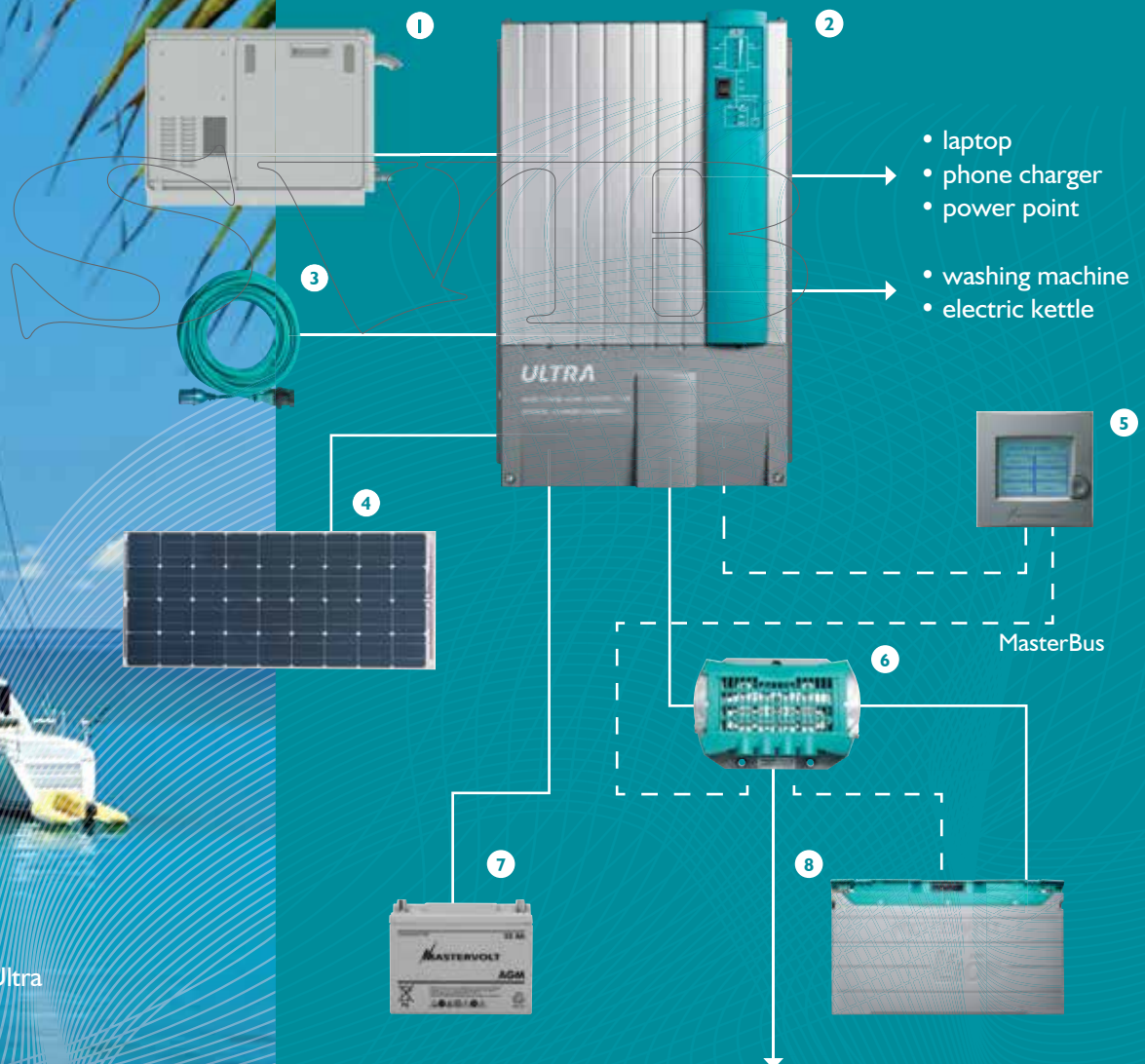
ULTRA



# Mass Combi Ultra in a Mastervolt system



The new Mass Combi Ultra fits perfectly into Mastervolt systems. All components are easily connected via MasterBus and installation can be controlled and monitored intuitively, even with just one MasterView Easy touchscreen. This will provide and manage all information about the Combi, the batteries and other sources such as the generator, grid or solar panels. The system is also suitable for Digital Switching, Mastervolt's decentralised digital switching system.



