



# MASTERVOLT

MARINE

EMERGENCY VEHICLE

INDUSTRIAL

RV

## 2 0 2 3

# NAVICO GROUP

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# What makes Mastervolt different:

Mastervolt is a strong, innovation-driven brand. This capacity to innovate is what truly sets Mastervolt apart. Mastervolt leads the marine and mobile industries in autonomous power solutions. Technologically advanced Lithium Ion batteries and fully integrated power conversion equipment provide off-grid power whether on the water or on the road.

## I Innovation and Product Development

From power conversion and storage to integrated systems, Mastervolt products are at the forefront of technology. Pioneering research is within the brand's DNA, highly skilled engineers are responsible for translating tomorrow's technology into the ultimate performance of today. With comprehensive processes, the Mastervolt team sources and tests the best components and pushes all new product designs to the limits, ensuring the most reliable and complete end product. In essence, customers will receive the highest quality products.

## I System Solutions

Whatever the industry or application, Mastervolt products are power solution focused and designed to easily integrate into comprehensive systems. From DC battery power and power conversion products to complete digital switching technologies and monitoring at the touch of a finger, Mastervolt products provide the flexibility and can be fully customized for your applications.

## I Worldwide Network

The Mastervolt brand offers a global service. With offices and partners in more than 80 countries, top class brand expertise and support is available throughout the world. Our customers know that wherever they are, efficient support is on hand whether it is a technical enquiry or to track the progress of an order.





## NEW Products



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### CombiMaster Inverter/Charger

The CombiMaster inverter/charger provides the most power and charging in the series. The new 3500W version comes in 12V and can be paralleled stacked in a single system up to 10.5kW. The new 24V models in 3500W & 4500W and 48V 5000W unit can create parallel and series stacked systems to power up to 35kW and be used to power split phase loads. All models provide pure sine wave inverter power and over 60-200A multi-chemistry battery charging, plus the intelligent new design is NMEA 2000 and MasterBus compatible.

Part # 35513500	12/3500-200A 120V
Part # 35523500	24/3500-100A 120V
Part # 35524500-HT	24/4500-100A 120V
Part # 35545000-HT	48/5000-120A 120V



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### Mac Plus

The Mac Plus is a DC/DC converter to supply a stable power supply to batteries. For use when the alternator is inactive and the battery voltage is very low or located a distance away from charging source. The Mac Plus comes with integrated MasterBus (CAN) communication and E-mark certification. It seamlessly charges Lithium Ion, Gel and AGM batteries via a 3-stage charging method and is available in 12V, 24V, 36V & 48V options.

Part # 81205105	12/12-50
Part # 81205305	12/24-30
Part # 81205205	24/12-50
Part # 81205405	24/24-30
Part # 81206205	12/48-15
Part # 81206405	24/48-15



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### MLI Lithium Ion Series

The MLI series delivers ultimate Lithium Ion performance even under the harshest conditions, such as high charge and discharge currents, wet environments, mechanical shocks or vibrations. This is realized by combining our best Lithium-Iron Phosphate (LiFePO4) cells with a proprietary Battery Management System (BMS) inside a sturdy, waterproof housing.

Part # 66013000	12/3000
Part # 66016000	12/6000
Part # 66026000	24/6000



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### Ultra Connection Kit

Ultra Connection Kit With the MLI Ultra Relay and Fuse Connect Kit, is an integrated safety switch for use with MLI Ultra Lithium Ion batteries. The kit includes all the required safety accessories in a safe, efficient, and compact way right on top of the MLI Ultra battery. Perfect fit for MLI Ultra 12/2750 and 12/5500 & 24/5500.

Part # 79007712	12V
Part # 79007724	24V



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### Mastervolt-CZone Waterproof Drop Cable

Adapter cable with integrated waterproof boot for connecting MLI Ultra batteries with CZONE support to the CZONE or NMEA 2000 network.

Part # 77061050	1.6 ft (0.5m)
Part # 77061100	3.3 ft (1m)
Part # 77061200	6.6 ft (2m)
Part # 77061500	16.4 ft (5m)
Part # 6369230060	Li-Ion Waterproof Field Installable Plug



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### Alpha Compact Alternators





Alpha Compact "automotive style" alternators provide an easy fit on factory-installed PTO (power take-off) brackets available from most engine manufacturers. Alpha Compact offers lower weight, smaller dimensions and reduced fuel consumptions. Available in 12V and 24V 200A models – specific to Mercedes brackets.

Part # 46228203	28/200
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# POWER CONVERSION

## Mastervolt Inverter/Chargers



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The Mastervolt Combi Inverter/Chargers are recognized as the best product on the market and offers proven reliability.

The Mass Combi Ultra/Pro Inverter/Chargers are based on the well-known Mass Combi range but is even more compact, stronger more efficient and comprehensive.

## AC Master & Mass Sine Wave Inverters



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Mastervolt offers a complete range of inverters from 300 watt to 40 kWatt. The AC Master is ideal for small and medium-sized applications, while Mass Sine Inverters and the advanced Sine Ultra Inverters are mainly intended for larger systems and for professional purposes. Mastervolt offers inverters for 230V/50Hz and 120V/60Hz.

## ChargeMaster Plus & Mass Battery Chargers



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The ChargeMaster and ChargeMaster Plus are suitable for recreational and semi-professional use and safely charges multiple battery banks at the same time.

Mass battery chargers are great for the tougher tasks in professional and semi-professional situations. With its integrated alarm functions and various approvals, the Mass is the best choice for professionals.





# POWER CONVERSION

## Mac Plus, Mac, & Magic Series & DC Master DC to DC Converters



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These versatile converters include an energy saving dimmer function as well as output voltage stabilization. Plus, if there are several power consuming devices onboard, the parallel connection allows for capacity of 40, 60, or more amps.

## Transfer Systems



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The Mastervolt transfer system helps you regulate your shore, generator or inverter power and automatically selects the right power sources at the right time. With Mastervolt you can cook and do laundry at the same time, or watch TV with the air conditioning on full blast.

Ocean Race's grueling and challenging conditions are a testament to the quality engineering and design put into each Mastervolt product aboard.



## Mastervolt Inverter/Chargers:

### High-quality power supply with first-class comfort, wherever you are

Inverter/Chargers integrate a powerful battery charger, a quiet and efficient inverter and a versatile switching system in one robust, lightweight and compact device. This multi-faceted product offers a carefree power supply for recreational and professional use.

Possible applications vary from launches to yachts, from campers to demo trucks, from holiday homes to remote businesses, and from backup systems to grid connected systems with energy storage. Each Mass Combi, Mass Combi Ultra and Mass Combi Pro Inverter/Charger can be used as an automatic stand-alone device for a non-stop power supply or as part of a larger power system.



### MasterBus/CZone Compatible



The endless MasterBus configuration possibilities are ideal for advanced system integration. The MasterBus interface allows direct modification of system parameters with immediate result. For applications that require duplication (series build of systems) CZone communication is ideally suited. You simply design the configuration file and duplicate this to all systems with one click.

### Which Inverter/Charger suits you?

#### Mass Combi Ultra

The Mass Combi Ultra is more compact, stronger and more efficient. In addition to easy installation and higher capacities, the Combi Ultra has various unique benefits such as full capacity in high temperatures, an integrated solar charge regulator, and separate grid power and generator inputs. Up to ten units can be parallel switched plus a 3-phase power supply. Available for systems ranging from 3,000 watt to 40 kW, designed for professional and semi-professional use.

#### Mass Combi Pro

The Mass Combi Pro is the perfect solution for professional applications. This version has all the Mass Combi Ultra features but without solar input and secondary charger. The Pro provides the optimal balance of strength, versatility and cost.

#### CombiMaster

This latest Mastervolt innovation delivers unmatched performance at an unprecedented price, and offers the best of both worlds: an advanced battery charger and a quiet inverter combined in one compact device. The CombiMaster is easy to install without expert know-how thanks to plug & play capability. With a single AC input and intuitive LEDs, it is compatible with MasterBus, CZone and NMEA 2000, the CombiMaster ranges from 1500 to 5000w Watt. Suitable for recreational and semi-professional use.



### Power Assist for extra power

If you require more power than the grid or generator can provide, the Mass Combi series will make up the shortfall by inverting from the battery. The Combi also ensures that the battery is recharged once the peak demand has passed.



### Ease of installation

The integrated design of three devices into one, lightweight body and robust mounting clamps give considerable savings in (labor) time and costs.

### Exceptional performance



The inverter is quiet, clean and efficient, and offers the full capacity even in extreme ambient temperatures. Pure sine wave energy and a peak capacity of 200% guarantee a problem-free start, even for the heaviest loads.

### Not just any battery charger

The built-in battery charger uses Mastervolt's proven 3-step+ charging technology to allow the optimal charging of all battery types, including our advanced Lithium Ion models. The battery charger supplies a maximum charge current, even with a higher charge voltage, and speeds up the complete recharging of your batteries.



## Mass Combi Ultra & Mass Combi Pro Inverter/Chargers: Powerful, complete and versatile

The Mass Combi Ultra series comprises several models, varying from 3000 W to 3500 W. For higher capacities up to 35 kW the Mass Combi Ultra can be used in parallel or 3-phase configurations. An efficient and integrated solar charge regulator helps make the most of your solar panels.

The Mass Combi Ultra Inverter/Charger is equipped with the latest technologies. The new inverter technology ensures a uniquely low stand-by use, while an ultra-fast digital signal processor guarantees seamless switching between all available energy sources. Power assist prevents power dips and failures, even with a weak electricity connection or small generator. Moreover, all Mass Combi Ultra Inverter/Charger models are equipped with MasterBus.

### Higher yield from solar energy

At Mastervolt we used our knowledge gained in the grid connected solar sector to make a super-efficient built-in MPPT (Maximum Power Point Tracker) solar charge regulator. Compared to most solar charge regulators on the market, the MPPT offers up to 30% more yield from solar panels. The solar panels power 'hidden' consumers and keep your batteries in optimal condition.

### 'Pro' models

For professional applications, Mastervolt offers a 'Pro' model, featuring all Ultra functions, but without the solar input and slave battery charger.

### Mass Combi Ultra Features

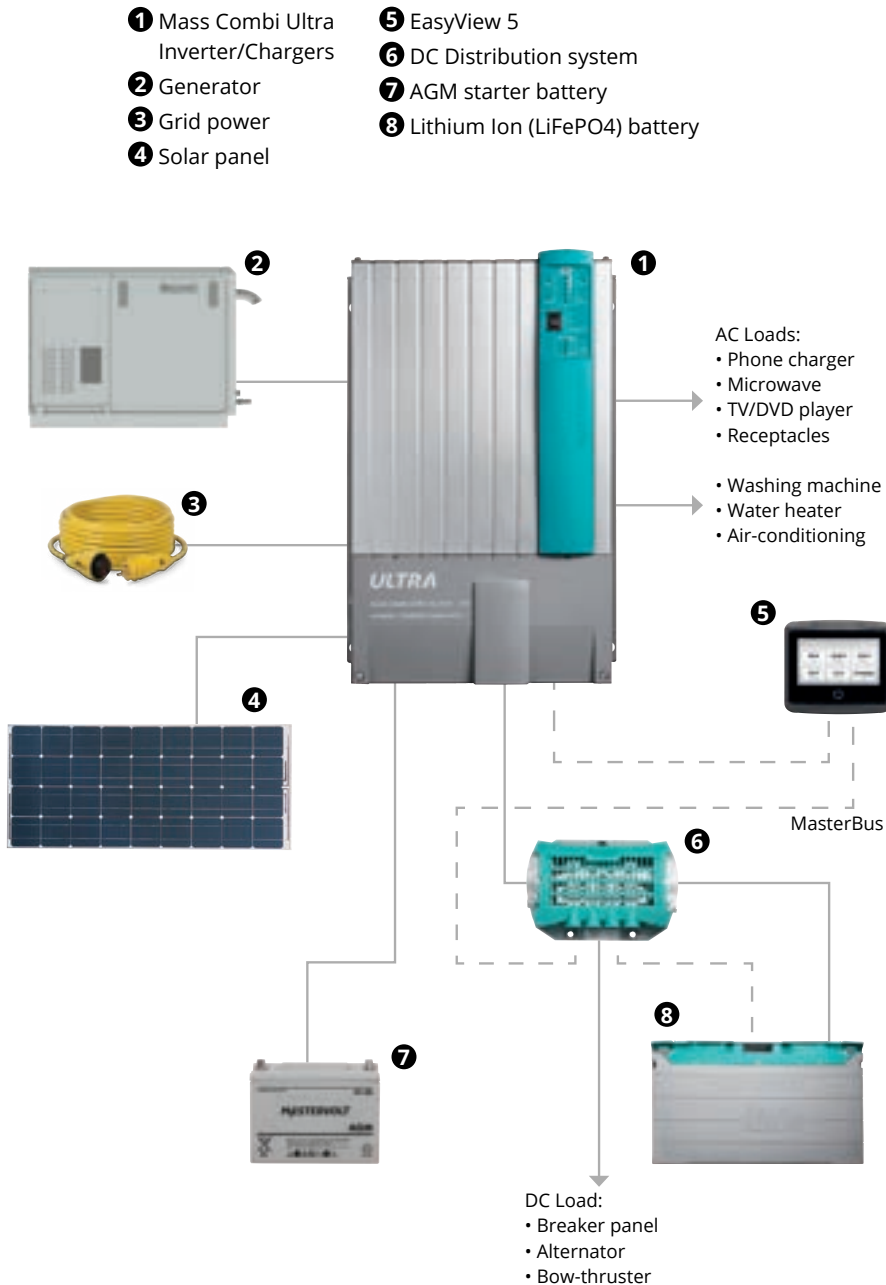
- For professional and semi-professional use
- Quiet, powerful inverter with 200% peak power
- Compact, lightweight and hum-free thanks to HF technology
- Pure sine wave voltage prevents malfunctions and damage to sensitive equipment such as adapters
- High yield and more power from your batteries
- Intelligent 3-step+ battery charger with low DC ripple current for fast charging times and long battery life
- Power Assist: prevents blown fuses
- A dynamic battery voltage window allows you to enjoy AC power for longer without damaging your batteries
- Active Optima Cooling concept prevents unnecessary fan noise
- Charges two individual battery banks simultaneously (Mass Combi Ultra)
- An integrated MPPT solar charge controller allows for 30% more yield from solar power for charging the batteries (Mass Combi Ultra)
- Quick installation and reliable professional connections
- CE and ABYC certified



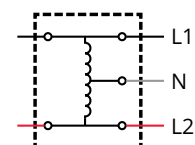


## Standard MasterBus System—Mass Combi Ultra and Mass Combi Pro Inverter/Chargers—230V up to 35 kW

- Compact and lightweight inverter/charger combination
- Two AC inputs with seamless transfer between generator and shore power
- Integrated MPPT solar charger regulator
- Parallel & 120V/240V Split-Phase operation (with the use of autoformer)



Auto Transformer



### 120V/240V split-phase operation

For more powerful systems the Mass Combi Ultra and Mass Combi Pro Inverter/Chargers allow parallel use up to 10 units. With 240V input and the use of an auto transformer the units provide 120V/240V split-phase. Powering the 120V and 240V ships AC loads.

### Best in class performance

The Mass Combi Ultra and Mass Combi Pro Inverter/Chargers can provide continuous inverter power at 105°F (40°C) with a 200% startup surge. The battery charger is best in its class providing a powerful charge to the main house battery bank.

### Ease of installation

The carefully designed connections were optimized 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.

### Dual AC inputs and outputs

The Mass Combi Ultra and Mass Combi Pro Inverter/Chargers have inputs for generator or mains supply, each optimized for the power source. A robust intelligent transfer system switches seamlessly between AC power, generator and inverter, and ensures a constant power supply. Flickering lights or failure of electronic equipment belong to the past. Separate AC outputs provide the ability to power heavy users via mains and/or generator.

### Higher yield from solar power

On the DC side the Mass Combi Ultra Inverter/Chargers has interesting features such as the solar input and the 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.

### Home comforts

The Mass Combi Ultra and Mass Combi Pro Inverter/Chargers feature 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.

### Optimal battery usage

Based on Mastervolt's many years of experience, the Mass Combi Ultra and Mass Combi Pro Inverter/Chargers feature 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.

### Quiet operation

The Mass Combi Ultra and Mass Combi Pro Inverter/Chargers can provide up to 50% of the charging current or inverter capacity without fan cooling. This is perfect for night-time operation; if little power is consumed, the fan stops turning and goes silent. When maximum capacity is required, or the ambient temperature is very high, the Active Optima Cooling concept regulates the fan speed in a linear way, ensuring that it never spins too fast or makes any unnecessary ticking noises.

## Mass Combi Ultra & Mass Combi Pro Inverter/Chargers

### Specifications – 230V







Mass Combi Ultra  
12/3000-150



Mass Combi Ultra  
24/3500-100



Mass Combi Ultra  
48/3500-50

Part #	38013000	38023500	38343500
<b>Specifications Sine Wave Inverter</b>			
Nominal DC voltage	12V (9.5–16V)	24V (19–32V)	48V (38–62V)
Output voltage	180–260V, adjustable	180–260V, adjustable	180–260V, adjustable
Output waveform	true sine	true sine	true sine
Continuous power at 104°F (40°C), cos phi 1	3000 W	3500 W	3500 W
Surge capability	6000 W	7000 W	7000 W
Parallel configuration For larger systems, an external transfer system is required	yes, up to 10 standard	yes, up to 10 standard	yes, up to 10 standard
3-Phase configuration	yes, up to 3x3	yes, up to 3x3	yes, up to 3x3
Max. efficiency	≥ 90%	≥ 92%	≥ 93%
Energy saving mode consumption	7 W	7 W	7 W
<b>Specifications Battery Charger</b>			
Max. charge current at 104°F (40°C) adjustable	150A at 14.25V	100A at 28.5V	50A at 57V
Secondary charger output voltage	12V	12/24V selectable, 3-step+	12/24V selectable, 3-step+
Secondary charger output current	10A	10A	10A
Battery temperature sensor	yes, included	yes, included	yes, included
<b>Specifications Transfer System</b>			
AC input (generator)	50A (switched)	50A (switched)	50A (switched)
AC input (mains)	30A (switched)	30A (switched)	30A (switched)
AC output 1	67A	67A	67A
AC output 2	50A (switched)	50A (switched)	50A (switched)
Transfer speed	seamless (< 1 ms)	seamless (< 1 ms)	seamless (< 1 ms)
<b>Solar Input DC Specifications</b>			
Input voltage range	25–50V	25–100V	n.a.
Max. PV peak power	500 Wp	500 Wp	n.a.
Max. input current	19A	19A	n.a.
Max. charge current	30A at 14.25V	15A at 28.5V	n.a.
MPP Tracker	full power at 25–50V	full power at 35–80V	n.a.
<b>General Specifications</b>			
Display/read-out	LED display	LED display	LED display
Dimensions, hwxwx	18.6" x 12.5" x 7" 472 x 318 x 178 mm	18.6" x 12.5" x 7" 472 x 318 x 178 mm	18.6" x 12.5" x 7" 472 x 318 x 178 mm
Weight	33.7 lb / 15.3 kg	33.7 lb / 15.3 kg	33.7 lb / 15.3 kg
Approvals	CE, E-mark, ABYC, RMRS	CE, E-mark, ABYC, RMRS	CE, E-mark, ABYC, RMRS
<b>Technical Specifications</b>			
Charge characteristic	IUoUo, automatic 3-step+ for AGM/Gel/MLI/flooded/traction/spiral		
Ground relay	yes, configurable	yes, configurable	yes, configurable
Temperature range (ambient temp.)	-13°F to 140°F, derating > 104°F ( -25°C to 60°C, derating > 40°C)		
Cooling	vario fan	vario fan	vario fan
Protection degree	IP23 (vertical mounting)	IP23 (vertical mounting)	IP23 (vertical mounting)
Protections	over-temperature, overload, short circuit, high/low battery voltage		
MasterBus compatible	yes	yes	yes
<b>Options</b>			
Temperature Sensors 41500500, 6M 41500800, 15M	 included option	included option	included option
EasyView 5 77010310	 option	option	option
Waterproof system monitor with 'daylight readable' color display and intuitive multi-language touchscreen to show the key system information at a glance. There is also a logbook feature for warnings and alarms, along with a buzzer and alarm notifications. The home button gives access to favorite pages.			
Mastervolt USB Interface 77030100	 option	option	option
Communication port between MasterBus and the USB port of your PC; makes possible reading and configuration of your MasterBus system on the PC when combined with MasterAdjust software (free to download).			
RJ12 communication / sync cable, available lengths: 3.3', 9.8', 19.7', 32.8' or 49.2'	 option	option	option
High quality communication cable fitted with RJ12 type modular plugs, suitable for connecting a remote control panel. Also suitable as a sync cable for Mass Combi Ultra or Mass Combi Pro Inverter/Chargers models, both in parallel or 3-phase configurations.			



Mass Combi Pro  
12/3000-150

**38513000**



Mass Combi Pro  
24/3500-100

**38523500**

12V (9.5–16V)	24V (19–32V)
180–260V, adjustable	180–260V, adjustable
true sine	true sine
3000 W	3500 W
6000 W	7000 W
yes, up to 10 standard	yes, up to 10 standard
yes, up to 3x3	yes, up to 3x3
≥ 90%	≥ 92%
7 W	7 W
150A at 14.25V	100A at 28.5V
n.a.	n.a.
n.a.	n.a.
yes, included	yes, included
50A (switched)	50A (switched)
30A (switched)	30A (switched)
67A	67A
50A (switched)	50A (switched)
seamless (< 1 ms)	seamless (< 1 ms)
n.a.	n.a.
n.a.	n.a.
n.a.	n.a.
n.a.	n.a.
n.a.	n.a.
LED display	LED display
18.6" x 12.5" x 7"	18.6" x 12.5" x 7"
472 x 318 x 178 mm	472 x 318 x 178 mm
33.7 lb / 15.3 kg	33.7 lb / 15.3 kg
CE, E-mark, ABYC	CE, E-mark, ABYC
IUoUo, automatic 3-step+ for AGM/Gel/MLI/flooded/traction/spiral	
yes, configurable	yes, configurable
-13°F to 140°F, derating > 104°F ( -25°C to 60°C, derating > 40°C)	
vario fan	vario fan
IP23 (vertical mounting)	IP23 (vertical mounting)
over-temperature, overload, short circuit, high/low battery voltage	
yes	yes
included option	included option
option	option
option	option
option	option





## CombiMaster Inverter/Chargers **NEW**

The CombiMaster inverter/charger delivers pure sine wave inverter power and multi-chemistry battery charging plus the intelligent new design communicates seamlessly with NMEA 2000, CZone, and MasterBus networks.

Designed with the customer in mind and using the latest technology, the CombiMaster is all about user-friendliness and reliability. But don't let that friendly appearance misguide you: the powerful CombiMaster range drives even the most complex and heavy loads with ease!

With the CombiMaster, power dips and failures belong to the past. The automatic AC transfer system switches seamlessly between generator or mains and inverter output, ensuring a constant power supply. Its Power Assist function prevents tripping of the mains fuse in case you're connected to a weak land line or small generator.

The CombiMaster delivers unmatched performance at an unprecedented price. As you would expect from Mastervolt, the CombiMaster is completed with MasterBus, CZone and

NMEA 2000 compatible communication, allowing for a broad range of monitoring and system integration options.

The CombiMaster inverter/charger replaces the current Mass Combi.

WORKS WITH  
**CZONE**



### CombiMaster Features

- Dependable quality for leisure and semi-professional applications
- Most compact and lightweight inverter/charger in its class
- Reliable, cost effective and hum-free
- High power rating and >200% peak power to start even the heaviest loads
- Pure sine technology prevents malfunctions and damage to electronic equipment
- Low-loss HF technology allows for longer operation from your batteries
- Powerful and Intelligent 3-step+ battery charger for fast and safe charging
- Fast, automatic switching between mains and inverter mode
- Power assist prevents blown mains fuses.
- Generator compatible
- Quick installation and heavy duty connections
- UL, CE and E-mark certified
- With a DC input voltage range from 10-18V DC and flat battery support at 25% under 10V. The new CombiMaster ensures fast, safe, and efficient charging of your Flooded, AGM, Gel, Li-ion batteries.
- Wide AC input range (90-140V AC) insures functionality of AC devices even with adverse input power conditions
- The new 24V models in 3500W & 4500W and 48V 5000W unit can create parallel and series stacked systems to power up to 35kW and be used to power split phase loads.

### Remote Control and Monitoring Options

- MasterBus compatible via SmartRemote or EasyView 5 displays.
- CZone compatible via Control X, Touch 5 or Touch 10.
- NMEA 2000 compatible via 3rd Party MFD.



## CombiMaster Inverter/Chargers

**EXPANDED  
OFFERING**

### Specifications – 120V



CombiMaster  
12/1500-60



CombiMaster  
12/2000-100



CombiMaster  
12/3000-160



CombiMaster  
12/3500-200

Part #	35511500	35512000	35513000	35513500
General Specifications Sine Wave Inverter				
Nominal DC voltage	12V (10.2–16V)	12V (10.2–16V)	12V (10.2–16V)	12V (10.2–16V)
Continuous power at 104°F (40°C)	1500 W	2000 W	3000 W	3500 W
Peak power (30 sec)	2250 W	3000 W	4500 W	5250 W
Surge power (5 sec)	3000 W	4000 W	6000 W	7000 W
Parallel Stacking	no	no	no	yes, up to 3
Synchronize with mains/generator	yes	yes	yes	yes
Output voltage	120V (50/60 Hz, configurable)		120V (50/60 Hz, configurable)	
Output waveform	pure sine	pure sine	pure sine	pure sine
Max. efficiency	93%	92%	90%	93%
Max. ripple on DC (battery at full load)	<15%	<15%	<15%	<15%
Battery no-load power consumption	≤30 W	≤30 W	≤30 W	≤30 W
Energy saving mode consumption	≤10 W	≤10 W	≤10 W	≤20W
General Specifications Battery Charger				
Input voltage range	90–140V	90–140V	90–140V	90–140V
Max. input current	9	16.5	25	32
Max. charge current at 104°F (40°C)	60A@14.25V	100A@14.25V	160A@14.25V	200A@14.25V
Battery temperature sensor	yes, included	yes, included	yes, included	yes, included
Battery voltage sense	yes, automatic	yes, automatic	yes, automatic	yes, automatic
Flat battery support (minimum charging)	yes, below 10V @ 25% power		yes, below 10V @ 25% power	
Continuous Battery Charge Output	60A DC	100A DC	160A DC	200A DC
Temp Range	-13°F to 140°F (-25°C to 60°C)		-13°F to 140°F (-25°C to 60°C)	
Specifications Transfer System				
AC input	30A (switched)	30A (switched)	30A (switched)	50A (switched)
AC output	40A	40A	40A	85A
AC input fuse	30A	30A	30A	50A
General Specifications				
Display/read-out	LED display	LED display	LED display	LED display
Dimensions, hwxwd	14.6" × 11.2" × 6.1" 371 × 284 × 155 mm	17.6" × 11.2" × 6.1" 448 × 284 × 155 mm	17.6" × 11.2" × 6.1" 448 × 284 × 155 mm	22" × 14.2" × 6.7" 559 × 361 × 170 mm
Weight	15.2 lb / 6.9 kg	20.5 lb/9.3 kg	20.5 lb / 9.3 kg	25 lb/11.3 kg
Approvals	ABYC A31, UL1236, UL1741, SAEJ1171, FCC class B		ABYC A31, UL1236, UL1741, SAEJ1171, FCC class B	
Technical Specifications				
Charge characteristic	IUoUo, automatic / 3-step+ for flooded, Gel/AGM, Lithium configurable			
Recommended battery capacity	~ 100–800 Ah (based on gel batteries, may differ for other types)		~ 200–1000 Ah (based on gel batteries, may differ for other types)	
Ground relay	yes, selectable	yes, selectable	yes, selectable	Yes, always on
Temperature range (ambient temp.)	-13°F to 140°F, derating 104°F (-25°C to 60°C, derating > 40°C)			
Cooling	Forced Air / Fan 80mm	Forced Air / Fan 80mm	Forced Air / Fan 80mm	Forced Air 92 or 120mm
Protection degree	IP23	IP23	IP23	IP23
Humidity protection	conformal coating, max. 95% relative humidity, non condensing			
Protections	over temperature, overload, short circuit, high/low battery voltage			
Power Assist	yes	yes	yes	yes
Power Sharing	yes	yes	yes	yes
Communciation	MasterBus, NMEA 2000 CZone (config file needed for NMEA 2000)			





CombiMaster 24/2000-60	CombiMaster 24/3000-70	CombiMaster 24/3500-100	CombiMaster 24/4500-120	CombiMaster 48/5000-120
35522000	35523000	35523500	35524500	35545000

24V (20.4–32V)	24V (20.4–32V)	24V (20.0–32V)	24V (20.0–32V)	48V (40–64V)
2000 W	3000 W	3500 W	5000 W	5000W
3000 W	4500 W	4500 W	7500 W	7500W
4000 W	6000 W	7000 W	9000 W	10000 W
no	no	yes, up to 7	yes, up to 7	yes, up to 7
yes	yes	yes	yes	yes
120V (50/60 Hz, configurable)		120V (50/60 Hz, configurable)		
pure sine	pure sine	pure sine	pure sine	pure sine
92%	90%	93%	93%	93%
< 5%	< 5%	< 5%	< 5%	< 5%
≤30 W	≤30 W	≤30 W	≤ 35 W	≤ 35 W
≤10 W	≤10 W	≤20 W	≤ 25 W	≤ 25 W
90–140V	90–140V	90–140V	90–140V	90–140V
16.5	25	32	41.5	41.5
60A@28.5V	70A@28.5V	100A@28.5V	120A@28.5V	70A @ 57V
yes, included	yes, included	yes, included	yes, included	yes, included
yes, automatic	yes, automatic	yes, automatic	yes, automatic	yes, automatic
Yes, below 20V @ 25% power		Yes, below 20V @ 25% power		Yes, below 20V @ 25% power
60A DC	70A DC	100A DC	120A DC	70A DC
-13°F to 140°F (-25°C to 60°C)		-13°F to 140°F (-25°C to 60°C)		-13°F to 140°F (-25°C to 60°C)
30A (switched)	30A (switched)	50A (switched)	50A (switched)	50A (switched)
40A	40A	85A	85A	85A
30A	30A	50A	50A	50A
LED display	LED display	LED display	LED display	LED display
7.6" × 11.2" × 6.1"	17.6" × 11.2" × 6.1"	22" × 14.2" × 6.7"	22" × 14.2" × 6.7"	22" × 14.2" × 6.7"
448 × 284 × 155 mm	448 × 284 × 155 mm	559 × 361 × 170 mm	559 × 361 × 170 mm	559 × 361 × 170 mm
20.5 lb / 9.3 kg	20.5 lb / 9.3 kg	25 lb/11.3 kg	27 lb / 12.2 kg	27 lb / 12.2 kg
BYC A31, UL1236, UL1741, SAEJ1171, FCC class B		ABYC A31, UL1236, UL1741, SAEJ1171, FCC class B		
IUoUo, automatic / 3-step+ for flooded, Gel/AGM, Lithium configurable				
100–800 Ah (based on gel batteries, may differ for other types)	~140–1000 Ah (based on gel batteries, may differ for other types)	~ 200–1000 Ah (based on gel batteries, may differ for other types)		
yes, selectable	yes, selectable	Yes, always on	Yes, always on	Yes, always on
-13°F to 140°F, derating 104°F (-25°C to 60°C, derating > 40°C)				
Forced Air / Fan 80mm	Forced Air / Fan 80mm	Forced Air 92 or 120mm	Forced Air 92 or 120mm	Forced Air 92 or 120mm
IP23	IP23	IP23	IP23	IP23
conformal coating, max. 95% relative humidity, non condensing over temperature, overload, short circuit, high/low battery voltage				
yes	yes	yes	yes	yes
yes	yes	yes	yes	yes
MasterBus, NMEA 2000, CZone (config file needed for NMEA 2000)				

## CombiMaster Inverter/Chargers

### Specifications – 230V

CombiMaster  
12/2000-60CombiMaster  
12/3000-100CombiMaster  
24/2000-40CombiMaster  
24/3000-60

Part #	35012000	35013000	35022000	35023000
General Specifications Sine Wave Inverter				
Nominal DC voltage	12V (10.2–16V)	12V (10.2–16V)	24V (20.4–32V)	24V (20.4–32V)
Continuous power at 104°F (40°C)	2000V A / 1600 W	3000V A / 2600 W	2000V A / 1600 W	3000V A / 2600 W
Peak power (30 sec)	3000V A / 2400 W	4500V A / 3900 W	3000V A / 2400 W	4500V A / 3900 W
Surge power (5 sec)	4000V A / 3200 W	6000V A / 5200 W	4000V A / 3200 W	6000V A / 5200 W
Synchronize with mains/generator	yes	yes	yes	yes
Output voltage	230V 50/60 Hz, configurable	230V 50/60 Hz, configurable	230V 50/60 Hz, configurable	230V 50/60 Hz, configurable
Output waveform	true sine	true sine	true sine	true sine
Max. efficiency	≥ 93%	≥ 93%	≥ 93%	≥ 93%
Max. ripple on DC (battery at full load)	< 15%	< 15%	< 15%	< 15%
Battery no-load power consumption	20 W on mode / < 1 mA off mode	30 W on mode / < 1 mA off mode	20 W on mode / < 1 mA off mode	30 W on mode / < 1 mA off mode
Energy saving mode consumption	10 W	10 W	10 W	10 W
General Specifications Battery Charger				
Input voltage range	90–280V power derating below 170V	90–280V power derating below 170V	90–280V power derating below 170V	90–280V power derating below 170V
Max. input current	6A (adjustable)	10A (adjustable)	8A	13A
Max. charge current at 104 °F (40 °C)	60A at 14.25V, configurable	100A at 14.25V, configurable	40A at 28.5V, configurable	60A at 28.5V, configurable
Battery temperature sensor	yes, included	yes, included	yes, included	yes, included
Battery voltage sense	automatic compensation	automatic compensation	automatic compensation	automatic compensation
Specifications Transfer System				
AC input	25A (switched)	25A (switched)	25A (switched)	25A (switched)
AC output	33A	33A	33A	38A
AC input fuse	yes	yes	yes	yes
Transfer speed	10 ms for narrow input range, 20 ms for wide range, configurable		10 ms for narrow input range, 20 ms for wide range, configurable	
Transfer voltage range	narrow input range (170-280V) wide range (90-280V)			
Transfer frequency range	40–65 Hz	40–65 Hz	40–65 Hz	40–65 Hz
General Specifications				
Display/read-out	LED display	LED display	LED display	LED display
Dimensions, hwxwd	14.6" × 11.2" × 6.1" 371 × 284 × 155 mm	17.6" × 11.2" × 6.1" 448 × 284 × 155 mm	14.6" × 11.2" × 6.1" 371 × 284 × 155 mm	17.6" × 11.2" × 6.1" 448 × 284 × 155 mm
Weight	15.2 lb / 6.9 kg	20.5 lb / 9.3 kg	15.2 lb / 6.9 kg	20.5 lb / 9.3 kg
Approvals	CE, E-mark, AZ/NZS	CE, E-mark, AZ/NZS	CE, E-mark, AZ/NZS	CE, E-mark, AZ/NZS
Technical Specifications				
Charge characteristic	IUoUo, automatic / 3-step+ for flooded, Gel/AGM and MLI, configurable		IUoUo, automatic / 3-step+ for flooded, Gel/AGM and MLI, configurable	
Recommended battery capacity	~100–800 Ah (based on gel batteries, may differ for other types)	~200–1000 Ah (based on gel batteries, may differ for other types)	~100–800 Ah (based on gel batteries, may differ for other types)	~140–1000 Ah (based on gel batteries, may differ for other types)
Ground relay	yes, configurable by means of mechanical jumper		yes, configurable by means of mechanical jumper	
Temperature range (ambient temp.)	-13°F to 140°F, derating 104°F (-25°C to 60°C, derating > 40°C)			
Cooling	vario fan	vario fan	vario fan	vario fan
Protection degree	IP23 (vertical mounting)	IP23 (vertical mounting)	IP23 (vertical mounting)	IP23 (vertical mounting)
Safety class	IEC protection class I	IEC protection class I	IEC protection class I	IEC protection class I
Humidity protection	conformal coating, max. 95% relative humidity, non condensing		conformal coating, max. 95% relative humidity, non condensing	
Protections	over temperature, overload, short circuit, high/low battery voltage		over temperature, overload, short circuit, high/low battery voltage	
Power Assist	yes, will support AC input power from the battery		yes, will support AC input power from the battery	
Power Sharing	yes, allows you to select AC Input fuse setting		yes, allows you to select AC Input fuse setting	
Communciation	MasterBus & CZone		MasterBus & CZone	

## PowerCombi Inverter/Chargers

### Simple. Independent. Flexible




Introducing the PowerCombi Inverter/Charger from Mastervolt. PowerCombi is a pure sine wave inverter/charger offering grid quality AC power and battery charging in one low profile design. Designed to be an independent inverter/charger, yet can easily be integrated into a CZone/MasterBus network (with additional interface). With a built in transfer switch, 2x surge for 3s and on site dipswitch programming—the PowerCombi offers simple installation with multiple operating modes, and can charge various battery chemistries—including a custom profile for use with Li-ion. Full certifications make it perfect for use in RV's, boats, and specialty vehicles. Add a battery temperature sensor (BTS), remote display and a communication interface for custom applications.



PowerCombi  
12V/1200W-50A



PowerCombi  
12V/2000W-100A

Part #	36211200	36212000
Part # Kit (Includes Remote, BTS)	36211201	36212001
Specifications		
Continuous Power Rating 77°F (25°C)	1200 W	2000 W
Continuous Power Rating 104°F (40°C)	1200 W	2000 W
Surge	2400 W (3s)	4000 W (3s)
AC Voltage/Frequency	120V-50/60Hz selectable HF - Pure	120V-50/60Hz selectable HF - Pure
Idle Power Full	25 W	36 W
Inverter Efficiency	89%	89%
DC Input Voltage Range	10.0–15.5V DC	10.0–15.5V DC
Nominal DC Voltage	12V	12V
Flat battery support (minimum charging)	NO (6V)	NO (6V)
Continuous Battery Charge Output	50A DC	100A DC
DC Output (second)	20A DC	20A DC
Battery Types	Flooded, Gel, AGM, custom	Flooded, Gel, AGM, custom
Transfer Switch (Speed)	30A (10ms)	30A (10ms)
Dimensions, h x w x d	15.19" x 9.88" x 4.57" (386 x 251 x 116 mm)	17.83" x 9.88" x 4.57" (453 x 251 x 116 mm)
Weight	10.0 lb / 4.55 kg	13.5 lb / 6 kg
Approvals	UL458 & Supplement SA/CSA C22.2, UL 1741 no. 107.1-01KKK-A-1822F	
Technical Specifications		
Temperature range (ambient temp.)	4°F to 140°F (-20°C to 60°C)	4°F to 140°F (-20°C to 60°C)
Communications	MasterBus compatible via CZone - MasterBus Interface 77032900	
Options		
Temperature Sensor 41500700		recommended
PowerCombi Remote Control 77010700		option Control and monitor your PowerCombi inverter / charger via this easy to use remote monitor. The LCD display is used for setting up the inverter/charger operation, as well as viewing current status or fault messages.
CZone/MasterBus PowerCombi Interface 77032900		option By adding the CZone/MasterBus PowerCombi Interface to your installation, you can control the PowerCombi via the MasterBus communication network. A RJ45 communication cable is included in the delivery.



## Sine Wave Inverters: Enjoy the comforts of home

Your AC installation offers you a wealth of benefits by making the use of any domestic appliance possible, from microwave oven to hair dryer, DVD player to power tools. A Mastervolt inverter allows you to easily convert the voltage of your 12V or 24V battery to 230V/50Hz or 120V/60Hz, so you enjoy all the comforts of home wherever you choose to go.

Mastervolt offers a complete range of inverters from 300 watt to 40 kwatt, for 230V/50Hz as well as 120V/60Hz (American voltage).

### Completely independent

Grid power regularly fluctuates and can cause your lights to flicker. Sometimes it may even drop below 180 volts causing some devices to stop functioning. The Mastervolt sine wave inverter ensures a perfect AC voltage, and makes power problems a thing of the past. The pure sine wave technology also helps protect your equipment against failures, humming or interference on monitors or TV's and ensures a longer lifespan.

## Which Mastervolt inverter fits your needs?

### Mass Sine Ultra Inverter

This model is intended for professional applications with high power demands, and extends the Mass Sine series. With 4 kW AC power, the Mass Sine Ultra Inverter meets the highest energy requirements.

The latest technology increases the efficiency and enables multiple units to work in parallel and 3-phase configuration.

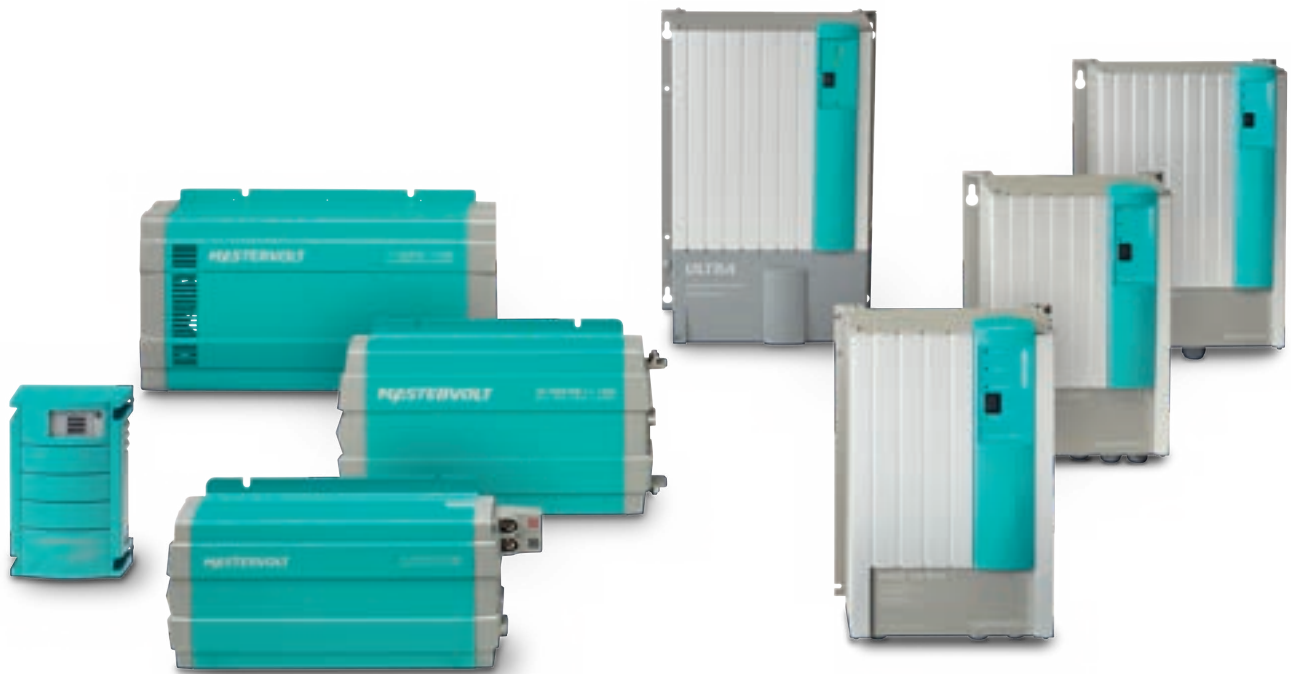
### Mass Sine Inverter

These high quality sine wave inverters have proven themselves in the most extreme conditions for over twenty-five years. Although the dimensions and connections of the various models have remained the same, the technology has evolved, resulting in a fast, efficient, one-on-one replacement with minimal downtime.

### AC Master

These affordable sine wave inverters convert 12V or 24V battery voltage into reliable grid power, making it ideal for recreational and semi-professional applications.





COMPACT

### No humming with HF technology

Our use of high-frequency switch technology means you can say goodbye to humming transformers and hello to efficiency. Mastervolt inverters are also small and light-weight to ensure easy installation.



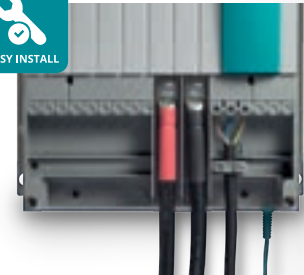
POWERFUL

### High peak power during start up

Mastervolt sine wave inverters can deliver high peak power (up to 200%) to equipment that requires extra current for a short period of time while powering up.



EASY INSTALL



### Simple and safe to connect

The inverters feature robust connection technology, internal in the larger models and a plug & play socket with cable for the smaller models.



PROLONGED BATTERY LIFE



### Efficient use of batteries

A high efficiency when inverting and an automatic economy mode when there is no consumption gives you longer use of your batteries.



POWER QUALITY

### Pure sine wave

Mastervolt inverters generate a sine wave shaped output current similar or even better than that of the public grid and perfectly suited for powering sensitive equipment.



MASTERBUS COMPATIBLE



### MasterBus compatible

Every Mass Sine (Ultra) inverter can be easily connected to a MasterBus network with only one cable and one connection. You can also choose central, local or remote monitoring, configuration and control of your system.

## Mass Sine Ultra and Mass Sine Inverters: For the toughest tasks



Even under the most extreme conditions the products from the Mass series operate faultlessly, giving you round-the-clock output when necessary. With an MTBF of 180,000 hours at full capacity and 24/7 use, the Mass products are ideal for the toughest tasks and any situation that requires a reliable power supply.



### Optimal flexibility in system design

Choosing an independent sine wave inverter allows you complete freedom of choice of battery charging equipment. You can freely adapt the rating of these chargers, depending on the desired charge time. In case you want to use renewable energy sources, you may want to choose an MPPT solar charge regulator.

### High efficiency

The high efficiency and automatic economy mode is designed to allow digital clocks to work properly and ensure you many more hours of operation from your batteries. The application of high-frequency technology prevents any annoying humming and zooming sounds, while the high peak capacity ensures that the high inrush current required for electrical tools, for example, is seamlessly produced.

### Mass Sine Ultra and Mass Sine Features

- For heavy duty work in professional and semi-professional applications
- Full capacity at temperatures up to 104°F (40°C)
- Pure sine wave output prevents failures and damage to connected sensitive equipment
- High peak capacity for the seamless switching on of complex and heavy loads
- Dynamic, battery-specific input current for an optimal use of every type of battery (Mass Sine Ultra Inverter)
- Parallel configuration of up to ten devices for a capacity up to 40 kW (Mass Sine Ultra Inverter)
- 3-Phase configuration for a capacity up to 36 kW (Mass Sine Ultra Inverter)
- Integrated MasterBus (Mass Sine Ultra Inverter) or MasterBus compatible (Mass Sine Inverter)
- Suitable for mobile applications
- Professional connections
- Automatic, reliable and safe operation
- Optional: Masterswitch/Systemswitch for automatic selection of the desired energy source

### Mass Sine Ultra

With an AC capacity of 4000W in one unit, the Mass Sine Ultra Inverter can satisfy even the greatest energy demands. As ten units can be switched in parallel or 3x3 in a three-stage configuration, the Mass Sine Ultra Inverter can supply a capacity of up to 40 kW. The inverter provides full power at 104°F (40°C) and works smoothly even in extreme conditions such as engine rooms and technical spaces. Like all Mass products, the inverter is supplied in a compact and robust casing. This inverter is the best choice if you are looking for autonomous AC capacity of over 3 kW.

#### Latest technology

The extremely efficient power electronics save volume and weight with minimal sound levels and a very low ripple voltage which extends the lifespan of your batteries. At the same time, digital technology prevents any annoying flickering and voltage fluctuations.

#### Make the most of your batteries

The Mass Sine Ultra Inverter is equipped with a dynamic battery voltage window. Taking into account the type of battery and current, this function ensures the inverter can supply AC longer without overtaxing the batteries.

### Mass Sine

Mastervolt's Mass Sine inverters have been proving their value in the most extreme conditions for over 25 years.

#### Clear indicators

The Mass Sine Inverter features easy controls on the device itself. As inverters are often built in, we also supply an effective remote control panel, the C4-RI. In addition, the Mass can be controlled via its intuitive display, the EasyView 5, thanks to the integration of MasterBus communication using a MasterBus Inverter Interface or AC Power Analyser.

#### Easy and safe connections

The Mass Sine inverters provide robust and professional connections for fast and safe installation.