- 1 Generator
- 2 Mass Combi Ultra
- 3 Grid power
- 4 Solar panel
- 5 MasterView Easy
- 6 DC Distribution system
- 7 AGM starter battery
- 8 Lithium Ion battery

- DC equipment:
- switch panel
  - Digital Switching
  - alternator, etc.



### Quiet operation

The Mass Combi Ultra provides a high yield that, combined with the *Active Optima Cooling* concept, ensures minimal use of the fan.

The advanced thermal design offers an optimal performance when needed, and quiet operation when required. The Combi can provide up to 50% of the charging current or inverter capacity without fan cooling. This is perfect for night-time operation; when little power is consumed, the fan stops turning for silent operation. For maximum capacity requirements or when the ambient temperature is very high, the *Active Optima Cooling* concept regulates the fan speed in a linear way. This ensures that it never spins too fast or makes an irritating ticking noise.

### Higher yield from solar power

On the DC side the Mass Combi Ultra has interesting features such as the solar input and the independent second charger output. Mastervolt has leveraged on the knowledge gained in the grid-connected solar sector to make a super-efficient built-in MPPT solar charge regulator. Compared to most regulators on the market, the MPPT offers a far higher yield from solar power for charging your batteries.

### Two AC inputs

The Mass Combi Ultra features separate AC inputs for the generator and shore power, both adjusted to the specific characteristics of each power source. Thanks to the ultra-fast controls, transfer to and from the inverter is seamless. This ensures you continuous power without flickering or the risk of sensitive devices like computers being switched off

### Parallel and 3-phase operation

The Mass Combi Ultra functionality goes beyond stand-alone operation: the design allows parallel and 3-phase operation for larger applications up to 35 kW.







### Unparalleled performance

The Mass Combi Ultra 24/3500-100 can provide continuous 3,500 W inverter power at 40 °C, and offers a peak power of 200%. Moreover, the Mass Combi Ultra comes with the most powerful battery charger in its class; with an unmatched 100 A at full charge voltage for the fast charging of the main battery

### Separate second charger

All Mass Combi Ultras have an integrated second charger which (in most cases) can charge both 12 V and 24 V batteries; a practical function that simplifies installation and reduces costs for the end user.

### Optimal battery usage

Based on Mastervolt's many years of experience, the Mass Combi Ultra features a number of characteristics that ensure you get the most from your batteries in terms of maximum power and lifespan. Key examples include the pure, interference-free DC voltage that prevents unnecessary heating of the batteries and a low 'no load' current that guarantees every Ah is deployed in an optimal way.

### Home comforts

The Mass Combi Ultra features separate AC outputs. One is permanently powered to supply critical loads such as refrigerators and audio systems. The other output is for non-preferential loads including water heaters that can be switched off automatically at any desired setting, always to the benefit of the critical loads.

### Ease of installation

The carefully designed connections were optimised for installers. Installation and connection have been made quick and easy via a logic layout, solid terminals and by removing the need for cable glands.

# Specifications Mass Combi Ultra



12/3000-150



24/3500-100



48/3500-50



24/5000-125



48/5000-60

UPCOMING  
MODELS

Product code	38013000	38023500	38043500	38025000 / 38027000	38045000 / 38047000
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## GENERAL SPECIFICATIONS

Display/read-out	LED display	LED display	LED display	LED display	LED display
Dimensions, hxxwxd	472x318x175 mm	472x318x175 mm	472x318x175 mm	522x318x175 mm 472x318x330 mm	522x318x175 mm 472x318x330 mm
Weight	15 kg	15 kg	15 kg	23 kg / 30 kg	23 kg / 30 kg
Approvals	CE, E-mark, ABYC	CE, E-mark, ABYC	CE, E-mark, ABYC	CE, E-mark, ABYC	CE, E-mark, ABYC