## Mass Sine and Mass Sine Ultra Inverters Specifications – 230V








Mass Sine  
12/2000\*



Mass Sine  
24/800\*



Mass Sine  
24/1500\*

Part # 230V	24012000	24020800	24021500
<b>General Specifications</b>			
Nominal battery voltage	12V	24V	24V
Recommended battery capacity	>200 Ah	>50 Ah	>150 Ah
Output voltage (± 5%)	230V – 50Hz (± 0.01Hz)	230V – 50Hz (± 0.01Hz)	230V – 50Hz (± 0.01Hz)
P30 power at 104°F (40°C), cos phi 1	2000 W	800 W	1500 W
Continuous power at 104°F (40°C), cos phi 1	1800 W	650 W	1200 W
Peak load	4000 W	1600 W	2900 W
Output waveform	true sine	true sine	true sine
Efficiency	92%	92%	92%
Display/read-out	LED display	LED display	LED display
Parallel configuration	no	no	no
3-Phase configuration	no	no	no
Dimensions, HxWxD	16.5" x 12.5" x 5.1" 420 x 318 x 130 mm	12.8" x 8.7" x 4.4" 325 x 220 x 111 mm	13.4" x 10.3" x 5.1" 340 x 261 x 130 mm
Weight	22.3 lb / 10.1 kg	8.6 lb / 3.9 kg	13.7 lb / 6.2 kg
Approvals	CE, E-mark, ABYC A-31, RRR	CE, E-mark, ABYC A-31	CE, E-mark, ABYC A-31
<b>Technical Specification</b>			
Technology	HF switch mode	HF switch mode	HF switch mode
Max. ripple on DC (battery)	5% RMS	5% RMS	5% RMS
Input current (nominal load)	183A	36A	68A
No load power consumption: • 'on' mode (230V) • energy saving mode	480 mA – 6 W 50 mA – 0.6 W	240 mA – 5.6 W 35 mA – 0.8 W	200 mA – 5 W 25 mA – 0.6 W
Minimal DC fuse (slow blow)**	250A	63A	100A
Minimal cable size	70 mm <sup>2</sup>	16 mm <sup>2</sup>	25 mm <sup>2</sup>
Harmonic distortion typical	<5%	<5%	<5%
Cos Phi	all power factors allowed	all power factors allowed	all power factors allowed
Temperature range (ambient temp.)	-13°F–176°F, >104°F derating (-25°C–80°C >40°C derating)		
Cooling	natural/forced	natural/forced	natural/forced
Transfer System	The Masterswitch/Systemswitch can be connected to all sine wave inverters		
Protection degree	IP23	IP23	IP23
Protections	over temperature, over load, short circuit, high/low battery voltage		
MasterBus compatible	with MB Inverter Interface or AC Power Analyser	with MB Inverter Interface or AC Power Analyser	with MB Inverter Interface or AC Power Analyser
AC connection	internal	internal	internal
<b>Options</b>			
Model C4-RI 70404110		option Remote control on/off for the Mass Sine Inverter.	option
EasyView 5 77010310		option In combination with MasterBus Inverter Interface. Waterproof system monitor with 'daylight readable' color display and intuitive multi-language touchscreen to show the key system information at a glance. There is also a logbook feature for warnings and alarms, along with a buzzer and alarm notifications. The home button gives access to favorite pages.	option
Mastervolt USB Interface 77030100		option In combination with MasterBus Inverter Interface. Communication port between MasterBus and the USB port of your PC; makes possible reading and configuration of your MasterBus system on the PC when combined with MasterView System software (free to download).	option
MasterBus Inverter Interface 77030700		option Integrates the Mass Sine Inverter in a MasterBus network in a MasterBus network.	option
AC Power Analyser 77031200		option Integrates the Mass Sine Inverter in a MasterBus network and measures the AC voltage, current and power.	option

\* Also available in 60 Hz: 2000W model: Part # **24112000** 800 W model: Part # **24120800** 1500 W model: Part # **24121500**  
2500 W model: Part # **24122500** 5000 W model: Part # **24195100**

\*\* DC fuse depends on the cable size.



Mass Sine  
24/2500\*



Mass Sine Ultra  
24/4000



Mass Sine  
24/5000\*

24022500	26024000	24095100
24V	24V	24V
>200 Ah	>350 Ah	>400 Ah
230V – 50Hz (± 0.01Hz)	230V (± 2%) – 50/60 Hz selectable (± 0.005%)	230V – 50Hz (± 0.01Hz)
2500 W	—	5000 W
2000 W	4000 W	4000 W
5000 W	7000 W	9000 W
true sine	true sine	true sine
92%	≥ 92%	92%
LED display	LED display	LED display
no	yes, up to 10 units	no
no	yes, up to 3x3	no
16.5" x 12.5" x 5.1" 420 x 318 x 130 mm	18.6" x 12.5" x 6.9" 472 x 318 x 178 mm	18.5" x 12.4" x 10" 470 x 315 x 254 mm
22.3 lb / 10.1 kg	33.1 lb / 15 kg	41.9 lb / 19 kg
CE, E-mark, ABYC A-31	CE, E-mark, ABYC A-31	CE, E-mark, ABYC A-31
HF switch mode	V6 HF switch mode	HF switch mode
5% RMS	5% RMS	5% RMS
115A	200A	230A
250 mA – 6 W 25 mA – 0.6 W	660 mA – 16 W 300 mA – 7 W	250 mA – 6 W 50 mA – 1.2 W
160A	250A	1x 250A or 2x 125A
50 mm <sup>2</sup>	70 mm <sup>2</sup>	2x 70 mm <sup>2</sup>
<5%	<1%	<5%
all power factors allowed	all power factors allowed	all power factors allowed
	-13°F–176°F, >104°F derating (-25°C–80°C >40°C derating)	
natural/forced	natural/forced	natural/forced
The Masterswitch/Systemswitch can be connected to all sine wave inverters		
IP23	IP23	IP23
over temperature, over load, short circuit, high/low battery voltage		
with MB Inverter Interface or AC Power Analyser	yes	with MB Inverter Interface or AC Power Analyser
internal	internal	internal
option	n.a.	option
option	option	option
option	n.a.	option
option	n.a.	option
option	n.a.	option

The following models are also available in Quick Connect (OEM) version with a WAGO 770-103 connector and 25 cm cable:

- Mass Sine Inverter  
12/2000 230V,  
**part # 24021002**
- Mass Sine Inverter  
12/2000 120V,  
**part # 25012002**

## AC Master Series Inverters:

Reliable AC power for recreational and semi-professional use



**These affordable sine wave inverters convert 12V or 24V battery voltage into reliable grid power, making them ideal for recreational and semi-professional applications.**

The AC Master series is easy to install and delivers full output, even under the most demanding conditions. The pure sine wave technology provides an outstanding power quality, ensuring the correct functioning of sensitive equipment. The usage of high frequency switching technology eliminates any annoying humming and buzzing sounds.

Representing complete value for money, these ruggedly built inverters provide essential home comforts when you're far from the nearest grid connection.

### **Applications**

Both recreational and semi-professional use, where grid power varies or is unavailable. Applications include lighting, appliances, electric cooking and power tools. For (mobile) applications in your home, office or service vehicle, or during your holidays.







### AC Master Series Features

- Pure sine wave technology protects sensitive equipment
- Delivers full output at high peak power under the most demanding conditions
- Automatic power saving system for extended runtime
- Compact and lightweight design, saving valuable installation time
- Reliable and safe operation; protected against over-temperature, overload, short circuit, high or low battery voltage
- Variable speed fan for quiet operation at low power
- Optional remote control for instant switch off of the inverter and all connected equipment (not available for the 300 and 500 W models).
- Convenient plug connection for all models, 2500/3500 Watt models also hard wired.

**In addition, the 2500/3500 Watt models offer:**



- Combine two (2) up to 15 units to obtain high power or 3-phase systems
- Integrated transfer system, switches automatically between AC power sources



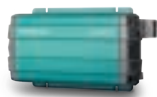
## AC Master Inverters

## Specifications – 12V

AC Master  
12/700 (120V)AC Master  
12/2000 (120V)AC Master  
12/300AC Master  
12/500

Part #	28510700	28512000	n.a.	n.a.
Part # (with UK plug)	n.a.	n.a.	n.a.	n.a.
Part # (with NZ/AU plug)	n.a.	n.a.	n.a.	n.a.
Part # (with IEC outlet)	n.a.	n.a.	28010302	28010502
General Specifications				
Output voltage	100/110/115/120 V — 50/60 Hz (selectable)		230V – 50 Hz (± 0.1%)	230V – 50 Hz (± 0.1%)
Output waveform	true sine	true sine	true sine	true sine
Nominal battery voltage	12V	12V	12V	12V
Recommended battery capacity	≥ 100 Ah	≥ 200 Ah	≥ 60 Ah	≥ 100 Ah
Continuous power at 77°F (25°C) , cos phi 1	700 W	2000 W	300 W	500 W
Continuous power at 104°F (40°C), cos phi 1	700 W	2000 W	250 W	400 W
Peak load	< 810 W (1 min.) < 1230 W (1 sec.)	< 2300 W (1 min.) < 3500 W (1 sec.)	600 W	800 W
AC connection	North American socket with GFCI	North American socket with GFCI	universal	universal
Efficiency	91 %	92%	90%	90%
Parallel configuration	n.a.	n.a.	n.a.	n.a.
3-Phase configuration	n.a.	n.a.	n.a.	n.a.
Display/read-out	LED indication: battery voltage, load level, status		LED display	LED display
Dimensions, hxxwxd	7.9" x 13" x 3.3" 200 x 330 x 83 mm	9.8" x 17.4" x 3.3" 248 x 443 x 83 mm	8.3" x 5.1" x 2.4" 210 x 130 x 60 mm	8.3" x 5.1" x 2.4" 210 x 130 x 60 mm
Weight	6 lb / 2.7 kg	11.5 lb / 5.2 kg	2.55 lb / 1.16 kg	2.69 lb / 1.22 kg
Alarms	potential free alarm contact	potential free alarm contact	4 alarm modes	4 alarm modes
Approvals	safety: UL 458, EMC: FCC class B	safety: UL 458, EMC: FCC class B	CE, E-mark, ABYC A-31	CE, E-mark, ABYC A-31
Technical specifications				
Technology	high frequency, input & output fully isolated		high frequency, input & output fully isolated	
Input current (nominal load)	70A	200 A	22.5A	37.5A
No-load power consumption (energy saving mode)	< 0.1A	< 0.1 A	0.33A – 4 W	0.33A – 4 W
Minimal DC fuse (slow blow)	100A	250 A	2x 40A	2x 40A
Minimal cable size	25 mm²	70 mm²	1.5 meter DC cable delivered as standard	
Harmonic distortion typical	< 5%	< 3 %	< 6%	< 6%
Cos phi	all power factors allowed		all power factors allowed	
Transfer system	n.a.	n.a.	n.a.	n.a.
Temperature range (ambient temp.)	-4°F to 140°F, derating power > 104°F (-20°C to 60°C, derating power > 40°C)			
Protection degree	IP21, horizontal wall mounting		IP23, vertical wall mounting	
Protections	over-temperature, overload, short circuit, high/low voltage, reverse polarity (fuse)		over-temperature, overload, short circuit, high/low battery voltage	
Cooling	temperature and load controlled fan		natural/forced	natural/forced
MasterBus compatible	yes, using a MasterBus AC Master Interface Part # 77032700		no	no
Options				
AC Master Remote Control* 70405080		option	option	n.a.
MasterBus AC Master Interface Integrates the AC Master inverter in a MasterBus network 77032700		option	option	n.a.

\*On/off control for the AC Master sine wave inverter with a clear on/off indicator which indicates when the inverter is active. In addition, the AC Master Remote Control makes it possible to turn the inverter on or off automatically by means of a 12-volt input, for example when switching on the onboard AC power or while starting an engine. The AC Master Remote Control comes with 25 ft (8 m) cable.

AC Master  
12/700AC Master  
12/1000AC Master  
12/1500AC Master  
12/2000AC Master  
12/2500AC Master  
12/350028010700  
28210700  
2841070028011000  
28211000  
2841100028011500  
28211500  
2841150028012000  
n.a.  
n.a.28012500  
28212500  
2841250028013500  
28213500  
28413500

n.a.

n.a.

n.a.

n.a.

n.a.

n.a.

200/220/230/240V — 50/60 Hz (selectable)

200/220/230/240V — 50/60 Hz (selectable)

230/240V — 50/60 Hz (selectable)

true sine

true sine

true sine

true sine

true sine

true sine

12V

12V

12V

12V

12V

12V

≥ 100 Ah

≥ 130 Ah

≥ 160 Ah

≥ 200 Ah

≥ 270 Ah

≥ 360 Ah

700 W

1000 W

1500 W

2000 W

2500 W

3500 W

700 W

1000 W

1500 W

2000 W

2500 W

3500 W

< 810 W (1 min.)  
< 1230 W (1 sec.)< 1150 W (1 min.)  
< 1750 W (1 sec.)< 1730 W (1 min.)  
< 2650 W (1 sec.)< 2300 W (1 min.)  
< 4000 W (1 sec.)< 3000 W (1 min.)  
< 4000 W (1 sec.)< 4500 W (1 min.)  
< 6000 W (1 sec.)plug connection EU  
(Schuko) or UKplug connection EU  
(Schuko) or UKplug connection EU  
(Schuko) or UKplug connection EU  
(Schuko)hardwired + plug  
connection EU (Schuko)hardwired + plug  
connection EU (Schuko)

91%

92%

93%

94%

88%

90%

n.a.

n.a.

n.a.

n.a.

yes, up to 15 units

yes, up to 15 units

n.a.

n.a.

n.a.

n.a.

yes, 3 units

yes, 3 units

LED indication: battery voltage, load level, status

LED indication: battery voltage, load level, status

LED indication: battery voltage, load level, status

7.9" x 13" x 3.3"  
200 x 330 x 83 mm7.9" x 14.6" x 3.3"  
200 x 372 x 83 mm9.8" x 16.6" x 3.3"  
248 x 421 x 83 mm9.8" x 17.4" x 3.3"  
248 x 443 x 83 mm11.1" x 17.2" x 5"  
283 x 436 x 128 mm11.1" x 19.5" x 5"  
283 x 496 x 128 mm

6 lb / 2.7 kg

7.3 lb / 3.3 kg

9.3 lb / 4.2 kg

11.5 lb / 5.2 kg

17.6 lb / 8 kg

22 lb / 10 kg

potential free  
alarm contactpotential free  
alarm contactpotential free  
alarm contactpotential free  
alarm contactpotential free  
alarm contactpotential free  
alarm contact

CE, E-mark, RCM

CE, E-mark, RCM

CE, E-mark, RCM

CE, Safety: EN60950-  
1, E-mark: CISPR25,  
ISO11452-2, ISO7637-2,  
EMC: EN55022, EN55024,  
EN61000-3-2: -3-3,  
EN61000-4-2,3,4,5,6,8,11

CE, E-mark, RCM

CE, E-mark, RCM

high frequency, input &amp; output fully isolated

high frequency, input &amp; output fully isolated

high frequency, input &amp; output fully isolated

70A

100A

150A

200 A

250A

350A

&lt; 0.1A

&lt; 0.1A

&lt; 0.1A

&lt; 0.1 A

&lt; 1.1A

&lt; 1.4A

100A

125A

175A

250 A

300A

400A

25 mm<sup>2</sup>35 mm<sup>2</sup>50 mm<sup>2</sup>70 mm<sup>2</sup>95 mm<sup>2</sup>120 mm<sup>2</sup>

&lt; 5%

&lt; 5%

&lt; 3%

&lt; 5 %

&lt; 3%

&lt; 3%

all power factors allowed

all power factors allowed

all power factors allowed

n.a.

n.a.

n.a.

n.a.

integrated, automatic (inverter to grid:  
8~10 ms, grid to inverter: 16~50 ms). Not  
for parallel & 3-phase operation (external  
transfer system possible).

-4°F to 140°F, derating power &gt; 104°F (-20°C to 60°C, derating power &gt; 40°C)

IP21, horizontal wall mounting

IP21, horizontal wall mounting

IP21, horizontal wall mounting

over-temperature, overload, short circuit,  
high/low voltage, reverse polarity (fuse)over-temperature, overload, short circuit,  
high/low voltage, reverse polarity (fuse)over-temperature, overload, short circuit,  
high/low voltage, reverse polarity (fuse)

temperature and load controlled fan

temperature and load controlled fan

temperature and load controlled fan

yes, using a MasterBus AC Master Interface  
Part # 77032700yes, using a MasterBus AC Master Interface  
Part # 77032700yes, using a MasterBus AC Master Interface  
Part # 77032700

option

option

option

option

option

option

option

option

option

option

option



option



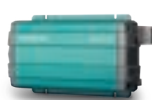
## AC Master Inverters

## Specifications – 24V

AC Master  
24/700 (120V)AC Master  
24/2000 (120V)AC Master  
24/300AC Master  
24/500

Part #	28520700	28522000	28020300	28020500
Part # (with UK plug)	n.a.	n.a.	n.a.	n.a.
Part # (with NZ/AU plug)	n.a.	n.a.	n.a.	n.a.
Part # (with IEC outlet)	n.a.	n.a.	28020302	28020502
General Specifications				
Output voltage	100/110/115/120 V — 50/60 Hz (selectable)		230V – 50 Hz (± 0.1%)	230V – 50 Hz (± 0.1%)
Output waveform	true sine	true sine	true sine	true sine
Nominal battery voltage	24V	24V	24V	24V
Recommended battery capacity	≥ 50 Ah	≥ 110 Ah	≥ 30 Ah	≥ 50 Ah
Continuous power at 77°F (25°C), cos phi 1	700 W	2000 W	300 W	500 W
Continuous power at 104°F (40°C), cos phi 1	700 W	2000 W	250 W	400 W
Peak load	< 810 W (1 min.) < 1230 W (1 sec.)	< 2300 W (1 min.) < 3500 W (1 sec.)	600 W	800 W
AC connection	North American socket with GFCI	North American socket with GFCI	universal	universal
Efficiency	93%	93%	91%	91%
Parallel configuration	n.a.	n.a.	n.a.	n.a.
3-Phase configuration	n.a.	n.a.	n.a.	n.a.
Display/read-out	LED indication: battery voltage, status	LED indication: battery voltage, load level, status	LED display	LED display
Dimensions, hwxwd	7.9" x 13" x 3.3" 200 x 330 x 83 mm	9.8" x 17.4" x 3.3" 248 x 4432 x 83 mm	8.3" x 5.1" x 2.4" 210 x 130 x 60 mm	8.3" x 5.1" x 2.4" 210 x 130 x 60 mm
Weight	6 lb / 2.7 kg	11.5 lb / 5.2 kg	2.55 lb / 1.16 kg	2.69 lb / 1.22 kg
Alarms	potential free alarm contact	potential free alarm contact	4 alarm modes	4 alarm modes
Approvals	safety: UL 458EMC: FCC class B		CE, E-mark, ABYC A-31	CE, E-mark, ABYC A-31
Technical Specifications				
Technology	high frequency, input & output fully isolated		high frequency, input & output fully isolated	
Input current (nominal load)	35A	100A	11A	19A
No-load power consumption (energy saving mode)	< 0.06A	< 0.05A	0.16A – 4 W	0.16A – 4 W
Minimal DC fuse (slow blow)	50A	125A	40A	40A
Minimal cable size	16 mm²	35 mm²	1.5 m DC cable delivered as standard	1.5 m DC cable delivered as standard
Harmonic distortion typical	< 5%	< 5%	< 6%	< 6%
Cos phi	all power factors allowed		all power factors allowed	
Transfer system	n.a.	n.a.	n.a.	n.a.
Temperature range (ambient temp.)	-4°F to 140°F, derating power > 104°F (-20°C to 60°C, derating power > 40°C)			
Protection degree	IP21, horizontal wall mounting		IP23, vertical wall mounting	
Protections	over-temperature, overload, short circuit, high/low voltage, reverse polarity (fuse)		over-temperature, overload, short circuit, high/low battery voltage	
Cooling	temperature and load controlled fan		natural/forced	natural/forced
MasterBus compatible	yes, using a MasterBus AC Master Interface Part # 77032700		no	no
Options				
AC Master Remote Control* 70405080		option	option	n.a.
MasterBus AC Master Interface Integrates the AC Master inverter in a MasterBus network 77032700		option	option	n.a.

\*On/off control for the AC Master sine wave inverter with a clear on/off indicator which indicates when the inverter is active. In addition, the AC Master Remote Control makes it possible to turn the inverter on or off automatically by means of a 12-volt input, for example when switching on the onboard AC power or while starting an engine. The AC Master Remote Control comes with 25 ft (8 m) cable.

AC Master  
24/700AC Master  
24/1000AC Master  
24/1500AC Master  
24/2000AC Master  
24/2500

28020700

28021000

28021500

28022000

28022500

28220700

28221000

28221500

n.a.

28222500

28420700

28421000

28421500

n.a.

28422500

n.a.

n.a.

n.a.

n.a.

n.a.

200/220/230/240V — 50/60 Hz (selectable)

200/220/230/240V — 50/60 Hz (selectable)

230/240V — 50/60 Hz (selectable)

true sine

true sine

true sine

true sine

true sine

24V

24V

24V

24V

24V

≥ 50 Ah

≥ 65 Ah

≥ 80 Ah

≥ 110 Ah

≥ 135 Ah

700 W

1000 W

1500 W

2000 W

2500 W

700 W

1000 W

1500 W

2000 W

2500 W

< 810 W (1 min.)  
< 1230 W (1 sec.)< 1150 W (1 min.)  
< 1750 W (1 sec.)< 1730 W (1 min.)  
< 2650 W (1 sec.)< 2300 W (1 min.)  
< 4000 W (1 sec.)< 3000 W (1 min.)  
< 4000 W (1 sec.)plug connection EU  
(Schuko) or UKplug connection  
EU (Schuko) or UKplug connection  
EU (Schuko) or UKplug connection  
EU (Schuko)hardwired + plug  
connection EU (Schuko)

93%

94%

94%

94%

88%

n.a.

n.a.

n.a.

n.a.

yes, up to 15 units

n.a.

n.a.

n.a.

n.a.

yes, 3 units

LED indication: battery  
voltage, load level, statusLED indication: battery  
voltage, load level, statusLED indication: battery  
voltage, load level, statusLED indication: battery  
voltage, load level, statusLED indication: battery  
voltage, load level, status7.9" x 13" x 3.3"  
200 x 330 x 83 mm7.9" x 14.6" x 3.3"  
200 x 372 x 83 mm9.8" x 16.6" x 3.3"  
248 x 421 x 83 mm9.8" x 17.4" x 3.3"  
248 x 443 x 83 mm11.1" x 17.2" x 5"  
283 x 436 x 128 mm

6 lb / 2.7 kg

7.3 lb / 3.3 kg

9.3 lb / 4.2 kg

11.5 lb / 5.2 kg

17.6 lb / 8 kg

potential free  
alarm contactpotential free  
alarm contactpotential free  
alarm contactpotential free  
alarm contactpotential free  
alarm contact

CE, E-mark, RCM

CE, E-mark, RCM

CE, E-mark, RCM

CE, Safety: EN60950-1, E-mark:  
CISPR25, ISO11452-2, ISO7637-2,  
EMC: EN55022, EN55024, EN61000-  
3-2; -3-3, EN61000-4,2,3,4,5,6,8,11

CE, E-mark, RCM

high frequency, input &amp; output fully isolated

high frequency, input &amp; output fully isolated

35A

50A

75A

100 A

125A

&lt; 0.06A

&lt; 0.05A

&lt; 0.05A

&lt; 1.0 A

&lt; 0.7A

50A

63A

100A

160 A

160A

16 mm<sup>2</sup>16 mm<sup>2</sup>25 mm<sup>2</sup>35 mm<sup>2</sup>50 mm<sup>2</sup>

&lt; 5%

&lt; 5%

&lt; 5%

&lt; 5 %

&lt; 5%

all power factors allowed

all power factors allowed

all power factors allowed

all power factors allowed

n.a.

n.a.

n.a.

n.a.

integrated, automatic (inverter to  
grid: 8~10 ms, grid to inverter: 16~50  
ms). Not for parallel & 3-phase  
operation (external transfersystem  
possible).

-4°F to 140°F, derating power &gt; 104°F (-20°C to 60°C, derating power &gt; 40°C)

IP21, horizontal wall mounting

IP21, horizontal wall mounting

over-temperature, overload, short circuit,  
high/low voltage, reverse polarity (fuse)over-temperature,  
overload, short circuit,  
high/low battery voltageover-temperature, overload, short  
circuit, high/low voltage, reverse  
polarity (fuse)over-temperature, overload, short  
circuit, high/low battery voltage

temperature and load controlled fan

temperature and load controlled fan

yes, using a MasterBus AC Master Interface  
Part # 77032700yes, using a MasterBus AC Master Interface  
Part # 77032700

option

option

option

option

option

option

option

option

option

option



## Mastervolt Battery Chargers:

### A long life for your battery

We know how important it is to charge your batteries safely, reliably and quickly, even if the power supply is affected by low quality or limited availability. You also value batteries that have a long lifespan while maintaining their capacity. Mastervolt offers you the best possible solution.

The Mastervolt 3-step+ charging method ensures more power and a longer life for your batteries. Our battery chargers integrate multiple functions making sure your batteries are safely and completely charged, even when they are depleted. Fast battery charging is guaranteed by the efficient use of the available grid or generator power (all Mastervolt battery chargers have a power factor correction).

### Which battery charger best meets your needs?

Mastervolt offers four ranges of battery chargers:

#### **Mass**

For the toughest tasks in professional and semi-professional situations. With its integrated alarm functions and various approvals, the Mass is the best choice for professionals.

#### **ChargeMaster and ChargeMaster Plus series**

The ChargeMaster series is suitable for recreational and semi-professional use. It is easy to install and includes a detailed display and easy controls. The ChargeMaster safely charges multiple battery banks at the same time, anywhere in the world.

The ChargeMaster Plus is a new generation of battery chargers that will replace the ChargeMaster in stages. The ChargeMaster Plus combines three battery chargers, a battery isolator and VSR in one compact device. This all-in-one solution can charge all batteries, even when you're on the go. CZONE compatible models available.

#### **EasyCharge Portable**

For people on the move, the portable version offers a rugged solution that can be used everywhere.





### The best battery charger for every application



The ChargeMaster series can charge multiple battery banks at once. The Mass battery charger has one main outlet to optimally charge a battery bank. Both guarantee a long lifespan for your batteries, even with daily and intensive use. Can smoothly charge a combination of multiple battery types, sizes and voltages. The intelligent built-in auxiliary power means that all Mastervolt battery chargers can also charge a completely discharged battery (< 8V).



### Charging Lithium Ion Batteries

Mastervolt battery chargers can seamlessly charge Lithium Ion batteries as the Mastervolt battery chargers communicate directly with the Lithium Ion battery via integrated network (or have been adapted to the required charging voltages).



### Qualifications

All Mastervolt products comply with one or more of these approvals (see the relevant product specification page for details). If the required qualification is not present, ask your account manager for an addition.

## TECH TIP

### Choosing the right Battery Charger

#### Determine:

- How many battery banks do I want to charge?
- The battery charger must have the same voltage as the battery bank.
- Rule of thumb is that 25% of the battery capacity as a charge capacity is sufficient to safely and quickly charge batteries while still supplying power to the consumers (for instance, a battery charger of 50 amps is sufficient for a 200 Ah battery). Increase up to 50% for Mastervolt Gel batteries and 100% for Mastervolt Lithium Ion (LiFePO4) batteries for faster charging.

## Mass Series Battery Chargers:

The right choice for demanding conditions



Mass battery chargers are designed for the toughest conditions for professional, semi-professional and recreational purposes. Even under the most extreme conditions the products from the Mass series operate faultlessly, giving you round-the-clock output when necessary.

The sustainability and technologies that underpin the Mass concept have long been proven in practice. With an MTBF of 180,000 hours at full capacity and 24/7 use, the Mass products are ideal for the toughest tasks and any situation that requires a reliable power supply.



## Mass Series Features

- Designed for the most difficult conditions
- Lightweight, stainless steel, anodized aluminium casing
- Coating of internal components prevents damage from dampness or condensation to ensure a longer lifespan
- Insensitive to electromagnetic effects from other devices
- Suitable for every type of battery, also charges flat batteries
- Delivered as standard with temperature sensor
- Full power at temperatures of up to 113°F (45°C)
- Load capacities from 80 to 1000 Ah or more
- Stable and ripple free 24V and 48V power supply, even without batteries
- The Current Control function prevents the breakdown of fuses
- Parallel switching possible using multiple battery chargers
- Connections in accordance with CE, ABYC A-31 and IEC60945
- Certified by RRR, RMRS (does not apply to 24/75 120V)
- Certified by DNV GL (only 24/25, 24/50, 24/75, 24/75 (120V), 24/100 models)
- Certified by Lloyd (only 24/75, 24/100 models)



### MasterBus compatible

Mastervolt battery chargers can be easily connected to a MasterBus network with only one cable and one connection. You can also choose central, local or remote monitoring, configuration and control of your system.



### Made tough by smart design

The certified Mass battery chargers are very strong, designed to withstand heavy vibrations and shocks. Their premium quality components meet the highest possible specifications, while the smart and extra robust mounting adds to the professional end result.

### For professional use: GMDSS

Professional users will benefit from a front display with GMDSS alarm functions. GMDSS stands for Global Maritime Distress and Safety System, an internationally agreed-upon set of safety procedures, types of equipment, and communication protocols that is a requirement for the SOLAS (Safety Of Life At Sea) convention and uses DSC and satellite communication.

This front display is available for:

- Mass 24/25-2 DNV, part # **21709150**
- Mass 24/50-2, part # **21709200**
- Mass 24/75, Mass 24/100, Mass 24/100-3ph, part # **21709300**



## Mass Battery Chargers

### Specifications – 24V & 48V



Mass  
24/75 (120V)










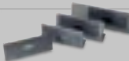
Mass  
24/15-2



Mass  
24/25-2



Mass  
24/25-2 DNV-GL

Part #	40120756	40020156	40020256	40720266
<b>General Specifications</b>				
Nominal output voltage	24V	24V	24V	24V
Total charge current	75A at 28.5V	15A at 28.5V	25A at 28.5V	25A at 28.5V
Number of outputs	1	2	2	2
Charge current second output	n.a.	3A	3A	3A
Recommended battery capacity	150–800 Ah	30–150 Ah	50–250 Ah	50–250 Ah
Nominal input voltage	120V (90–130V) 60/50 Hz	230V (180–265V) 50/60Hz	230V (180–265V) 50/60Hz	230V (180–265V) 50/60Hz
Power supply mode	yes	yes	yes	yes
Display/read-out	LED display	LED display	LED display	LED display
Dimensions, HxWxD	16.5" x 12.5" x 5.1" 420 x 318 x 130 mm	12.8" x 8.7" x 4.4" 325 x 220 x 111 mm	12.8" x 8.7" x 4.4" 325 x 220 x 111 mm	14.4" x 8.7" x 4.4" 365 x 220 x 111 mm
Weight	17 lb / 7.7 kg	7.3 lb / 3.3 kg	7.3 lb / 3.3 kg	7.7 lb / 3.5 kg
Approvals*	CE, ABYC A-31, DNV-GL	CE, ABYC A-31, RRR, RMRS	CE, ABYC A-31, RRR, RMRS	CE, ABYC A-31, DNV-GL, RRR, RMRS
<b>Technical Specifications</b>				
Charge characteristic**	IUoUo, automatic / 3-step+ for Gel/AGM/ flooded/Lithium Ion (LiFePO4)		IUoUo, automatic/3-step+ for Gel/AGM/ flooded/Lithium Ion (LiFePO4)	
Temperature sensor	yes (included)	yes (included)	yes (included)	yes (included)
DC voltage compensation	yes	yes	yes	yes
DC consumption	<1 mA	<1 mA	<1 mA	<1 mA
Full load consumption	2770 W	550 W	880 W	880 W
Power factor control	>0.95	>0.95	>0.95	>0.95
Temperature range (ambient temp.)	-13°F to 176°F, derating > 113°F (-25°C to 80°C, derating > 45°C)			
Cooling	vario fan	vario fan	vario fan	vario fan
Protection degree	IP23	IP23	IP23	IP23
Protections	over temperature, over load, short circuit, high/low battery voltage		over temperature, over load, short circuit, high/low battery voltage	
MasterBus compatible	yes	yes	yes	yes
Charger Status Interface (alarm contact)	yes	yes	yes	yes
<b>Options</b>				
MasterView Read-out 77010050		option	option	option
Remote panel for reading the charge status of your battery charger, including error notifications.				
EasyView 5 77010310		option	option	option
Waterproof system monitor with 'daylight readable' color display and intuitive multi-language touchscreen to show the key system information at a glance. There is also a logbook feature for warnings and alarms, along with a buzzer and alarm notifications. The home button gives access to favorite pages.				
MasterShunt 77020115		option	option	option
MasterBus integrated shunt, with detailed information on the status of your batteries for a optimized charging process, incl voltage, current, remaining time and consumption capacity in percentage.				
DC Distribution 77020200		option	option	option
Smallest distribution model available. It connects up to four DC devices to the DC groups, such as a battery charger, inverter, alternators and solar panels. With the included plug & play cable it can be easily connected to the MasterBus network.				
Mastervolt USB Interface 77030100		option	option	option
Communication port between MasterBus and the USB port of your PC; makes possible reading and configuration of your MasterBus system on the PC when combined with MasterView System software (free to download).				
Temperature Sensors 41500500 , 6M 41500800 , 15M		included option	included option	included option
GMDSS remote panel 70400050		option	option	option
Remote monitoring for Mass battery chargers, with GMDSS system monitoring functions. Battery voltage and current are displayed on the digital panel.				
Front panel with GMDSS remote panel		n.a.	n.a.	option 21709150

\* Check our website for the certificates per model.

\*\* The charge characteristic can be set to your requirements.



Mass  
24/50-2  
**40020506**



Mass  
24/75  
**40020756**



Mass  
24/100  
**40021006**



Mass  
24/100-3ph  
**40031006**



Mass  
48/25  
**40040256**



Mass  
48/50  
**40040506**

24V	24V	24V	24V	48V	48V
50A at 28.5V	75A at 28.5V	100A at 28.5V	100A at 28.5V	25A at 57V	50A at 57V
2	1	1	1	1	1
3A	n.a.	n.a.	n.a.	n.a.	n.a.
100–500 Ah	150–750 Ah	200–1000 Ah	200–1000 Ah	100–500 Ah	100–500 Ah
230V (180–265V) 50/60Hz	230V (180–265V) 50/60Hz	230V (180–265V) 50/60Hz	3x400V (365–550V) 50/60Hz	230V (180–250V) 50/60Hz	230V (180–250V) 50/60Hz
yes	yes	yes	yes	yes	yes
LED display	LED display	LED display	LED display	LED display	LED display
13.4"x10.3" x 5.1" 340 x 261 x 130 mm	16.5" x 12.5" x 5.1" 420 x 318 x 130 mm	16.5" x 12.5" x 5.1" 420 x 318 x 130 mm	16.5" x 12.5" x 5.1" 420 x 318 x 130 mm	13.4" x 10.3" x 5.1" 340 x 261 x 130 mm	16.5" x 12.5" x 5.1" 420 x 318 x 130 mm
10.1 lb / 4.6 kg	17 lb / 7.7 kg	17 lb / 7.7 kg	17 lb / 7.7 kg	10.1 lb / 4.6 kg	17 lb / 7.7 kg
CE, ABYC A-31, DNV-GL, RRR, RMRS	CE, ABYC A-31 / RRR, RMRS, Lloyds, DNV GL	CE, ABYC A-31 / RRR, RMRS, Lloyds, DNV GL	CE, E-mark, ABYC A-31, RRR, RMRS	CE, E-mark, ABYC A-31, RRR, RMRS	CE, E-mark, ABYC A-31, RRR, RMRS
IUoUo, automatic/3-step+ for Gel/AGM/ flooded/Lithium Ion (LiFePO4)		IUoUo, automatic/3-step+ for Gel/AGM/ flooded/Lithium Ion (LiFePO4)		IUoUo, automatic/3-step+ for Gel/AGM/ flooded/Lithium Ion (LiFePO4)	
yes (included)	yes (included)	yes (included)	yes (included)	yes (included)	yes (included)
yes	yes	yes	yes	yes	yes
<1 mA	<1 mA	<1 mA	<1 mA	<1 mA	<1 mA
1800 W	2600 W	3500 W	3500 W	1800 W	3500 W
>0.95	>0.95	>0.95	>0.95	>0.95	>0.95
-13°F to 176°F, derating > 113°F (-25°C to 80°C, derating > 45°C)			-13°F to 176°F, derating > 113°F (-25°C to 80°C, derating > 45°C)		
vario fan	vario fan	vario fan	vario fan	vario fan	vario fan
IP23	IP23	IP23	IP23	IP23	IP23
over temperature, over load, short circuit, high/low battery voltage		over temperature, over load, short circuit, high/low battery voltage		over temperature, over load, short circuit, high/low battery voltage	
yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes
option	option	option	option	option	option
option	option	option	option	option	option
option	option	option	option	option	option
option	option	option	option	option	option
option	option	option	option	option	option
included option	included option	included option	included option	included option	included option
option	option	option	option	option	option
option	option	option	option	n.a.	n.a.
<b>21709200</b>	<b>21709300</b>	<b>21709300</b>	<b>21709300</b>		

## ChargeMaster Plus Series Battery Chargers:

### All-in-one solution for faster and safer charging

ChargeMaster Plus is the next generation battery chargers that integrates multiple functions into one single device. Replacing auxiliary chargers, battery isolators and VSR, ChargeMaster Plus reduces system complexity and cost. Designed for versatility, it charges virtually any combination of three batteries at high speed and works anywhere in the world.



#### ChargeMaster Plus Series Features

- MasterBus, CZone and NMEA communication.
- Multicharger with two outputs, one in/output, DC-DC converter, current limiter and VSR
- Combine Lithium Ion, Gel or AGM, and large or small 12/24V battery banks on a single charger (24V models only)
- Charges multiple batteries while being underway
- Extended Specifications: offers 20% more output at 14.4V and 80% charging power at 140°F (60°C)
- Safe Charge: quickly recognize the State-of-Charge for extended battery life
- Very wide operating range of 80-275V AC, 35-70 Hz
- Compact, easy to connect and quick to install
- Pre-float prevents batteries that are nearly full from overcharging



With the new Battery's best friend architecture, ChargeMaster Plus is capable of charging a multitude of battery chemistries, sizes and voltages. All batteries are charged with the fast and safe 3-step+ charge method.

Other unique features are:

- Revival mode: automatically revives even fully depleted batteries
- Multi voltage: charge 12V starter battery in a 24V system, without additional components (24V models only).
- Priority charge: redirect available power to the lowest battery, for faster charging.
- Smart Input: charge all three batteries from one single alternator for continuous charging on the go.

### Global charging



The ChargeMaster Plus handles worldwide AC voltages and frequencies. Resisting large voltage fluctuations and high temperatures, it keeps working in harsh environments. For marine and mobile markets, ChargeMaster Plus is CE, ABYC, UL, SAE, CEC and RCM/C-Tick compliant.

### System simplicity



Nowadays, equipment must be self-explaining. The ChargeMaster Plus displays the charge phase of all three outputs in an understandable way. Robust and ergonomic connections save installation time. An integrated VSR eliminates the need for additional components and ensures that the alternators energy is funnelled through to the batteries.

### Powerful connections CZone® Integration



In modern applications, all electrical components work together. The CAN-based MasterBus enables the ChargeMaster Plus to communicate with displays, shunts and power systems. Models with the addition "CZone integrated" do not only support MasterBus, but also support CZone and NMEA communication, without the need of additional interfaces. The ChargeMasters Plus series can be configured via MasterBus or will accept a CZone configuration file just like any other CZone device. Other communication standards like ModBus, CANopen, LinBus, etc. are supported via additional interfaces. This wide range of communication interfaces makes the ChargeMaster Plus ideally suited for system integration. All models of the ChargeMaster Plus series can operate as a power supply for delicate communication equipment, or during the construction phase of a boat.



### TECH TIP

ChargeMaster Plus simplifies charging systems. Charging faster and safer than ever, this all-in-one charging solution offers best value for money.





## ChargeMaster Plus Battery Chargers

### Specifications – 12V & 24V

WORKS WITH  
**CZONE®**



ChargeMaster Plus  
12/35-3








ChargeMaster Plus  
12/50-3



ChargeMaster Plus  
12/75-3



ChargeMaster Plus  
12/100-3

Part #	44310305	44310505	44310755	44311005
General Specifications				
Nominal output voltage	12V	12V	12V	12V
Max. charge current per output	35V	50V	75A	100A
Smart In-/Output output voltage	12V	12V	12V	12V
Smart In-/Output output current	n.a.	n.a.	5-40A (adjustable)	5-10A at 12V
Smart In-/Output input current	n.a.	n.a.	max. 40A	max. 40A
Secondary output voltage	n.a.	n.a.	n.a.	n.a.
Secondary output current	n.a.	n.a.	n.a.	n.a.
Max. AC current (230 V / 120 V)	2.4A/4.9A	3.5A/7A	6.5A / 13A	8.5A / 17A
Total charge current	35A at 14.4V	50A at 14.4V	75A at 14.4V	100A at 14.4V
Number of outputs	3 (max.)	3 (max.)	3 (max.)	3 (max.)
Recommended battery capacity	70-300 Ah	140-400 Ah	320-800 Ah	400-1000 Ah
Nominal input voltage	120/230V (80-275V) 50/60 Hz		120/230V (80-275V) 50/60 Hz	
AC connection	screw terminals	screw terminals	screw terminals	screw terminals
Power supply mode	yes	yes	yes	yes
Display/read-out	LED	LED	LED	LED
Dimensions, hwxwd	11.5" X 8.3" X 4.1" (291 X 210 X 105 mm)		15.1" x 9.8" x 5" (384 x 250 x 127 mm)	
Weight	5.5 lb / 2.5 kg	5.5 lb / 2.5 kg	13 lb / 5.9 kg	13 lb / 5.9 kg
Approvals	CE, ABYC, UL1236, SAE J1171, ISO 8846, CEC, RCM/C-Tick			
Technical Specifications				
Charge characteristic Charge characteristic can be set to your requirements	IUoUo, automatic, 3-step+ for Gel/AGM/ Lithium Ion (LiFePO4)/traction/spiral		IUoUo, automatic / 3-step+ for Gel/AGM/Lithium Ion (LiFePO4)/traction/spiral	
Temperature compensation	-17 mV/°F (-30 mV/°C) temperature sensor included		-17 mV/°F (-30 mV/°C) temperature sensor included	
Voltage compensation	through MasterShunt		through MasterShunt	
DC consumption	< 2 mA (MasterBus off)		< 2 mA (MasterBus off)	
Current Control function	yes, through MasterBus		yes, through MasterBus	
Power factor	> 0.98	> 0.98	> 0.98	> 0.98
Temperature range (ambient temp.)	-13°F to 176°F, derating > 104°F (-25°C to 80°C, derating > 40°C)		-13°F to 176°F, derating > 104°F (-25°C to 80°C, derating > 40°C)	
Cooling	vario fan	vario fan	vario fan	vario fan
Protection degree	IP23, vertical mounting		IP23, vertical mounting	
Protections	over-temperature, overload, short circuit, high/low battery voltage, ignition protection			
Communication	MasterBus, CZone, NMEA		MasterBus, CZone, NMEA	
Charger Status Interface (alarm contact)	yes, using a Multipurpose Contact Output (part # 77030500)		yes, using a Multipurpose Contact Output (part # 77030500)	
Options				
MasterView Read-out 77010050		option	option	option
Remote panel for reading the charge status of your battery charger, incl. error notifications.				
EasyView 5 77010310		option	option	option
Waterproof system monitor with 'daylight readable' color display and intuitive multi- language touchscreen to show the key system information at a glance. There is also a logbook feature for warnings and alarms, along with a buzzer and alarm notifications. The home button gives access to favorite pages.				
MasterShunt 77020115		option	option	option
MasterBus integrated battery monitor, with detailed information on the status of your batteries for a optimized charging process, incl. voltage, current, remaining time and consumption capacity in percentage.				
DC Distribution 77020200		option	option	option
Smallest distribution model available. It connects up to four DC devices to the DC groups, such as a battery charger, inverter, alternators and solar panels With the included plug & play cable it can be easily connected to the MasterBus network.				
Mastervolt USB Interface 77030100		option	option	option
Communication port between MasterBus and the USB port of your PC; makes possible reading and configuration of your MasterBus system on the PC when combined with MasterView System software (free to download).				

ChargeMaster Plus  
24/20-3ChargeMaster Plus  
24/30-3ChargeMaster Plus  
24/40-3ChargeMaster Plus  
24/60-3ChargeMaster Plus  
24/80-2ChargeMaster Plus  
24/110-2

44320205

44320305

44320405

44320605

44320805

44321105

24V

24V

24V

24V

24V

24V

20A

30A

40A

60A

80A

100A

12 or 24V

12 or 24V

12 or 24V

12 or 24V

n.a.

n.a.

n.a.

n.a.

5-20A at 24V (adjustable)

5-20A at 24V (adjustable)

n.a.

n.a.

n.a.

n.a.

10A at 12V  
max. 20A at 24V10A at 12V  
max. 20A at 24V

n.a.

n.a.

n.a.

n.a.

n.a.

n.a.

14.25/28.5V (12/24V)

14.25/28.5V (12/24V)

n.a.

n.a.

n.a.

n.a.

15A at 12V / 20A at 24V  
(adjustable)15A at 12V / 20A at 24V  
(adjustable)

2.8A/5.6A

4.1A / 8.4A

6.8A / 13.5A

10.2A / 20.4A

11.75 A / 23 A

15.75 A / 31.5 A

20A at 28.8V

30A at 28.8V

40A at 28.8V

60A at 28.8V

80 A at 28.8 V

110 A at 28.8 V

3 (max.)

3 (max.)

3 (max.)

3 (max.)

2 (max.)

2 (max.)

160-400 Ah

200-500 Ah

160-400 Ah

200-500 Ah

280-700 Ah

400-1000 Ah

120/230V (80-275V) 50/60 Hz

120/230V (80-275V) 50/60 Hz

120/230V (80-275V) 50/60 Hz

screw terminals

screw terminals

screw terminals

screw terminals

screw terminals

screw terminals

yes

yes

yes

yes

yes

yes

LED

LED

LED

LED

LED

LED

11.5" X 8.3" X 4.1" (291 X 210 X 105 mm)

15.1" x 9.8" x 5" (384 x 250 x 127 mm)

15.1" x 9.8" x 5" (384 x 250 x 127 mm)

5.5lb / 2.5 kg

5.5 lb / 2.5 kg

13 lb / 5.9 kg

13 lb / 5.9 kg

13.9 lb / 6.3 kg

13.9 lb / 6.3 kg

CE, ABYC, UL1236, SAE J1171, ISO 8846, CEC, RCM/C-Tick

CE, ABYC, UL1236, SAE J1171, ISO 8846, CEC, RCM/C-Tick

IUoUo, automatic, 3-step+ for Gel/AGM/  
Lithium Ion (LiFePO4)/traction/spiralIUoUo, automatic, 3-step+ for Gel/AGM/  
Lithium Ion (LiFePO4)/traction/spiralIUoUo, automatic, 3-step+ for AGM/Gel/flooded/  
Lithium Ion and a user defined option-17 mV/°F (-30 mV/°C)  
temperature sensor included-17 mV/°F (-30 mV/°C)  
temperature sensor included-76 mV/°F (-60 mV/°C)  
temperature sensor included

through MasterShunt

through MasterShunt

through automatic compensation or MasterShunt

&lt; 2 mA (MasterBus off)

&lt; 2 mA (MasterBus off)

&lt; 2 mA (MasterBus off)

yes, through MasterBus

yes, through MasterBus

through MasterBus or CZone

&gt; 0.98

&gt; 0.98

&gt; 0.98

&gt; 0.98

&gt; 0.98

&gt; 0.98

-13°F to 176°F, derating > 104°F  
(-25°C to 80°C, derating > 40°C)-13°F to 176°F, derating > 104°F  
(-25°C to 80°C, derating > 40°C)-13°F to 176°F, derating > 104°F  
(-25°C to 80°C, derating > 40°C)

vario fan

vario fan

vario fan

vario fan

vario fan

vario fan

IP23, vertical mounting

IP23, vertical mounting

IP23, vertical mounting

over-temperature, overload, short circuit, high/low battery voltage, ignition protection

MasterBus, CZone, NMEA

MasterBus, CZone, NMEA

MasterBus, CZone, NMEA

yes, using a Multipurpose Contact Output  
(part # 77030500)yes, using a Multipurpose Contact Output  
(part # 77030500)yes, using a Multipurpose Contact Output  
(part # 77030500)

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

option

## ChargeMaster Series Battery Chargers:

Charge your batteries quickly and completely



Make the most of your batteries with the ChargeMaster series, plugging in and charging anywhere in the world. Mastervolt's ChargeMaster guarantees fast and complete charging of your batteries no matter where you are. And thanks to Mastervolt's innovative 3-step+ charging process, batteries also perform better and last longer.