## TECHNICAL SPECIFICATIONS

Charge characteristic	IUoU, automatic 3-step+ for AGM/gel/Lithium Ion/flooded/flooded traction/spiral/NiCad				
Ground relay	adjustable	adjustable	adjustable	adjustable	adjustable
Temperature range (ambient temp.)	-25 °C to 80 °C, derating > 40 °C				
Protection degree	IP23 (vertical mounting)				
Protections	over temperature, AC over load, AC short circuit, DC short circuit, high battery, low battery				
MasterBus compatible	yes	yes	yes	yes	yes

## SPECIFICATIONS SINE WAVE INVERTER

Nom. DC voltage	12 V (9.5 – 15.5 V)	24 V (19 – 32 V)	48 V (38 – 62 V)	24 V (19 – 32 V)	48 V (38 – 62 V)
Output voltage (± 2%)	230 V - 50/60 Hz (± 0.005%) selectable				
Output waveform	true sine wave, Thd < 1% under standard conditions				
Cont. power at 40 °C, cos phi I	3000 W	3500 W	3500 W	5000 W / 7000 W	5000 W / 7000 W
Surge capability	6000 W	7000 W	7000 W	10000 W / 14000 W	10000 W / 14000 W
Parallel configuration	yes, up to 10 standard	yes, up to 10 standard	yes, up to 10 standard	yes	yes
3-Phase configuration	yes	yes	yes	yes	yes
Max. efficiency	90%	92%	93%	92%	93%
Max. ripple on DC (battery)	< 10%	< 10%	< 10%	< 10%	< 10%
No-load power consumption (ON/inverter OFF/OFF)	16 W / 2 W / 0 W	16 W / 2 W / 0 W	16 W / 2 W / 0 W		

## SPECIFICATIONS BATTERY CHARGER

Nom. input voltage	180 – 275 V	180 – 275 V	180 – 275 V	180 – 275 V	180 – 275 V
Nom. battery voltage	12 V	24 V	48 V	24 V	48 V
Max. charge current at 40 °C	150 A bij 14,25V	100 A bij 28,5 V	50 A bij 57 V	125 A bij 28,5 V 200 A bij 28,5 V	60 A bij 57 V 100 A bij 57 V
Charge method secondary charger	IUoU, automatic 3-step+ or constant voltage				
Secondary charger output voltage	12 V	12/24 V selectable	12/24 V selectable	12/24 V selectable	12/24 V selectable
Secondary charger output current	10 A	10 A	10 A	10 A	10 A
Temperature sensor battery	yes, included	yes, included	yes, included	yes, included	yes, included

## SPECIFICATIONS TRANSFER SYSTEM

Generator input (switched)	50 A	50 A	50 A		
Mains input (switched)	30 A	30 A	30 A		
AC output 1	67 A	67 A	50 A		
AC output 2 (switched)	50 A	50 A	50 A		
Transfer time	seamless (UPS, < 1 ms)	seamless (UPS, < 1 ms)	seamless (UPS, < 1 ms)	seamless (UPS, < 1 ms)	seamless (UPS, < 1 ms)
Transfer voltage range (adjustable)	180 – 275 V	180 – 275 V	180 – 275 V	180 – 275 V	180 – 275 V
Transfer frequency range (adjustable)	35 – 65 Hz	35 – 65 Hz	35 – 65 Hz	35 – 65 Hz	35 – 65 Hz
Power Sharing / Generator/Mains Support	yes	yes	yes	yes	yes

## SOLAR INPUT (DC) SPECIFICATIONS

Input voltage range	15-100 V	15-100 V	15-100 V		
Max. PV power	500 Wp	500 Wp	500 Wp		
Max. input current	18 A	18 A	18 A		
Max. charge current	30 A at 14.25 V	15 A at 28.5 V	7.5 A at 57 V		
MPP voltage range at nom. power	35-80 V	35-80 V	35-80 V		

Subject to change. For more information, go to [www.mastervolt.com/combis](http://www.mastervolt.com/combis)