### ChargeMaster Series Features

- For recreational and semi-professional use
- Suitable for any type of battery, including Lithium Ion batteries
- 3-Step+ charging technology for fast and complete charging, also charges depleted batteries
- Memory function prevents overcharging in case of unreliable mains
- Safe and complete charging due to standard safety features
- Charging capacity up to 1000 Ah battery banks
- Easy to connect and quick to install
- Can charge multiple battery banks simultaneously
- Built-in system functionality (MasterBus) in combination with other Mastervolt products
- Clear control panel
- Supplies your system without battery



All ChargeMasters can be easily connected to a MasterBus network with only one cable and one connection (with the exception of the ChargeMaster 12/10, ChargeMaster 12/15-2 and ChargeMaster 24/6). What's more, you have the option for central, local or remote monitoring, configuration and control of your system.

### Clear Display

A clearly lit display on the ChargeMaster provides all essential information: charge current, charge voltage, charge phase and battery content measurement and/or battery condition measurement as a percentage of available Ah capacity. The read-out panel also provides an indication of MasterBus communication. Three buttons adjacent to the read-out panel allow for easy operating of the entire system.

The ChargeMaster is available in various models to guarantee you the ideal battery charger for any situation and demand.

### Powerful connections CZone® Integration



In modern applications, all electrical components work together. The CAN-based MasterBus enables the ChargeMaster to communicate with displays, shunts and power systems. Models with the addition "CZone integrated" do not only support MasterBus, but also support CZone and NMEA communication, without the need of additional interfaces. The ChargeMasters series can be configured via MasterBus or will accept a CZone configuration file just like any other CZone device. Other communication standards like ModBus, CANopen, LinBus, etc. are supported via additional interfaces. This wide range of communication interfaces makes the ChargeMaster ideally suited for system integration. All models of the ChargeMaster series can operate as a power supply for delicate communication equipment, or during the construction phase of a boat.

### Charging your batteries with every voltage

The Mastervolt ChargeMaster supplies a maximum capacity wherever you are via auto-ranging. Auto-ranging ensures perfect fully automatic operation anywhere in the world, regardless of the available mains voltage (90-265V AC, 50 or 60 Hz). The 3-step+ charging technology guarantees fast and complete charging, while the cos phi 1 regulation gets the most out of limited generator capacity.



### Robust connections

Solid metal-to-metal connectors equipped with strain relief prevent corrosion and overheating.



### Charging multiple battery banks

The ChargeMaster series has three equal charge outputs. Those of the smaller ChargeMaster models are pre-installed with two meters of cable for a plug & play solution, while the heavier models have one full output (for example for your service battery) and two outputs of 10A, ideal for your starter batteries.

### DC power supply

Even if the batteries are not connected, Mastervolt ChargeMaster battery chargers can provide a constant DC output allowing you to turn on lights or keep the fridge cold.



## ChargeMaster Battery Chargers

### Specifications – 12V & 24V



ChargeMaster  
12/10










ChargeMaster  
12/25-3



ChargeMaster  
24/6



ChargeMaster  
24/12-3

Part # (UL Certified Part #)	43011000	44010250	43020600	44020120
<b>General Specifications</b>				
Nominal output voltage	12V	12V	24V	24V
Total charge current	10A at 14.25V	25A at 13.25V	6A at 28.5V	12A at 26.5V
Number of battery outlets	1	3	1	3
Charge current second output	n.a.	25A	n.a.	12A
Charge current third output	n.a.	25A	n.a.	12A
Recommended battery capacity	25–100 Ah	50–250 Ah	25–70 Ah	24–120 Ah
Nominal input voltage	230V (180–265V) 50/60Hz	120/230V (90–265V) 50/60Hz	230V (180–265V) 50/60Hz	120/230V (90–265V) 50/60Hz
AC connection	connector	6.5 ft (2 m) AC cable	socket	6.5 ft (2 m) AC cable
Power supply mode	no	yes	no	yes
Display/read-out	1 LED	LED display	1 LED	LED display
Dimensions, HxWxD	7.1" x 4.8" x 2" 180 x 121 x 50 mm	9.2" x 5.2" x 2.4" 234 x 132 x 60 mm	7.1" x 4.8" x 2" 180 x 121 x 50 mm	9.2" x 5.2" x 2.4" 234 x 132 x 60 mm
Weight	2.2 lb / 1 kg	4 lb / 1,8 kg	2.2 lb / 1 kg	4 lb / 1.8 kg
Fastening	4x screw	4x screw	4x screw	4x screw
Approvals	CE, ABYC A-31, RRR, e-mark	CE, ABYC A-31, SAE J1171/ISO 8846 ignition protected, RRR	CE, ABYC A-31, RRR, e-mark	CE, ABYC A-31, SAE J1171/ISO 8846 ignition protected, RRR
<b>Technical Specifications</b>				
Charge characteristic*	UoUo, automatic / 3-step+ for Gel/AGM/flooded/Lithium Ion (LiFePO4)			
Temperature compensation	no	yes	no	yes
Voltage compensation	automatic	automatic	automatic	automatic
DC consumption	<1 mA	<2 mA	<1 mA	<2 mA
Full load consumption (230V AC)	170 W	450 W	210 W	435 W
Current Control function	no	no	no	no
Power factor control	≥0.95	≥0.98	>0.95	≥0.98
Temperature range (ambient temp.)	-13°F to 140°F > 104°F, derating (-25°C to 60°C > 40°C, derating)			
Cooling	natural cooling	vario fan	natural cooling	vario fan
Protection degree	IP65	IP23	IP65	IP23
Protections	over temperature, over load, short circuit, high/low battery voltage			
MasterBus compatible	no	yes	no	yes
<b>Options</b>				
MasterView Read-out 77010050	 n.a.	option	n.a.	option
Remote panel for reading the charge status of your battery charger, including error notifications.				
EasyView 5 77010310	 n.a.	option	n.a.	option
Waterproof system monitor with 'daylight readable' color display and intuitive multi-language with touchscreen to show the key system information at a glance. There is also a logbook feature for warnings and alarms, along with a buzzer and alarm notifications. The home button gives access to favorite pages.				
MasterShunt 77020115	 option	option	option	option
MasterBus integrated battery monitor, with detailed information on the status of your batteries for a optimized charging process, incl. voltage, current, remaining time and consumption capacity in percentage.				
DC Distribution 77020200	 n.a.	option	n.a.	option
Smallest distribution model available. It connects up to four DC devices to the DC groups, such as a battery charger, inverter, alternators and solar panels. With the included plug & play cable it can be easily connected to the MasterBus network.				
Mastervolt USB Interface 77030100	 n.a.	option	n.a.	option
Communication port between MasterBus and the USB port of your PC; makes possible reading and configuration of your MasterBus system on the PC when combined with MasterView System software (free to download).				
Multipurpose Contact Output 77030500	 n.a.	option	n.a.	option
MasterBus controllable potential-free contact, with alarm notification on the onboard system (low voltage or no AC), usable as CSI alarm contact.				
Temperature Sensors 41500500, 6M 41500800, 15M	 included option	included option	included option	included option

\* The charge characteristic can be set to your requirements.

For detailed specifications, dimensional drawings, 3D files, images, certificates and manuals see [mastervolt.us/chargers](https://mastervolt.us/chargers).







## Mastervolt DC-DC Converters: For 12V, 24V and 48V

A DC-DC converter can provide other voltages than applied in your basic system. By using a DC-DC converter, other voltages can be reached. They also ensure that all your equipment has a stable power supply with the right voltage.

### Mac Plus & Magic Series

- Professional use
- Converter and 3-step battery charger
- Parallel switchable
- Adjustable and programmable output voltage
- Voltage stabilization for a longer lifespan of halogen lights, etc
- Dimmer function for Mac & Magic models
- Mac Plus: optimal charging in Euro 5/6 applications

The **Mac Plus** is ideal for charging service batteries in vehicles with a smart Euro 5/6 alternator.

The Mac Plus charges the batteries quickly, even when the alternator is inactive and the battery voltage very low. The automatic start/stop function ensures that empty starter batteries become a thing of the past. The Mac Plus comes with integrated MasterBus (CAN) communication and E-mark certification. It seamlessly charges Lithium Ion, Gel and AGM batteries via the tried and tested Mastervolt 3-stage charging method.

The **Mac/Magic** models can regulate the voltage both up and down to ensure an optimal voltage stabilization even when the battery voltage fluctuates due to heavy loads. The galvanic isolation between input and output prevents disruptions to, for instance, communication equipment.

### DC Master Series

- Recreational and semi-professional use
- Easy to install using included mounting bracket
- Excellent price/performance ratio
- Available in isolated and non-isolated version

#### Non-isolated or isolated

The non-isolated Mac (Plus) and DC Master models have an electrical connection between the input and output.

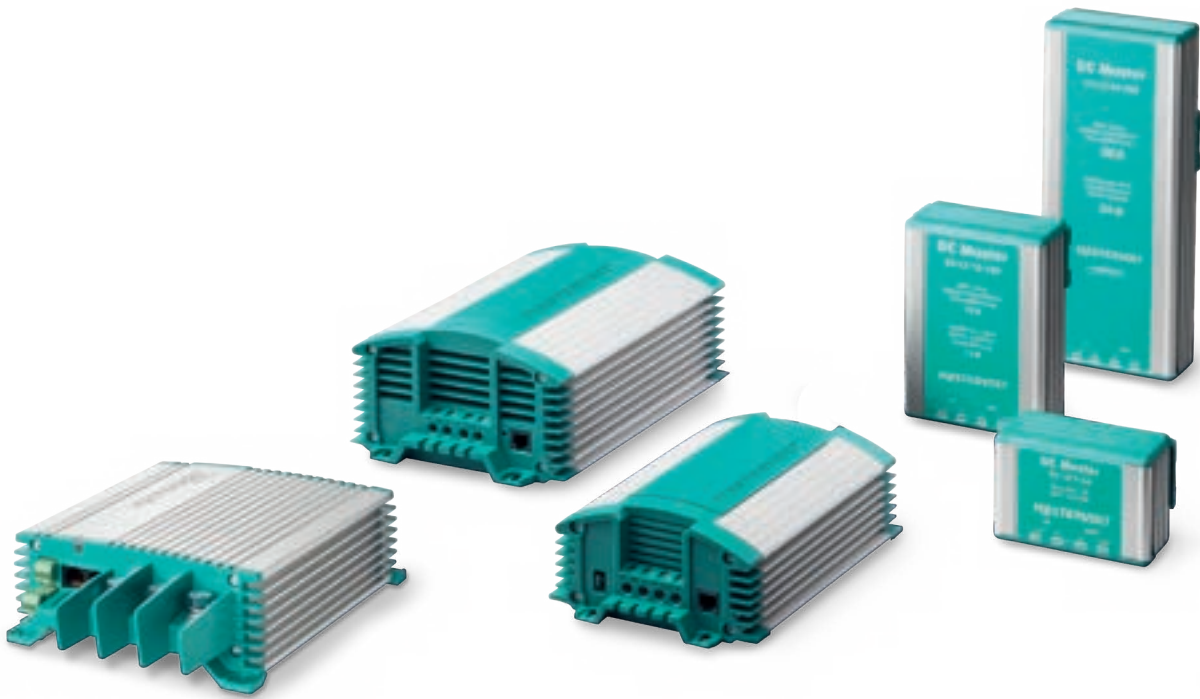
##### Features:

- Low costs
- Efficient: low heat generation
- Compact
- Suited to applications with negative earthing

The isolated Magic and DC Master models provide galvanic isolation between input and output circuits.

##### Features:

- Extra touch-proof
- Interference suppression for sensitive equipment
- Available with negative or positive grounding



### Programmable via laptop or PC



Remote control the Mac or Magic via your laptop or PC or configure your personal preferences.

The device has a communication port and easy installation with a PC-Link and MasterAdjust software.

### Euro 5/6 solutions



Charging service batteries in Euro 5/6 applications? The Mac Plus provides constant power to the service battery, even when the alternator is inactive.

### 3-Step battery charger



Connected to the 12V or 24V main battery, the converter can also be used as an advanced 3-step+ battery charger for Gel, AGM, flooded or Lithium Ion batteries

### Energy-saving dimmer function



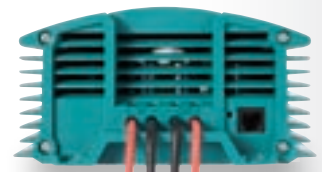
Many standard light dimmers convert part of the energy to heat and also lose unnecessary energy. The Mastervolt Magic converters regulate the power supply efficiently and without excessive heat build-up, for optimal safety (multiple Magic converters can be used for multiple lamps).

### Parallel operation



Lots of consumers on board? The parallel configuration of several units will provide you over 100 amps. Advanced high-frequency technology with modern microprocessors ensures minimum power loss when switching from 24V to 12V and vice versa.

### Solid connections



Galvanized brass connection block with screw terminal or chrome-plated fast-on for DC in/out for the Mac/Magic models. The robust M8 connections of the Mac Plus prevent any loosening due to vibrations.



## Mac Plus DC-DC Converters

**EXPANDED  
OFFERING**

### Specifications



Mac Plus 12/12V-50





Mac Plus 12/24V-30



Mac Plus 24/12V-50



Mac Plus 24/24V-30

Part #	81205100	81205300	81205200	81205400
Part # <b>CZONE</b>	81205105 <b>NEW</b>	81205305 <b>NEW</b>	81205205 <b>NEW</b>	81205405 <b>NEW</b>
<b>Specifications Input</b>				
Nominal input voltage	12V	12V	24V	24V
Input range	10–16V DC	10–16V DC	19–30V DC	19–30V DC
<b>Specifications Output</b>				
Nominal output voltage	12V DC	24V DC	12V DC	24V DC
Output voltage	10–15V DC	20–30V DC	10–15V DC	20–30V DC
Output voltage dimmer*	n.a.	n.a.	n.a.	n.a.
Output voltage stabilisation	2% at extremes of temperatures, load and input		2% at extremes of temperatures, load and input	
Ripple	max. 1% peak peak	max. 1% peak peak	max. 1% peak peak	max. 1% peak peak
Power (max./nominal)	725 / 675 W	725 / 675 W	750 / 710 W	850 / 810 W
Max. current	50A	30A	50A	30A
Parallel configuration	yes	yes	yes	yes
Charge current – 3-step mode	50A	30A	50A	30A
<b>General Specifications</b>				
Galvanic isolation	no	no	no	no
Voltage limited	yes	yes	yes	yes
Efficiency	> 95% (at nom. input voltage, full load); 97% peak		> 95% (at nom. input voltage, full load); 97% peak	
Protections	DC short circuit, overload, over-temperature, reversed polarity (fuse)		DC short circuit, overload, over-temperature, reversed polarity (fuse)	
Dimmer function	n.a.	n.a.	n.a.	n.a.
Alarm contact	yes, through MasterBus	yes, through MasterBus	yes, through MasterBus	yes, through MasterBus
Dimensions, HxWxD	10" x 6.5" x 2.6" 255 x 165 x 66 mm	10" x 6.5" x 2.6" 255 x 165 x 66 mm	10" x 6.5" x 2.6" 255 x 165 x 66 mm	10" x 6.5" x 2.6" 255 x 165 x 66 mm
Weight	4.4 lb / 2 kg	4.4 lb / 2 kg	4.4 lb / 2 kg	4.4 lb / 2 kg
Approvals	CE, E-Mark, SAE J1171 & ISO 8846 Ignition Protected	CE, E-Mark, SAE J1171 & ISO 8846 Ignition Protected	CE, E-Mark, SAE J1171 & ISO 8846 Ignition Protected	CE, E-Mark, SAE J1171 & ISO 8846 Ignition Protected
<b>Technical Specifications</b>				
3-Step charge option	yes (DIP switch settings)	yes (DIP switch settings)	yes (DIP switch settings)	yes (DIP switch settings)
DC consumption	<5 mA	<5 mA	<5 mA	<5 mA
Connections input/output	3 x M8 terminal for cable diameters of 10–50 mm <sup>2</sup> , (positive input, positive output, joint negative connection) 6-pole screw connection for cable diameters of 0.75–1.5 mm <sup>2</sup> (remote on/off, temperature sensor, voltage measurement)			
Temperature range (ambient temp.)	-13°F–140°F, >104°F derating (-25°C–60°C, >40°C derating)		-13°F–140°F, >104°F derating (-25°C–60°C, >40°C derating)	
Cooling	natural cooling	natural cooling	natural cooling	natural cooling
Protection degree	IP23	IP23	IP23	IP23
MasterBus compatible / CZone Compatible	yes / yes	yes / yes	yes / yes	yes / yes
<b>Options</b>				
EasyView 5 77010310 	option	option	option	option
Waterproof system monitor with 'daylight readable' color display and intuitive multi-language touchscreen to show the key system information at a glance. There is also a logbook feature for warnings and alarms, along with a buzzer and alarm notifications. The home button gives access to favorite pages.				
Temperature Sensors 41500500 , 6M 41500800 , 15M 	included option	included option	included option	included option

\* Adjustable with MasterAdjust software.

For detailed specifications, dimensional drawings, 3D files, images, certificates and manuals see [mastervolt.us](https://mastervolt.us).



Mac Plus 12/48V-15



Mac Plus 24/48V-15

81206205 <b>NEW</b>	81206405 <b>NEW</b>
36V/48V	36V/48V
10-52V DC	20-52V DC
48V DC	48V DC
20-30V DC	20-30V DC
n.a.	n.a.
2% at extremes of temperatures, load and input	
max. 1% peak peak	max. 1% peak peak
850 / 810 W	850 / 810 W
30A	30A
yes	yes
30A	30A
no	no
yes	yes
> 95% (at nom. input voltage, full load); 97% peak	> 95% (at nom. input voltage, full load); 97% peak
DC short circuit, overload, over-temperature, reversed polarity (fuse)	
n.a.	n.a.
yes, through MasterBus	yes, through MasterBus
10" x 6.5" x 2.6" 255 x 165 x 66 mm	10" x 6.5" x 2.6" 255 x 165 x 66 mm
4.4 lb / 2 kg	4.4 lb / 2 kg
CE, E-Mark, SAE J1171 & ISO 8846 Ignition Protected	CE, E-Mark, SAE J1171 & ISO 8846 Ignition Protected
yes (DIP switch settings)	yes (DIP switch settings)
<5 mA	<5 mA
3 x M8 terminal for cable diameters of 10-50 mm <sup>2</sup> , (positive input, positive output, joint negative connection) 6-pole screw connection for cable diameters of 0.75-1.5 mm <sup>2</sup> (remote on/off, temperature sensor, voltage measurement)	
-13°F-140°F, >104°F derating (-25°C-60°C, >40°C derating)	
natural cooling	natural cooling
IP23	IP23
yes / yes	yes / yes
option	option
included option	included option

### Mac Plus series:

#### Robust DC-DC charger guarantees optimal condition of your service battery

Traditionally, a service battery is linked to the starter battery by means of a charge relay. The starter battery is located close to the alternator and receives most of the charge current. However, the service battery is usually further away. Long cables cause voltage drop, leading to slow charging, resulting in failing appliances and premature failure of the battery.

Modern, fuel efficient engines are equipped with smart alternators, following regulations such as Euro 5 and Euro 6. Instead of a constant output, smart alternators provide a variable voltage; after a brief charging period, voltage is reduced and the charging stops. Furthermore, the energy produced by regenerative braking leads to voltage peaks. Service batteries coupled in the traditional way will receive hardly any charge and may be damaged by these peak voltages.

To solve these issues, Mastervolt introduces the Mac Plus DC-DC chargers, available in 12V or 24V. The Mac Plus monitors the service battery and compensates the voltage loss. The proven 3-step charge method ensures a quick and safe charge. Moreover, by stabilizing the charge voltage, Mac Plus protects your service battery and sensitive equipment.

#### Features

- Fast and safe charging during short trips
- Fanless design for silent operation
- Suitable for flooded, Gel, AGM and Li-Ion batteries (incl. LiFePO4)
- Charges even fully depleted batteries
- Engine run detection protects starter battery
- Adjustable current limits to meet Euro 5/6 requirements
- Voltage stabilisation protects sensitive equipment, lights and loads
- Parallel operation to obtain charging capacities well over 100 amps
- MasterBus for intelligent system monitoring and automation
- Temperature compensation and voltage sense for an optimal charging result
- E-mark certification for mobile applications.
- Power supply mode
- Heavy duty connections for easy installation and quick set up via DIP switches

## MAC & Magic Converters

### Specifications





Magic 24/12-20

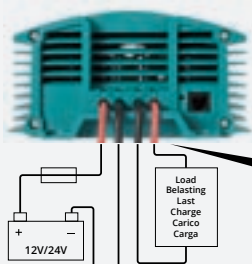
Magic 24/24-20

Magic 12/12-20

Magic 12/24-10

Part #	81300100	81300200	81300400	81300300
Specifications Input				
Nominal input voltage	24V	24V	12V	12V
Input range	19–32V DC	19–32V DC	11–16V DC	11–16V DC
Input range, 3-step charge mode	24–32V DC	24–32V DC	12–16V DC	12–16V DC
Lower input set point	20V DC*	20V DC*	10V DC*	10V DC*
Delay lower input set point	30 sec.*	30 sec.*	30 sec.*	30 sec.*
Specifications Output				
Nominal output voltage	13.6V DC*	27.2V DC*	13.6V DC*	27.2V DC*
Output voltage	10–15V DC	20–28.5V DC	10–15V DC	20–28.5V DC
Output voltage dimmer*	4–13V DC	8–26V DC	4–13V DC	8–26V DC
Output voltage stabilisation	2% at extremes of temperatures, load and input			
Ripple	max. 1% peak peak	max. 1% peak peak	max. 1% peak peak	max. 1% peak peak
Power (max./nominal)	300 / 300 W	580 / 580 W	300 / 300 W	300 / 300 W
Max. current	20A	20A	20A	10A
Parallel configuration	yes	yes	yes	yes
Charge current – 3-step mode	16A	16A	16A	8A
General Specifications				
Galvanic isolation	yes	yes	yes	yes
Voltage limited	yes	yes	yes	yes
Efficiency	>90% (at nominal input voltage, full load); 92% peak			
Protections	over-load & over-temperature			
Dimmer function	yes, by external momentary switch via fast-on connection, to be activated by DIP-switch setting			
Alarm contact	yes (fast-on connector)		yes (fast-on connector)	
Dimensions, HxWxD	8.9" x 6.1"x3.2" 227 x 154 x 81 mm	8.9" x 6.1" x 3.2" 227 x 154 x 81 mm	8.9" x 6.1" x 3.2" 227 x 154 x 81 mm	8.9" x 6.1" x 3.2" 227 x 154 x 81 mm
Weight	4 lb / 1.8 kg	4 lb / 1.8 kg	4 lb / 1.8 kg	4 lb / 1.8 kg
Approvals	CE	CE	CE	CE
Technical Specifications				
3-Step charge option	yes (DIP switch settings)	yes (DIP switch settings)	yes (DIP switch settings)	yes (DIP switch settings)
DC consumption	<115 mA	<115 mA	<115 mA	<115 mA
Connections input/output	screw terminals, maximum wire size 16 mm² / AWG5			
Temperature range (ambient temp.)	-13°F–140°F, >104°F derating (-25°C–60°C, >40°C derating)			
Cooling	maintenance free vario fans	maintenance free vario fans	maintenance free vario fans	maintenance free vario fans
Protection degree	IP21	IP21	IP21	IP21
MasterBus compatible	yes, in combination with a MasterBus Serial Interface (Part # 77030450)			
Options				
EasyView 5 77010310	option	option	option	option
	Waterproof system monitor with 'daylight readable' color display and intuitive multi-language touchscreen to show the key system information at a glance. There is also a logbook feature for warnings and alarms, along with a buzzer and alarm notifications. The home button gives access to favorite pages.			
Temperature Sensors 41500500 , 6M 41500800 , 15M	n/a	n/a	n/a	n/a
				

\* Adjustable with MasterAdjust software.



### Magic as power supply

The Magic models can be fully used as a stabilized power supply: From 12 to 24V, from 24 to 12V or from 24 to 24V. Inputs and outputs are galvanically isolated.

For detailed specifications, dimensional drawings, 3D files, images, certificates and manuals see **[mastervolt.us](http://mastervolt.us)**.







## DC Master

### Specifications

### Non-Isolated



24/12-3A



24/12-6A



24/12-12A



24/12-24A

Part #	81400100	81400200	81400300	81400330
<b>Input Specifications</b>				
Nominal input voltage	24V	24V	24V	24V
Input range	20–32V DC	20–32V DC	20–32V DC	20–32V DC
<b>Output Specifications</b>				
Nominal output voltage	13.6V	13.6V	13.6V	13.6V
Maximum power	82 W	136 W	245 W	408 W
Nominal power	41 W	82 W	164 W	326 W
Current max. 2 minutes* / continuous	6A / 3A	10A / 6A	18A / 12A	30A / 24A
DC consumption	< 15 mA	< 15 mA	< 15 mA	< 15 mA
<b>General Specifications</b>				
Dimensions, HxWxD	2.6" x 3.4" x 2" 67 x 87 x 50 mm	3.5" x 3.4" x 2" 89 x 87 x 50 mm	5" x 3.4" x 2" 127 x 87 x 50 mm	5" x 3.4" x 2" 167 x 87 x 50 mm
Weight	0.5 lb / 200 gr	0.6 lb / 270 gr	0.9 lb / 405 gr	1.4 lb / 635 gr
Approvals	CE, E-mark	CE, E-mark	CE, E-mark	CE, E-mark
Galvanic isolation	no	no	no	no
Stabilized	yes	yes	yes	yes
Connections input/output	fast-on	fast-on	fast-on	fast-on
Temperature range (ambient temp.)	-13°F to 176°F, >86°F derating (-25°C to 80°C, >30°C derating)			
Cooling	natural cooling	natural cooling	natural cooling	natural cooling
Protection degree	IP53	IP53	IP53	IP53



12/12-3A



12/12-6A



24/12-3A



24/12-6A

### Isolated

Part #	81500600	81500700	81500100	81500200
<b>Input Specifications</b>				
Nominal input voltage	12V	12V	24V	24V
Input range	10–15.5V DC	10–15.5V DC	20–32V DC	20–32V DC
<b>Output Specifications</b>				
Nominal output voltage	13.6V	13.6V	13.6V	13.6V
Maximum power	54 W	108 W	82 W	136 W
Nominal power	41 W	82 W	41 W	82 W
Current max. 2 minutes* / continuous	4A / 3A	8A / 6A	6A / 3A	10A / 6A
DC consumption	< 15 mA	< 15 mA	< 15 mA	< 15 mA
<b>General Specifications</b>				
Dimensions, HxWxD	3.5" x 3.4" x 2" 89 x 87 x 50 mm	5" x 3.4" x 2" 127 x 87 x 50 mm	3.5" x 3.4" x 2" 89 x 87 x 50 mm	5" x 3.4" x 2" 127 x 87 x 50 mm
Weight	0.6 lb / 290 gr	1 lb / 440 gr	0.6 lb / 290 gr	1.1 lb / 505 gr
Approvals	CE, E-mark	CE, E-mark	CE, E-mark	CE, E-mark
Galvanic isolation	yes	yes	yes	yes
Stabilized	yes	yes	yes	yes
Connections input/output	fast-on	fast-on	fast-on	fast-on
Temperature range (ambient temp.)	-13°F to 176°F, >86°F derating (-25°C to 80°C, >30°C derating)			
Cooling	natural cooling	natural cooling	natural cooling	natural cooling
Protection degree	IP53	IP53	IP53	IP53

\* Two minutes of extra power for short power boosts.



12/24-3A  
81400400



12/24-7A  
81400500



48/12-6A  
81400600



48/12-9A  
81400700



48/12-20A  
81400800

12V	12V	48V	48V	48V
10-15.5V DC	10-15.5V DC	40-62V DC	40-62V DC	40-62V DC
27.2V	27.2V	13.6V	13.6V	13.6V
109 W	245 W	109 W	132 W	326 W
82 W	191 W	82 W	108 W	272 W
4A / 3A	9A / 7A	8A / 6A	11A / 9A	24A / 20A
<15 mA	<25 mA	<15 mA	<15 mA	<25 mA
3.5" x 3.4" x 2" 89 x 87 x 50 mm	6.6" x 3.4" x 2" 167 x 87 x 50 mm	3.5" x 3.4" x 2" 89 x 87 x 50 mm	5" x 3.4" x 2" 127 x 87 x 50 mm	5" x 3.4" x 2" 217 x 87 x 50 mm
0.6 lb / 290 gr	1.3 lb / 610 gr	0.6 lb / 270 gr	0.8 lb / 370 gr	1.7 lb / 765 gr
CE, E-mark	CE, E-mark	CE, E-mark	CE, E-mark	CE, E-mark
no	no	no	no	no
yes	yes	yes	yes	yes
fast-on	fast-on	fast-on	fast-on	fast-on
-13°F to 176°F, >86°F derating (-25°C to 80°C, >30°C derating)				
natural cooling	natural cooling	natural cooling	natural cooling	natural cooling
IP53	IP53	IP53	IP53	IP53



24/12-12A  
81500300



24/12-24A  
81500350



24/24-3A  
81500400



24/24-7A  
81500500

24V	24V	24V	24V
20-32V DC	20-32V DC	20-32V DC	20-32V DC
13.6V	13.6V	27.2V	27.2V
245 W	408 W	109 W	245 W
164 W	326 W	82 W	191 W
18A / 12A	30A / 24A	4A / 3A	9A / 7A
<15 mA	<15 mA	<15 mA	<25 mA
6.6" x 3.4" x 2" 167x87x50 mm	8.5" x 3.4" x 2" 217 x 87 x 50 mm	5" x 3.4" x 2" 127 x 87 x 50 mm	8.5" x 3.4" x 2" 217 x 87 x 50 mm
1.3 lb / 590 gr	1.7 lb / 785 gr	1.1 lb / 440 gr	1.8 lb / 820 gr
CE, E-mark	CE, E-mark	CE, E-mark	CE, E-mark
yes	yes	yes	yes
yes	yes	yes	yes
fast-on	fast-on	fast-on	fast-on
-13°F to 176°F, >86°F derating (-25°C to 80°C, >30°C derating)			
natural cooling	natural cooling	natural cooling	natural cooling
IP53	IP53	IP53	IP53

### Complete package DC Master



All DC Master converters come with a mounting bracket, screws and fast-ons.

For detailed specifications, dimensional drawings, 3D files, images, certificates and manuals see **[mastervolt.us](https://mastervolt.us)**.

## Mastervolt Transfer Systems: Manages AC power sources

A Mastervolt transfer system forms the heart of your AC system and regulates the power supply from the electricity grid, generator or inverter. It also automatically selects the right energy source at the right time.

### Mass Systemswitch: The complete system solution

The Mass Systemswitch automatically transfers three available AC power sources to the right outputs. As well as providing more comfort on board, the automatic transfer also has a safety function: the transfer relay prevents short-circuiting between the various AC sources. The Mass Systemswitch 10 and 16 each have four outputs: 'generator only', 'power', 'shortbreak' and 'inverter only', while the Mass Systemswitch 6 has three (3) outputs: 'power', 'shortbreak' and 'inverter only'.

- Three AC inputs; for example inverter, grid power and generator
- Three or four outlets to AC power groups
- Automatic switching
- Power transfer from 4.5 kW to 16 kW, input/output from 25A to 63A
- Information source for central energy management via MasterBus network
- MasterBus compatible

### Masterswitch: The simple solution

Masterswitch offers you the choice of two energy sources, such as the inverter or grid power, with one of the inputs always having priority. The Masterswitch is available in multiple capacities, and all models are suitable for use with a generator by means of an adjustable transfer delay.

- Two AC inputs; for example grid power and inverter
- Adjustable transfer delay for generators

- One outlet to AC power group
- Automatic switching
- Power transfer up to 25 kW, input/output from 20A to 125A





### Smart electronics

The intelligent electronics control the switching to ensure an optimal energy management. Its double pole relay is durable and extremely safe.

### LED indications on Systemswitch



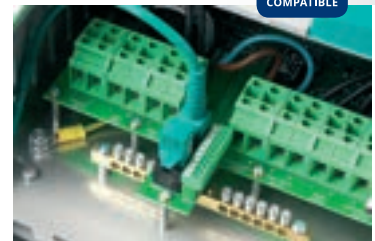
Read-out of the basic functions on the display, including indication of available power source, generator, grid power or inverter and 'load on inverter' function.

### Central Energy Management



The Easy View 5 with intuitive controls and color touchscreen shows key system information at a glance. Provided with a multi-language menu, the home button gives easy access to your favorite pages. System alerts and alarms are tracked through the logbook feature.

### Suitable for MasterBus



As the Mass Systemswitch is suitable for MasterBus, all information can also be read-out on, for instance, a EasyView display, including the status of the charge current and the inverter.





## Transfer Systems

### Specifications



Mass Systemswitch  
16 kW



Masterswitch  
5 kW



Masterswitch  
3 kW (120V)



Masterswitch  
10 kW

Part #	55008205	55006010	55006000	55006015
<b>General Specifications</b>				
Nominal input voltage	230V (50/60Hz)	230V (50/60Hz)	120V (50/60 Hz)	230V (50/60Hz)
Input voltage range	200-250V AC	200-250V AC	100-125V AC	200-250V AC
Number of inputs	3	2	2	2
Number of outputs	4	1	1	1
Dimensions, HxWxD	13.4" x 10.3" x 5.7" 340 x 261 x 144 mm	7.9" x 4.3" x 4.5" 200 x 110 x 115 mm	7.9" x 4.3" x 4.5" 200 x 110 x 115 mm	7.9" x 4.3" x 4.5" 200 x 110 x 115 mm
Weight	11 lb / 5 kg	2.6 lb / 1.2 kg	2.6 lb / 1.2 kg	2.9 lb / 1.3 kg
<b>Technical Specifications</b>				
Connection for remote control	yes	no	no	no
MasterBus compatible	yes	no	no	no
LED indication on cabinet	indication voltage sources present and 'load on inverter' mode	no	no	no
Nominal input current generator	63A	20A	25A	40A
Nominal input current shore	40A	20A	25A	40A
Nominal input current inverter	25A	n.a.	n.a.	n.a.
Earth leakage switch	no	n.a.	n.a.	n.a.
Generator input switch	continuous monitoring of voltage and frequency	no	no	no
Time delay generator input	0-10 sec (adjustable)	0-10 sec (adjustable)	0-10 sec (adjustable)	0-10 sec (adjustable)
Nominal current shortbreak output	25A	n.a.	n.a.	n.a.
Nominal current power output	40A	20A	20A	40A
Nominal current generator output	63A	n.a.	25A	n.a.
Automatic circuit breakers	no, system dependent	no, system dependent	no, system dependent	no, system dependent
Power consumption (AC all inputs)	33 W	7 W	7 W	7 W
Power consumption (only inverter power)	<1 W	0 W	0 W	0 W
Temperature range (specified)	-23°F to 140°F (-31°C to 60°C)	-23°F to 140°F (-31°C to 60°C)	-23°F to 140°F (-31°C to 60°C)	-23°F to 140°F (-31°C to 60°C)
Temperature range (allowed)	-13°F to 158°F (-25°C to 70°C) (may not meet the specified tolerances)	-13°F to 158°F (-25°C to 70°C) (may not meet the specified tolerances)	-13°F to 158°F (-25°C to 70°C) (may not meet the specified tolerances)	-13°F to 158°F (-25°C to 70°C) (may not meet the specified tolerances)
Temperature range (storage/non operating)	-76°F to 176°F (-60°C to 80°C)	-76°F to 176°F (-60°C to 80°C)	-76°F to 176°F (-60°C to 80°C)	-76°F to 176°F (-60°C to 80°C)
Relative humidity	maximum 95%, non condensing	maximum 95%, non condensing	maximum 95%, non condensing	maximum 95%, non condensing
Transfer time	switch on 12-22 ms / switch off 4-19 ms	switch on 12-22 ms / switch off 4-19 ms	switch on 12-22 ms / switch off 4-19 ms	switch on 12-22 ms / switch off 4-19 ms
Frequency watch	yes	no	no	no
Cable size	0.5-10 mm²/AWG 20-7, remote control: 0.14-2.5 mm²/AWG 26-13	0.5-10 mm²/AWG 20-7	0.5-10 mm²/AWG 20-7	0.5-10 mm²/AWG 20-7
Protection degree	IP23	IP55	IP55	IP55

### Advantages of the Mastervolt transfer system

- Activating and selecting 230V sources: Grid power, inverter and generator (adjustable to amperage of grid power, for instance 6A)
- Prevents parallel connection between inverter and other 230V sources, avoiding damage to the inverter
- Fully compatible with Mastervolt systems, and suitable for installations from other brands, other generators and/or inverters



Masterswitch 7 kW (120V)      Masterswitch 25 kW

55106100      55003500

120 V (50/60 Hz)	230V (50/60Hz)
100-125V AC	200-250V AC
2	2
1	1
7.9" x 6.1" x 5.8" 200 x 154 x 148 mm	11.5" x 9.5" x 6.6" 291 x 241 x 168 mm
2.5 lb / 5.5 kg	8.4 lb / 3.8 kg
no	no
no	no
no	no
60A	125A
60A	125A
n.a.	n.a.
n.a.	n.a.
no	no
0-10 sec (adjustable)	0-10 sec (adjustable)
n.a.	n.a.
40A	125A
60A	n.a.
no, system dependent	no, system dependent
7 W	7 W
0 W	0 W
-23°F to 140°F (-31°C to 60°C)	
-13°F to 158°F (-25°C to 70°C) (may not meet the specified tolerances)	
-76°F to 176°F (-60°C to 80°C)	-76°F to 176°F (-60°C to 80°C)
maximum 95%, non condensing	
switch on 12-22 ms / switch off 4-19 ms	
no	no
0.5-10 mm²/AWG 20-7	0.5-10 mm²/AWG 20-7
IP55	IP55



# BATTERIES

## MLI Ultra Lithium Ion Batteries



64

Top quality Lithium Ion batteries. High capacity and specifically developed for extremely short charging cycles. Equipped with various functions including a Battery Management System and MasterBus communication.

## MVG Gel Series



66

Ideal as service battery and for cyclic use. For medium to large 12V and 24V systems with a high number of charging and discharging cycles. Charges very quickly.

## MVSV 2 Volt Gel Series



67

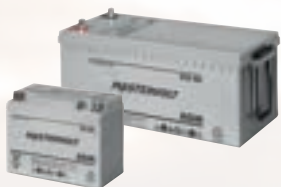
Robust Gel batteries designed for large systems and intensive use. Charge quickly and are extremely durable. Suitable for horizontal and vertical placement and problem-free deep discharge.





# BATTERIES

## AGM Series



68

The excellent starter function makes this battery an ideal replacement for traditional open batteries. Also suitable for light cyclic use.

## AGM Slimline Series



68

Universal and very slim battery with exceptionally small footprint. Saves up to 15% in volume and weight.

## AGM 6 Volt Series



68

Alternative solution regarding placement and size for composing high capacity 12/24/48V battery sets.

## Battery Terminals and Covers



69

Your battery set is not complete without a proper connection with the electrical onboard system. Mastervolt supplies battery terminals, which combined with the correct covers, connect your batteries safely.



Professional boaters rely on Mastervolt batteries to power through difficult applications in tough environments.





## Mastervolt Batteries:

### The right choice for power storage

Mastervolt makes selecting the right battery simple. Whether you choose a low priced battery such as the AGM or an innovative and technologically advanced Lithium Ion (LiFePO4) battery, Mastervolt has the right battery for every application.

Mastervolt has divided its entire battery range of 36 types into seven series and five different battery technologies. Each series has its specific benefits.

#### All Mastervolt batteries offer you these advantages:

- Maintenance-free
- Built for safety—no gassing
- Easy to install
- Designed for cyclic use (charge/discharge)
- Minimum self-discharge
- Two-year warranty

#### Issues to take into account:

- Determining the correct battery capacity for your new battery/batteries is very important. For support and more information see **[mastervolt.us/batteries](https://mastervolt.us/batteries)**.
- Choosing the right battery charger guarantees the maximum lifespan for your batteries. Mastervolt's modern 3-step+ charge technology charges your batteries safely and quickly. For more information see **[mastervolt.uschargers](https://mastervolt.uschargers)**.
- A battery monitor is the best way to make the most of your batteries. Go to **[mastervolt.us/batterymonitor](https://mastervolt.us/batterymonitor)** for more information.

To choose the right battery, go to the table on the opposite page.



## Which battery is best for your application?

		1 MLI Lithium Ion	2 MVG semi-traction	3 MVSV 2V Gel traction	4 AGM semi-traction
Maintenance-free	–	★★★★	★★★★	★★★★	★★★★
No gas formation during charging	★	★★★★★	★★★	★★★	★★★
Low self discharge while inactive	–	★★★	★★★★	★★★★	★★★★
Lifespan with complete discharge	★	★★★★★	★★★	★★★★	★★
Lifespan with limited discharge	★★	★★★★★	★★★★	★★★★	★★★
Resilience to excessive charge current	★★	★★★★★	★★★	★★★★	★★
Suitable for prolonged high discharge current	★★★	★★★★★	★★★	★★★	★★★
Suitable for selection of battery bank with high capacity	★★	★★★★★	★★★	★★★★★	★★
Suitable for E-propulsion	★	★★★★★	★★★	★★★★	★★★★
Suitable for starting motors	★★	★★★★	★★★	★★	★★★★
Shock-resistance	★	★★★★	★★★★	★★★★	★★★★
Number of charge/discharge cycles	★	★★★★★	★★★	★★★★	★★
Temperature-resistance	★	★★★★★	★★★★	★★★★	★★
Installation angle/angle of inclination	–	★★★★	★★★★	★★★★	★★★★
Return on investment with limited use	★	★★★	★★★	★★★★	★★★
Return on investment with intensive use	★	★★★★★	★★★	★★★★	★★
Product warranty	± 1 year	2 year	2 year	7 year pro rata	2 year
Worldwide service	★	★★★★★	★★★★★	★★★★★	★★★★★

★★★★★ = excellent    ★★★★ = very good    ★★★ = good    ★★ = adequate    ★ = inadequate    – = poor

### 1 Lithium Ion batteries



Lithium Ion batteries have a high energy density, offering savings of up to 70% in volume and weight compared to traditional lead-acid batteries. They are perfect for cyclic applications, making over 2000 cycles with very deep (80%) discharges, effectively storing 5 times as much energy over its lifespan compared to lead-acid.

The Mastervolt MLI range is top of the line. It offers large capacity batteries designed for extreme duty cycling, with all possible features such as integrated Battery Management System (BMS) plus MasterBus/CAN and CZone/NMEA communication.

### 2 Gel batteries



In Gel batteries, the electrolyte is absorbed by a Gel. This type of battery is entirely maintenance-free and has no gas formation with normal use. As no extra ventilation is required, Gel batteries can be installed anywhere. They are ideal as service battery and for cyclical use, and can be charged very quickly.

### 3 Traction batteries



This robust Gel battery is designed for regular and deep discharging (> 1000 full cycles), and is ideal for large systems that require intensive use and a very long lifespan.

### 4 AGM batteries



In AGM batteries, the electrolyte (mixture of water and sulphuric acid) is largely absorbed in glass material. This type of battery is entirely maintenance-free and there is no gas formation with normal use. Not requiring any ventilation, these batteries can be installed anywhere. Their construction gives a very fast discharge at very high currents so AGM batteries are ideal for systems that require high currents (for instance when starting an engine). The battery poles can be unscrewed and this type of battery can be combined with every standard battery terminal.

## Lithium Ion Batteries

Lithium Ion is the battery technology of today. Do you want to be the fastest or best performing? Do you want to save energy or burn less fuel? Do you want your investment to last longer? Do you want to be 'out there' longer without getting anxious about your energy? Then Lithium Ion (LiFePO<sub>4</sub>) is your choice of batteries.



### A few of its outstanding features

- Space and weight savings up to 70%
- Three times the lifespan of traditional batteries (2000 cycles)
- Extremely fast charging and discharging
- High efficiency: not wasting energy
- Safe operation
- MasterBus, CZone and NMEA 2000 communication



### Safest Lithium Ion technology available

The term Lithium Ion encompasses multiple chemistries, having slightly different compositions of materials. These differences result in variations of energy and power density, lifespan, cost and safety. As safety is our primary concern, Mastervolt chooses to use only the safest available Lithium Ion chemistry, Lithium-iron phosphate (LiFePO<sub>4</sub>).

### MLI Series

Large capacity series, fully equipped for extreme cycling, like running airconditioning, pumps or electric motors for long periods of time with short intermittent charging.

The MLI series is designed to be able to enjoy all the best properties of Lithium Ion technology in the harshest conditions (high charge/discharge currents, flooded environment, mechanical shock or vibrations). To do this, the MLI batteries bring two things on top of Lithium-iron phosphate cells: a sturdy, waterproof housing and the best Battery Management System (BMS). The BMS ensures optimal use of each individual cell, even during fast charge and discharge, and has integrated battery monitoring to always have the best information on the state of your battery. Last but not least, it has MasterBus/CAN and CZone/NMEA communication to the Mastervolt battery charger or to any CZone/NMEA based product to ensure the best possible recharging and lifetime of the battery.

### TECH TIP

#### Performance Ready

The beating heart of the electrical system onboard all boats participating in the Volvo Ocean Race was formed by two Mastervolt MLI Ultra 24/5000 Lithium Ion (LiFePO<sub>4</sub>) batteries, which performed seamlessly throughout the race. Choose indestructible Mastervolt Lithium Ion batteries, like the Volvo Ocean Race boats.





### Suitable for large battery banks

The MLI series is ideal for electric and hybrid applications, and can be connected in parallel unlimited. The built-in common-rail technology offers an easy series connection of multiple MLI Ultra batteries.

### TECH TIP

The NEW MLI 1250 is designed to be extremely easy to install without any additional components. Both 12V and 24V models are IP65 and have built-in Battery Management System (BMS) and safety features which make it a straight forward replacement for most existing lead acid batteries



### Safe operation

The Mastervolt MLI series is equipped with an integrated Battery Management System (BMS) and communication through MasterBus/CAN and CZone/NMEA. Even in the harshest cycling conditions this guarantees efficient and safe operation of the battery. The MLI batteries come with an integrated automatic safety switch. Safety always comes first.



### Superior performance

Mastervolt Lithium Ion (LiFePO4) batteries have a realistic lifespan of over 2000 cycles at a depth of discharge (DOD) of 80%. This means five times more energy storage than lead acid batteries thanks to features such as extremely high efficiency, the almost complete absence of self discharge and the minimal build-up of the infamous 'memory effect'.



### Weight reduction

As speed and performance are crucial aspects, a Lithium Ion (LiFePO4) battery – which takes up 70% less weight than similar lead acid batteries – offers considerable benefits. A vessel or vehicle with a capacity of 20 kWh on board, can easily save up to 500 kg and achieve a substantially better performance.



### Easy installation

The MLI series includes two integrated handles with a recess for the correct and practical installation of the cables. The battery poles are easily accessible and completely protected, so no extra isolation covers are needed. The MLI batteries make a great 'drop-in replacement' for a system with lead-acid batteries, because no system changes or additional components are required.



## MLI Lithium Ion Series — CZone® / MasterBus Compatible

WORKS WITH  
**CZONE®**



- Top performance, heavy duty Lithium Ion batteries
- Ideal for running heavy loads for long periods and short charge times
- Saves up to 70% in space and weight
- Three times the lifespan of traditional batteries (2000 cycles)
- High cycle efficiency
- Fast charging up to half an hour
- High discharge rate up to 2.5C
- CZone® / NMEA, or MasterBus / CAN communication
- Integrated Battery Management System (BMS)
- Integrated battery monitoring (Ah consumed, state of charge)
- Series connection up to 10 batteries possible
- Waterproof electronics cabinet
- Extremely safe LiFePO4 chemistry
- Tested and certified according to UN38.3



### Specifications

	MLI Ultra 12/1250	MLI Ultra 24/1250	MLI Ultra 12/3000	MLI Ultra 12/6000	MLI Ultra 24/6000
Part #	66011250	66021250	66013000	66016000	66026000
<b>General Specifications</b>					
Nominal battery voltage	13.2V	26.4V	12V	12V	24 V
Nominal battery capacity	100 Ah	50 Ah	200 Ah	460 Ah	230 Ah
Nominal battery energy capacity	1250 Wh	1250 Wh	3000 Wh	6000 Wh	6000 Wh
Max. charge current	100A (1 C)	50A (1 C)	230 A (1 C)	500A (1.4 C)	230 A (1 C)
Continuous discharge current	200A (2 C)	100A (2 C)	500A (2.5 C)	500A (1.4 C)	500A (2.5 C)
Peak discharge current	500A (5C) for 10s	250A (5C) for 10s	1800A (9 C) for 10s	1800A (4.5 C) for 10s	1800A (9 C) for 10s
Cycle life	3500 cycles at 80% DOD		3500 cycles at 80% DOD at 77°F (25°C), max. C3 charge and C2 discharge		
Battery monitoring	integrated	integrated	integrated	integrated	integrated
Communication	MasterBus, CZone, NMEA	MasterBus, CZone, NMEA	MasterBus, CZone, NMEA	MasterBus, CZone, NMEA	MasterBus, CZone, NMEA
Battery terminals	M6	M6	M8	M8	M8
Mounting position	upright (recommended) or either long side		upright (recommended) or either long side		
Max. outer dimensions, l x w x h (incl. terminals/grip handles)	12.9" x 6.7" x 9.3" 327 x 171 x 235 mm	12.9" x 6.7" x 9.3" 327 x 171 x 235 mm	13.4" x 7.8" x 14" 341 x 197 x 355 mm	24.5" x 7.8" x 14" 622 x 197 x 355 mm	24.5" x 7.8" x 14.0" 622 x 197 x 355 mm
Weight	30 lb / 15 kg	30 lb / 15 kg	56 lb / 25.4 kg	103.0 lb / 46.7 kg	103.0 lb / 46.7 kg
<b>Technical Specifications</b>					
Battery chemistry	Lithium Iron Phosphate	Lithium Iron Phosphate	Lithium Iron Phosphate	Lithium Iron Phosphate	Lithium Iron Phosphate
Protection degree	IP65	IP65	IP65 (electronics cabinet)	IP65 (electronics cabinet)	IP65 (electronics cabinet)
Parallel connection	yes, unlimited	yes, unlimited	yes, unlimited	yes, unlimited	yes, unlimited
Series connection	yes, up to 4 batteries	yes, up to 2 batteries	yes, up to 10 batteries. Systems over 48V require a separate battery box to prevent access to high voltage parts		
Protections	over voltage, under voltage, over temperature		over voltage, under voltage, over temperature		
Safety relay/with Bracket	n.a	n.a	Required part # 7700B-BSS (12V) / 7702B-BSS (24V) and with bracket 79007712 (12V) / 79007724 (24V)		
Safety relay controls	integrated	integrated	integrated	integrated	integrated

### TECH TIP

#### Safety Relays

Safety relays are required for proper install of Lithium Ion (LiFePO4) Batteries MLI 2750 and MLI 5500. Follow installation instructions for installing Lithium Ion Batteries. See new integrated brackets on page 65.



### Related Products



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## Ultra Connection Kit **NEW**

With the MLI Ultra Relay and Fuse Connect Kit, you can easily install all the required safety accessories in a safe, efficient, and compact way right on top of the MLI Ultra battery. Without the need for power tools, you can get your system, safe and ready in just a few simple steps.

- Fast and easy installation.
- All necessary safety accessories in one kit\*.
- Pre-assembled on an easy to mount bracket.
- Perfect fit for MLI Ultra 12/2750 and 12/5500.

\* The Class-T Fuse itself is not included in the kit. Order the right fuse rating (max. 300 A) based on the requirements of your installation.

**Part # 79007712** 12V, includes relay

**Part # 79007724** 24V, includes relay



12V

**Part # 79007712**



24V

**Part # 66021250**

Part #	79007712	66021250
General Specifications		
Compatibility	MLI Ultra 12/2750, MLI Ultra 12/5500	MLI Ultra 24/5500
Max. current	300A	300A
Operating temperature	-13 °F to 122 °F (-25 °C to 50 °C)	
Dimensions	total height increases by 65 mm / 2.5 inch	
Weight	total weight increases by (0.0 lb) 2 kg	
Delivered with	mounting bracket, safety relay, T-fuse holder, busbar conductor (2x)	
Technical Specifications		
Safety relay	12V DC - 500A	24V DC - 500A
Max. voltage	64V	64V

## TECH TIP

### Design Considerations

Only create multiple battery systems with batteries of the same type and capacity.

- If connected in series, then two units can be protected by one safety relay.
- If connected in parallel, then each unit requires its own safety relay.









Use with the following Blue Sea Systems Class-T Fuses: (not included)

Part #	Fuse Rating	Continuous Current	5 Minutes overload current
5121-BSS	400A	300A	400A
5120-BSS	350A	260A	350A
5119-BSS	300A	225A	300A
5118-BSS	250A	185A	250A
5117-BSS	225A	170A	225A

MVG Gel Series

- Perfect service battery for medium and large 12V and 24V systems
- Extremely long lifespan
- No gas formation with normal use
- Fast recharge, high charge current possible
- For intensive cycle use with a high number of charge/discharge cycles
- Very low self discharge
- High return on investment

						
	MVG 12/25	MVG 12/55	MVG 12/85	MVG 12/120	MVG 12/140	MVG 12/200
Part #	64000250	64000550	64000850	64001200	64001400	64002000
Nominal battery voltage	12V	12V	12V	12V	12V	12V
Nominal battery capacity C20*	25 Ah	55 Ah	85 Ah	120 Ah	140 Ah	200 Ah
Max charge current	12.5A	27.5A	42.5A	60A	70A	100A
CCA to DIN	110A	230A	270A	450A	540A	630A
CCA to SAE	175A	380A	450A	760A	920A	1100A
Battery terminal	A-type	A-type	A-type	A-type	A-type	A-type
Max. outer Dimensions** LxWxH	6.6" x 6.9" x 5" 167 x 176 x 126 mm	10.3" x 5.4" x 9.1" 261 x 136 x 230 mm	13" x 6.7" x 9.3" 330 x 171 x 236 mm	20.2" x 7.4" x 8.8" 513 x 189 x 223 mm	20.2" x 8.8" x 8.8" 513 x 223 x 223 mm	20.4" x 10.8" x 9.4" 518 x 274 x 238 mm
Weight	21.2 lb / 9.6 kg	41.9 lb / 19 kg	71.9 lb / 32.6 kg	90.4 lb / 41 kg	108 lb / 49 kg	154.3 lb / 70 kg

\* C20 = battery capacity at a discharge time of 20 hours, till 10.5V per battery.    \*\*Including terminals and grip handles

Related Products



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## MVSV 2 Volt Gel Series

- Ideal for large systems that require intensive use and a very long lifespan
- For intensive cycle use with a high number of charge/discharge cycles
- Charges quickly
- Extremely sustainable battery for large installations
- Robust build for longer lifespan
- Deep discharging without problems
- Can be installed horizontally or vertically



	MVSV 280	MVSV 420	MVSV 500	MVSV 580	MVSV 750	MVSV 1000
Part #	68000280	68000420	68000500	68000580	68000750	68001000
Nominal Battery Voltage	2V	2V	2V	2V	2V	2V
Nominal Battery Capacity C10*	280 Ah	420 Ah	500 Ah	580 Ah	750 Ah	1000 Ah
Max. Charge Current	140A	210A	250A	290A	375A	500A
Battery Terminal	F-M8	F-M8	F-M8	F-M8	F-M8	F-M8
Max. Outer Dimensions** LxWxH	5" x 8.2" x 15.7" 126 x 208 x 399 mm	5" x 8.2" x 20.3" 126 x 208 x 515 mm	5.8" x 8.2" x 20.3" 147 x 208 x 515 mm	6.6" x 8.2" x 20.3" 168 x 208 x 515 mm	5.8" x 8.2" x 27.2" 147 x 208 x 690 mm	8.3" x 7.6" x 27.2" 212 x 193 x 690 mm
Weight	50.7 lb / 23 kg	66.1 lb / 30 kg	77.2 lb / 35 kg	86 lb / 39 kg	108 lb / 49 kg	146 lb / 66 kg

\* C10 = battery capacity at a discharge time of 10 hours, till 1.80V per cell. \*\*Including terminals and grip handles



	MVSV 1250	MVSV 1500	MVSV 1650	MVSV 2200	MVSV 2700
Part #	68001250	68001500	68001651	68002200	68002700
Nominal Battery Voltage	2V	2V	2V	2V	2V
Nominal Battery Capacity C10*	1250 Ah	1500 Ah	1650 Ah	2200 Ah	2700 Ah
Max. Charge Current	625A	750A	825A	1100A	1350A
Battery Terminal	F-M8	F-M8	F-M8	F-M8	F-M8
Max. Outer Dimensions** LxWxH	8.3" x 9.3" x 27.2" 212 x 235 x 690 mm	8.3" x 10.9" x 27.2" 212 x 277 x 690 mm	8.3" x 10.9" x 30" 212 x 277 x 759 mm	8.5" x 15.7" x 32.1" 216 x 400 x 816 mm	8.4" x 19.3" x 32.1" 214 x 489 x 816 mm
Weight	176 lb / 80 kg	209 lb / 95 kg	254 lb / 115 kg	353 lb / 160 kg	437 lb / 198 kg

\* C10 = battery capacity at a discharge time of 10 hours, till 1.80V per cell. \*\*Including terminals and grip handles

## Related Products



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## AGM Series

- Excellent starter function
- Perfect upgrade for flooded lead acid batteries
- Same initial power surge in an AGM 12/90 Ah as in a 180 Ah flooded lead-acid battery
- Glass-fiber technology ensures low internal resistance
- Use of thicker plates extends lifespan
- Can be combined with every standard battery terminal
- Also for medium cyclical use



	AGM 12/55 (group 24)	AGM 12/70 (group 27)	AGM 12/90 (group 31)	AGM 12/130	AGM 12/160 (group 4D)	AGM 12/225 (group 8D)	AGM 12/270 (group Super 8D)
Part #	62000550	62000700	62000900	62001300	62001600	62002250	62002700
Nominal Battery Voltage	12V	12V	12V	12V	12V	12V	12V
Nominal Battery capacity C20*	55 Ah	70 Ah	90 Ah	130 Ah	160 Ah	225 Ah	270 Ah
Max charge current	15.3A	19.5A	25.5A	36A	45A	63A	76.5A
CCA to DIN	250A	290A	360A	590A	550A	680A	750A
CCA to SAE	400A	460A	570A	940A	870A	1080A	1200A
Battery terminal	M6	M8	M8	M8	M8	M8	M8
Outside Dimensions** LxWxH	10.1" x 5.2" x 7.9" 257 x 132 x 200 mm	13.7" x 6.6" x 7" 348 x 167 x 178 mm	13" x 6.8" x 8.7" 330 x 173 x 220 mm	16.1" x 6.9" x 8.9" 408 x 176 x 228 mm	19.1" x 6.7" x 9.5" 485 x 170 x 242 mm	20.6" x 9.4" x 8.8" 522 x 240 x 224 mm	20.6" x 10.6" x 8.9" 522 x 268 x 226 mm
Weight	37.5 lb / 17 kg	46 lb / 21 kg	62 lb / 28 kg	83 lb / 37.6 kg	93 lb / 42.3 kg	140 lb / 63.5 kg	161 lb / 73 kg

\* C20 = battery capacity at a discharge time of 20 hours, till 10.5V per battery. \*\*Including terminals and grip handles

## AGM SlimLine Series

- Ideal universal and very slim battery; Suitable for starter functions
- Compressed AGM technology
- Saves up to 15% in volume and weight
- Miniscule footprint; 2x 200 Ah for a 200 Ah battery footprint
- Convenient M6 connections



	AGM-SL 12/150	AGM-SL 12/200
Part #	63001500	63001851
Nominal Battery Voltage	12V	12V
Nominal Battery capacity C20*	150 Ah	200 Ah
Max charge current	43A	53A
CCA to DIN	490A	580A
CCA to SAE	790A	930A
Battery terminal	M6	M6
Max. outer Dimensions** LxWxH	22" x 4.3" x 11" 560 x 110 x 280 mm	22" x 5" x 11" 560 x 126 x 280 mm
Weight	89 lb / 40.5 kg	113 lb / 51.2 kg

\* C20 = battery capacity at a discharge time of 20 hours, till 10.5V per battery.

\*\*Including terminals and grip handles

## AGM 6 Volt Series

- Offers an alternative solution in placement and dimensioning
- Easy configuration of 12/24/48V battery banks, with high capacity
- Double pole for easy installation
- No gas formation with normal use
- Can be combined with every standard battery terminal





	AGM 6/260	AGM 6/400
Part #	61002600	61004000
Nominal Battery Voltage	6V	6V
Nominal battery capacity C20*	260 Ah	400 Ah
Max charge current	72A	110A
CCA to DIN	590 Ah	620 Ah
CCA to SAE	1040 Ah	1100 Ah
Battery terminal	A-type + stud M10	A-type + stud M10
Max. outer Dimensions** LxWxH	11.6" x 7.1" x 11.7" 295 x 180 x 298 mm	11.6" x 7.1" x 16.9" 295 x 180 x 428 mm
Weight	78.3 lb / 35.5 kg	116.8 lb / 53 kg

\* C20 = battery capacity at a discharge time of 20 hours, till 10.5V per battery.

\*\*Including terminals and grip handles

Battery Terminals and Covers

	Terminal Part #	Description		Cover Part #	Cover Color	Description
	68061100	with M10 thread plus		68457302	red	457N3V02, for Part #'s 68061100 & 68061300
	68061300	with M12 thread plus				
	68061200	with M10 thread min		68457314	black	457N3V14, for Part #'s 68061200 & 68061400
	68061400	with M12 thread min				

Related Products



Battery Monitors  
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# DIGITAL CONTROL & MONITORING

EasyView 5 MasterBus Display



78

The EasyView 5 features a sharp, waterproof display which is clearly readable in daylight. Thanks to the color touchscreen and multi-language menu, the display is a pleasure to operate. Easily customizable favorite pages show all relevant system information at a glance.

MasterBus Network Components



80

Basic components of a MasterBus network, used for all Mastervolt products. This system is perfectly suited for the integration of digital switching with the power electronics from Mastervolt.





# DIGITAL CONTROL & MONITORING

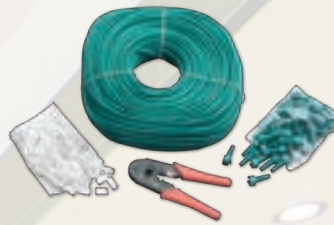
## MasterBus Interfaces



82

The wide range of interfaces increases the versatility of your MasterBus network. Allows connection of multiple components to efficiently distribute information to or from your MasterBus network.

## MasterBus Accessories



86

Extra components for building and maintaining your MasterBus network.

## Digital Control & Monitoring



72

See CZone® spread for more information.





# CZONE®

LET CZONE DO THE THINKING

Entertainment  ON

Batteries  92%

Anchor Light  ON

Saloon Lights  80%



Check out our  
CZone video

## CZone® Digital Control and Monitoring

CZone digital control and monitoring simplifies installation of electrical systems through the replacement of complicated, cumbersome traditional wiring. CZone is perfect for Marine and Mobile applications and replaces switch and fuse panels with networked digital interfaces providing ultimate control of onboard electrical systems.

With one touch, CZone's intelligent management simplifies operation by combining multiple circuits through Mode selection and offers effortless Monitoring oversight of key systems and components while retaining advanced Control of specific circuits and functions.

CZone can take care of all the little things, leaving more time for the user to focus on what they value. Whether you are preparing the boat for the evening's entertaining, hitting the open road away from stable power, or focusing on getting the job done, let CZone do the thinking.

### Simplicity

CZone simplifies your boat or vehicle's onboard electrical system making it easier and more enjoyable.

### Innovation

CZone offers system-wide functionality of your onboard systems onto a single screen or wireless device, while offering industry leading integration with suppliers from marine navigation displays, power storage and generation, and appliances like air-conditioning and more.

### Reliability

CZone has proven durability, with over 10 years of installations in harsh marine environments through over 200 dedicated boat builders and technical installers.

## Modes

Modes offer a predefined system state at a single touch. Modes will turn on or off specified circuits based on the user's preference and the mode of operation required.

Modes can introduce logic to handle functions based specifically for that mode of operation, whether it be integrated components like generator auto-start, or varied lighting configurations. If it needs power, Modes can take care of it in a single function.



## Complete Control

CZone offers leading system control of onboard systems, from Modes selection that transforms the entire system at a single touch, wirelessly via iPad or Keyfob, or remotely via satellite or data networks. Full direct control is accessible using intuitive touch screen interfaces or through integrated marine Chartplotter & Fishfinder displays, or programmable digital switches for individual or group functions.



## Monitoring & System Alarms

CZone digital control and monitoring offers peace of mind by consolidating system information and presenting alarms when things aren't right. Monitor tank level senders, gas or temperature sensors, low power source voltage or reversed polarity. CZone's advanced monitoring ability means no irregularity in the system goes by without you knowing about it. Keep alerted to major system events with onboard alarm notifications.

Check out the complete  
CZone Digital Control &  
Monitoring product line  
in our new CZone catalog  
or visit [czone.net](http://czone.net).

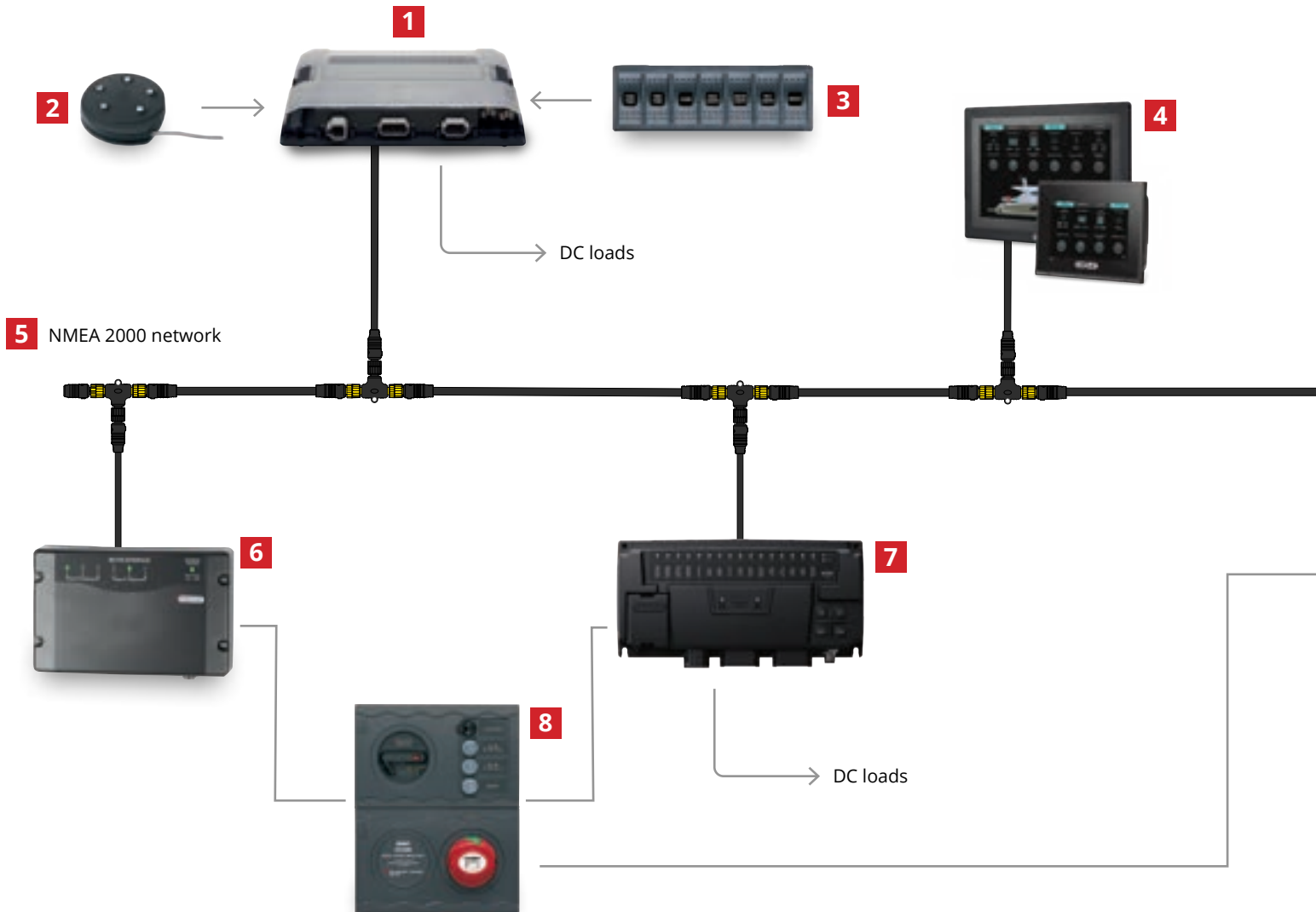
**CZONE**



## The Fully Integrated System

### CZone and Mastervolt now work together on a common network to simplify the operation of your vessel

For years, CZone has operated on a dedicated network, and Mastervolt has operated on a separate network (MasterBus). The two networks could only be joined through a bridge interface that had to be purchased and installed separately. Now, the two technologies are coming together to operate on a single common network. This advanced integration allows for a single user interface and shared configuration files that simplify programming and installation. Now you can control and monitor all AC and DC loads, as well as the power conversion system from a single source.



# CZONE®

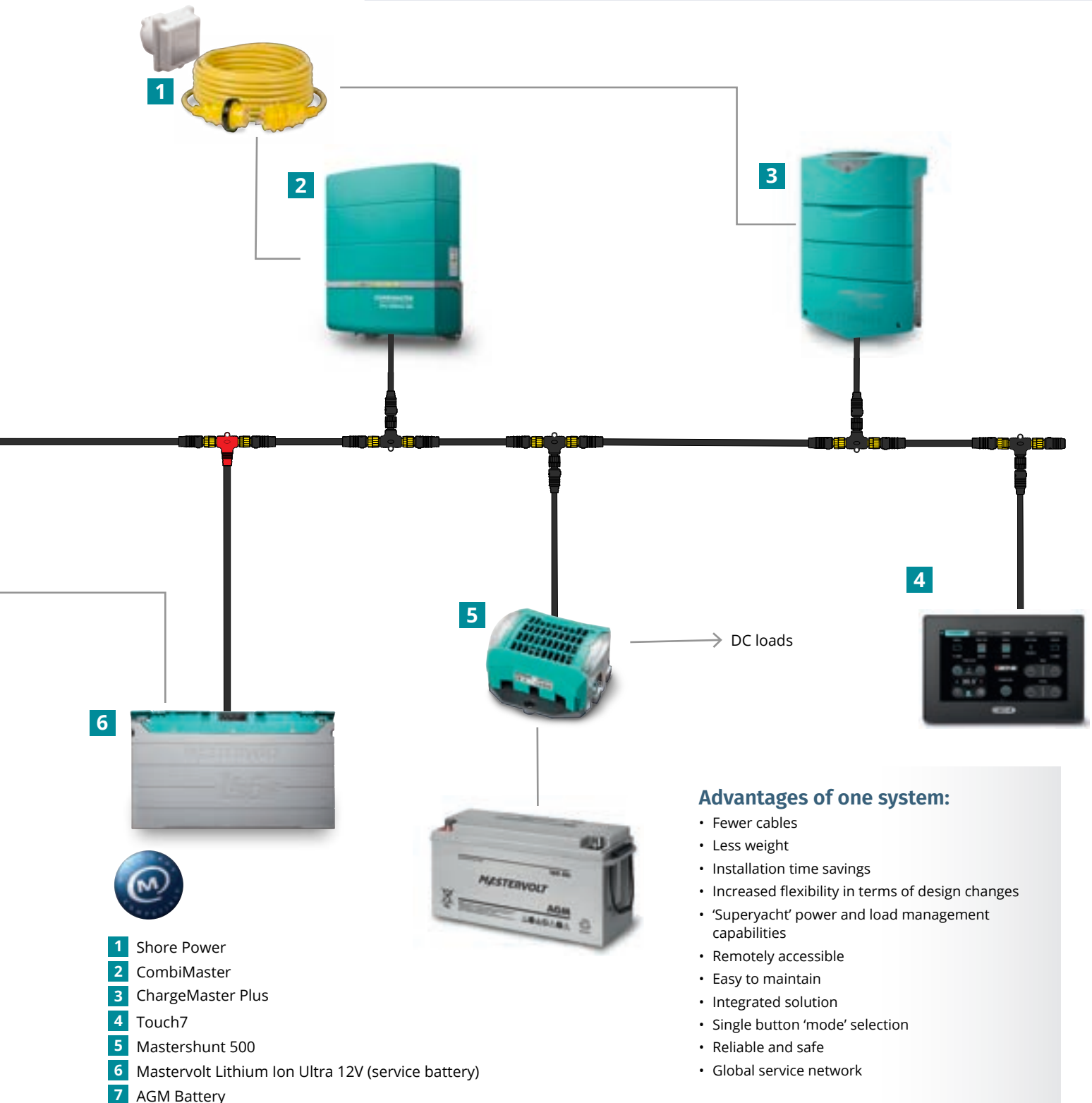
- |   |                                     |
|---|-------------------------------------|
| <b>1</b> Combination Output Interface (COI) | <b>6</b> Meter Interface            |
| <b>2</b> Ultrasonic tank sender             | <b>7</b> Control X                  |
| <b>3</b> Switch cluster                     | <b>8</b> Battery distribution panel |
| <b>4</b> Displays                           |                                     |
| <b>5</b> NMEA 2000 network                  |                                     |



### CZone Ready Products

The following products have been updated to be compatible with CZone, NMEA 2000 and MasterBus.

CombiMaster Inverter/Charger	p.14
ChargeMaster Plus Battery Charger	p.38
MLI Ultra Batteries	p.64
MasterShunt 500 CZone	p.80





## The intelligent simplicity of MasterBus

The advanced functions of custom made systems are now within easy reach thanks to the MasterBus platform (single communication protocol with high-speed CANbus technology). The intelligent, one-cable MasterBus network greatly simplifies wiring, saving you valuable space and weight. Additionally, you can automate and customize your system to meet all your requirements.

As owners demand high levels of onboard luxury and comfort, professional and recreational applications need to carry more equipment which in turn takes up more space. This makes it all the more essential to intelligently install equipment in the available space - and that is where the MasterBus communication network of Mastervolt comes in.

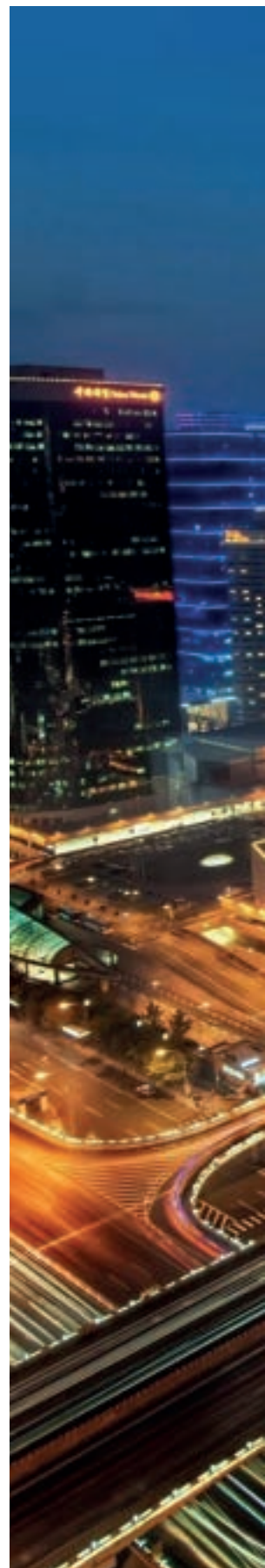
The wide range of interfaces and modules allows you to connect any equipment you wish to your MasterBus system and manage, monitor or operate it locally, centrally or even from your home. The galvanic isolation of the MasterBus network ensures a safe and stable network.

### Professional Perspective

MasterBus also makes life easier for designers, builders and installers of power systems with less material, less work, less fuss and an easy testing method. Additionally, it is available in ten languages and offers the same user interface for all (Mastervolt) products, such as battery chargers, inverters, Combis, batteries or other devices. All control panels have an identical layout, with or without PC software.

### Easy Maintenance

Replacing a component can often lead to complex configuration problems. Not with Mastervolt. The MasterBus network 'recognizes' any replacement directly and automatically asks whether you want to keep the same or change your configuration. You stay well informed and with everything under control.







## MasterBus Displays:

### Monitor & control your MasterBus network



Fast and clear information about your onboard electrical system is vital. Usually multiple panels are required to read the details of an expansive electrical system, and the interpretation of these panels and how they relate to one another is left to the user. Mastervolt puts an end to this undesirable situation by using a clear communication platform (MasterBus) and the smart EasyView 5 display.

### EasyView 5

**Waterproof System Monitor with intuitive touchscreen.**  
Controlling your Mastervolt system has never been easier!

The EasyView 5 features a sharp, waterproof display which is clearly readable in daylight. Thanks to the color touchscreen and multi-language menu, the display is a pleasure to operate. Easily customizable favorite pages show all relevant system information at a glance.

#### Applications

The EasyView 5 completes any MasterBus system. With its handy functionality and compact size, the EasyView is ideal for yachts, vehicles and stationary systems. Applicable in various markets such as marine, mobile (recreational and professional), infrastructure, offshore, off grid and industrial. The possibilities are endless!

#### Features

- Waterproof, 'daylight readable' color display
- Intuitive touch control
- Customizable favorite pages
- Log book for warnings and alarms
- Buzzer and Home button
- Easy mounting: front mount, wall mount or retrofit
- MasterBus powered, or 12V/24V input
- Easy updating through MasterBus and USB

EasyView 5	
Part #	77010310
<b>General specifications</b>	
Power supply	MasterBus powered, or 12V/24V input
Resolution	480 x 272 pixels
Colour depth	16 bits
Display/read-out	4.3 inch high contrast display with capacitive touch control
Languages on display	ENG, NL, DE, SP, IT, FRA, FIN, SWE, DEN, NOR
Mounting	front mount, wall mount and MasterView Easy retrofit
Alarms	buzzer integrated
Dimensions, hxxwxd	4.4" x 5.0" x 1.7" 113 x 127 x 43 mm
Weight	0.7 lb / 0.315 kg
Delivered with	UV protection cover, wall mount casing, MasterBus cable
<b>Technical specifications</b>	
MasterBus connection	yes
Power consumption	< 160 mW (idle mode)
Connections	2x MasterBus, USB, 12V/24V
Protection degree	IP67; waterproof front



#### Some examples of the many possibilities:



#### Customize Favorites

Customize favorite pages to meet your specific needs for information and control, to show information in the most convenient way.



#### Adjust Parameters

Use the EasyView 5 to adjust frequently used settings, like the shore fuse or to switch on your inverter.



#### Modify System Settings

In the system page you will find every possible system setting.



#### Alarms and Logs

No surprises! The EasyView 5 helps to keep your system in top condition by assisting you with alerts. Logging of the alarms provides valuable insight in the operation of your system.

## SmartRemote — MasterBus Compatible



### Compact single device display

With the SmartRemote display, checking your Mastervolt or CZone product has never been easier.

Mastervolt offers an extensive range of touch displays for both CZone and MasterBus networks. These displays offer advanced monitoring and control of multiple devices within your energy system.

The new SmartRemote display is different, in many ways:

- Controls a single device
- Shows four important parameters of the connected device
- Allows simple settings such as enable/disable or adjusting a shore fuse setting;
- Fun to use.

### Ease of Installation

The SmartRemote display can be panel mounted or may be integrated into a Blue Sea Systems Custom 360 bezel, and fixed using the included locking ring. Connection is as easy as 1-2-3: just connect the included network cable to a CZone or MasterBus device\*. In case multiple devices are present on the bus, simply detect the device you wish to monitor.

### Applications

The SmartRemote completes any MasterBus or CZone system. With its handy functionality and compact size, the SmartRemote is ideal as a remote panel in entry level power systems or as a dedicated device monitor / control in larger systems. Applications include yachts, vehicles and stationary systems.

\* The SmartRemote currently supports the CombiMaster, MLI, ChargeMaster Plus and MasterShunt



### Features

- Clear, back lit color display
- Shows essential information and basic settings for a single device
- Easy mounting, plug and play
- Blue Sea Systems Custom 360 panel compatibility
- Bus powered—no power supply needed

SmartRemote	
Part #	77010600
Power supply	bus powered, < 160 mW (idle mode)
Interfaces	MasterBus & CZone / NMEA 2000
Resolution	320 x 240 pixels - 16 bits color
Display	2.8 inch
Mounting	panel mount (cutout: Ø 52 mm, 4 screws included) – Blue sea 360 panel mount
Dimensions, hwxwd	2.8" x 2.8" x 1.16" - Ø 2" 72 x 72 x 29.4 mm - Ø 52 mm
Weight	0.16 lb / 0.075 kg
Delivered with	MasterBus cable, CZone-MasterBus drop cable 1m, user's manual
Protection degree	IP20

## MasterView Read-out

Remote panel for reading the charge status of your battery charger, including error notifications.



MasterView Read-out	
Part #	77010050
Display	7 LEDs
Dimensions, hwxw	2.4" x 2.6" (60 x 65 mm)
Weight	0.15 lb / 70 g
MasterBus connection	yes
Powered by	MasterBus
Power consumption	144 mW
Protection degree	IP21

If your dashboard is full and does not offer space for the EasyView display, this module allows you to integrate the MasterView Read-out into your own control panel.



MasterView Read-out OEM	
Part #	77010030



## MasterBus Network Components



### MasterShunt 500

MasterShunt is the heart of every battery powered energy system. This integrated battery monitor shares information about the battery bank with other MasterBus, CZone or NMEA 2000 enabled devices such as battery chargers, inverter/chargers, and displays. No surprises: allowing complete automation of your system, MasterShunt improves comfort, prolongs battery life and extends your runtime.



The MasterShunt 500 provides all information needed for monitoring your battery bank and control of your system, such as voltage, current, state of charge and time remaining. All information is made available to the system by a single MasterBus or CZone cable. Extremely accurate measurement of current flow over state of charge enables the MasterShunt to precisely determine the time remaining.

Programmable events and an integrated real time clock make it possible to fully automate your system. Examples are to start your generator automatically when the battery bank is low (or just delaying at night!), or to automatically generate a warning at a certain depth of discharge. The proven MasterShunt design has been upgraded to obtain an even higher level of accuracy and control. Taking into account battery specific parameters, MasterShunt takes reading accuracy to a whole new level.

The MasterShunt allows freedom of choice with regards to fuse type, rating and location. The battery monitor is supplied with an internal bus bar, to be used in situations where an external fuse holder is selected. In case the MasterShunt is installed close to the battery, the bus bar may be replaced by either an ANL type or Class T main fuse, saving both space and cost.

### Features

- MasterBus, CZone and NMEA 2000 communication
- Fits in a CZone system including setup tools and configuration file
- Digital shunt providing the energy system with extensive information and historical data
- Very accurate and reliable determination of State of Charge (SOC)
- Service mode prevents memory loss during system maintenance
- Realistic and precise indication of the time remaining
- Smart MasterBus powering mode reduces idle consumption to a bare minimum
- For higher current, multiple MasterShunt models may be installed in parallel
- MasterConnect system makes connecting to the DC Distribution product very easy
- Straight forward, easy to install
- Freedom of choice for fuse type, rating and location. Suitable for T-fuse and ANL-fuse (to be ordered separately)
- Robust housing with isolation of the DC connections

MasterShunt 500	
Part #	77020115
Dimensions (HxWxD)	5.9" x 5.9" x 2.5" (150 x 150 x 65 mm)
Weight	1.54 lb / 0.7 kg
Battery types	Gel, AGM, flooded, Lithium Ion
Battery voltage	12V, 24V or 48V DC
Current	300A continuously, 400A for 10 minutes, 500A for 5 minutes, and 600A for 2 minutes
MasterBus powering	yes, includes Smart MasterBus Powering*
Idle consumption	23 mA (normal operation), <1 mA (power saving, MasterBus off)
System functionality	alarm, timers, auto start/stop for the generator
System information	e.g. time remaining, voltage, current, state of charge
Programmable alarms	warning low voltage, warning low state of charge, high voltage
Protection degree	IP21
Main fuse	Bus bar included in MasterShunt, Class T fuse or ANL fuse to be ordered separately
Delivered with	MasterShunt, temperature sensor, MasterBus terminator, isolation cover for DC connections, CZone-MasterBus drop cable

\* Switched off for CZone or NMEA 2000 communication



DC Distribution 500

The DC Distribution 500 is the smallest distribution model available. It connects up to four DC devices, such as a battery charger, inverter, alternator and solar panels. With the plug & play cable it can be easily connected to the MasterBus network. The MasterView panel gives all fuses logical names, to ensure you receive understandable error notifications (for example: battery charger fuse defect).

DC Distribution 500	
Part #	77020200
Dimensions (HxWxD)	5.9" x 7.9" x 2.5" (150 x 216 x 65 mm)
Weight	2.6 lb / 1.2 kg
Battery voltage	12V, 24V or 48V DC
Current	300A continuous / 500A for 5 minutes
MasterBus powering	no
Standard fuses	80 A (2x), 160 A and 125 A - ANL type (deviating values can be ordered separately)
Spare fuse	125A ANL type
Alarm	fuse monitoring
Protection degree	IP21
Delivered with	four standard fuses and one spare fuse, hex tool, MasterBus terminator, MasterBus cable, cable protections for DC connections



## MasterBus Interfaces



Mastervolt offers a wide range of interfaces to increase the versatility of your MasterBus network. Connect multiple components to distribute information to your MasterBus products or connect products that require information from the MasterBus network, such as a NMEA 2000 or Modbus network, and vice versa.

All interfaces (and modules) can be installed in various ways, from DIN rails to surface mounting. Available in ten languages: English, Dutch, German, French, Spanish, Italian, Norwegian, Swedish, Finnish and Danish.



### MasterBus CANopen Interface

The MasterBus CANopen Interface facilitates transparent, 2-way communication between MasterBus and the CANopen standard, which is adopted in many automotive and industrial automation applications.

Programmability: MasterAdjust conventional configuration or string-based mapping

Data communicated: all MasterBus information and control items

Part # 77032600



### MasterBus Philippi Interface

The MasterBus Philippi Interface makes it possible to view and control Mastervolt products on a Philippi PSM2 display. Mastervolt products use the CAN-based MasterBus protocol to communicate between products. Similar, the company Philippi uses the PBUS protocol. The MasterBus Philippi Interface connects these worlds.

Programmability: automatic & manual configuration

Data communicated: selection of most popular values per product

Part # 77031850



### Mastervolt USB Interface

The MasterBus USB Interface enables you to read and configure the MasterBus/Czone network via your PC.

Part # 77030100



### MasterBus Modbus Interface

The MasterBus Modbus Interface can provide all information from the 'closed' MasterBus network for other monitoring and operating systems by means of the Modbus protocol.

Part # 77030800



### MasterBus AC Master Interface

By adding the AC Master Interface to your installation, you can now control your AC Master inverter via our MasterBus communication network. The AC Master Interface is suitable for all AC Master inverters with a RJ11 serial interface (all 700 W models and up). A communication cable is included in the delivery.

Part # 7032700



### MasterBus Inverter Interface

The MasterBus Inverter Interface integrates the Mastervolt Mass Sine Inverter in a MasterBus network and allows it to be operated and monitored via EasyView 5 or PC.

Part # 77030700





### MasterBus NMEA 2000 Interface

The MasterBus NMEA 2000 Interface provides the MasterBus network with NMEA 2000 information and vice versa.

Part # 77031800



### MasterBus FireCAN Interface

The MasterBus FireCAN Interface connects the vehicle's central communication system to the MasterBus network. FireCAN is a standardized CANbus protocol for electronic applications in fire fighting vehicles, that incorporates manufacturer-specific components.

Part # 77032400



### MasterBus Serial Interface

The MasterBus Serial Interface connects conventional Mastervolt products to MasterBus. Data becomes permanently available to allow configuration, operation and monitoring via EasyView 5 or PC. Suitable for Masterlink BTM-III, Mac and Magic DC-DC converters.

Part # 77030450



### Switch Input 3 PCB

Switch Input 3 makes Carling switches compatible with MasterBus. Multiple functions can be easily linked with this module.

Part # 77031300



### Switch Input 4 PCB

Provides LED indications for additional information. For example: The LED will blink when a connected lamp fails.

Part # 77031400



### Digital Input

Connect up to four switches to the MasterBus network. Delivery includes connection cables.

Part # 77030900

Specifications for MasterBus Interfaces on page 85.



PRO

**Digital AC 1x6A**

Switches all AC loads, no matter where they are. Loads up to 6A can be directly switched, higher loads should be switched via an external relay.

Part # 77031500

PRO

**MasterBus Tank Level Interface**

This interface converts analog sensor input signals to MasterBus data. Selectable input signals: 4-20 mA, 0-300  $\Omega$ , 8-70V DC.

Part # 77030300

PRO

**Multipurpose Contact Output**

This potential-free programmable contact can be customized and programmed to give your MasterBus network unprecedented possibilities. Use it, for example, to control a ventilator, or to operate a generator. Potential free contact: NO-C-NC – 1 A/ 30 V DC

Part # 77030500

PRO

**MasterBus Power Interrupter**

The MasterBus Power Interrupter switches off parts of the MasterBus network. This reduces the no-load consumption and is useful if a large system will not be used for an extended period.

Part # 77031550

PRO

**MasterBus Repeater**

The MasterBus Repeater doubles the maximum length of your MasterBus network.

Part # 77031100

PRO

**AC Power Analyser**

The AC Power Analyser is a multi-functional measuring device which can visualize the AC current and AC voltage, frequency, Cos Phi and power inside the system. Can also be used as MasterBus interface for the Mass Sine Inverter series, and offers a free programmable potential-free contact. Use it to connect AC power devices such as generators or isolation transformers to the MasterBus network.

Part # 77031200

**CZone® MasterBus Bridge Interface**

The CZone MasterBus Bridge Interface physically connects the MasterBus and CZone networks together, enabling the two networks to communicate and act as one. This provides seamless control and monitoring of Mastervolt power electronics from CZone displays or partner products.

Part # 80-911-0072-00

## Wireless Interface

Allows your iPad® to interface with an onboard digital switching system for full monitoring and control of the electrical equipment via a clear and intuitive display. The interface acts as a hub for the seamless connection between the two popular digital switching protocols of MasterBus and CZone.

Part # 80-911-0090-00 Wireless Interface  
 Part # 80-911-0095-00 WI MasterBus Connector  
 (required for MasterBus connection)



## MasterBus Interface Specifications

Part #	MasterBus powering	Dimensions HxWxD	Weight	Protection Degree	Delivered with
77032600	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.15 lb / ± 70 g	IP21	CANopen adapter cable (100 mm, M12 5-pin connector) and MasterBus terminator
77031850	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.15 lb / ± 70 g	IP21	Connection cable (100 mm), MasterBus cable, MasterBus terminator
77030100	yes*	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	USB connection cable, MasterBus cable, MasterBus Terminator, user's manual
77030800	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	MasterBus cable, MasterBus Terminator, user's manual
77030700	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	Interface connection cable, MasterBus cable, MasterBus Terminator, user's manual
77030450	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	Interface connection cable, MasterBus cable, MasterBus Terminator, user's manual
77031800	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.2 lb / ± 70 g	IP21	NMEA connection cable, MasterBus cable, MasterBus Terminator, user's manual
77031300	no	2" x 3.4" x 2.3" 54 x 86 x 58 mm (incl. mounting frame)	0.08 lb / 35 g (incl. MasterBus Terminator)	IP21	MasterBus Terminator, user's manual; switches and mounting frame not included
77031400	no	2.2" x 4.7" x 2.6" 56 x 120 x 65 mm (incl. mounting frame)	0.1 lb / 45 g (incl. MasterBus Terminator)	IP21	MasterBus Terminator, user's manual; switches and mounting frame not included
77030900	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	Cable with plug, MasterBus cable, MasterBus Terminator, user's manual
77031500	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	MasterBus cable, MasterBus Terminator, user's manual
77030500	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	MasterBus cable, MasterBus Terminator, user's manual
77030300	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	MasterBus cable, MasterBus Terminator, user's manual
77031550	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	User's manual
77031100	yes	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.20 lb / ± 90 g	IP21	MasterBus cable, MasterBus Terminator, user's manual
77032400	no	2.6" x 3.1" x 1.3" 66 x 78 x 32 mm	0.18 lb / ± 80 g	IP21	Firecan connection cable, MasterBus terminator, user's manual
77031200	yes	3.1" x 7.1" x 1.1" 80 x 181 x 28 mm	1.17 lb / ± 530 g	IP65	MasterBus cable, MasterBus Terminator, current transformer 100:5, user's manual
80-911-0090-00	no	4.1" x 7.5" x 2.4" 105 x 190 x 60 mm	1.5 lb / ± 680 g	IP54	Power cable, WiFi antenna, USB extension cable, user's manual
80-911-0072-00	no	2.7" x 2.7" x 2" 69 x 69 x 50 mm	0.32 lb / ± 145 g	IP65	MasterBus cable adapter, MasterBus Terminator, user's manual

\*When the PC is switched on.

## MasterBus Accessories



### MasterBus Communication Cable

Suitable for data traffic and powering peripheral equipment, this is the only cable you need for your MasterBus network. MasterBus compatible products come standard with two ports, while other equipment requires an interface. A DIY kit is optional.

Length	Part #
8 in (0.2 m)	77040020
1.5' (0.5 m)	77040050
3' (1 m)	77040100
10' (3 m)	77040300

Length	Part #
20' (6 m)	77040600
33' (10 m)	77041000
49' (15 m)	77041500
82' (25 m)	77042500
328' (100 m)	77045000



### MasterBus Terminator

Terminators ensure interference-free operation, prevent reflection of data signals and ensure high communication speeds.

Part # 77040000

### MasterBus DIY Kit

Cut your own cables to length and finish, comprising:

- Professional RJ45 crimping tool
- 50 MasterBus RJ45 connectors
- 50 green MasterBus RJ45 protection boots
- 100 m green MasterBus CAT5E UTP cable

Part # 77050000

Separately available:

### MasterBus RJ45 Connectors

- 8-pole
- 25 pcs

Part # 77040010

### Green Isolation Caps for RJ45 Connector

- 25 pcs

Part # 77040015



### Mastervolt-CZone Drop Cable

Adapter cable for connecting Mastervolt devices with CZone support to the CZone or NMEA 2000 network.

Length	Part #	Length	Part #
1.6' (0.5 m)	77060050	6.6' (2 m)	77060200
3.3' (1 m)	77060100	16.4' (5 m)	77060500



### Mastervolt-CZone Waterproof Drop Cable

Adapter cable with integrated waterproof boot for connecting MLI Ultra batteries with CZONE support to the CZONE or NMEA 2000 network.

Length	Part #
1.6' (0.5 m)	77061050
3.3' (1 m)	77061100
6.6' (2 m)	77061200

### Li-ion Waterproof Field Installable Plug

Included with waterproof cables. For use with standard Mastervolt-Czone drop cables.

Part # 6369230060



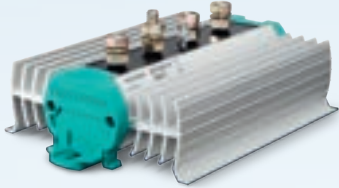






# BATTERY MANAGEMENT

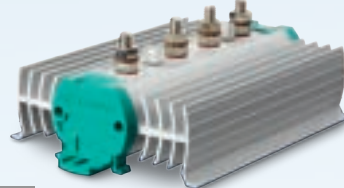
## BI Battery Isolators



90

Mastervolt's BI battery isolators are based on conventional diode technology. The diode voltage drop (ca. 0.6V) can be compensated for by adapting the output voltage of the connected charger or alternator. Mastervolt battery chargers and Alpha Pro MB charge regulators come as standard with automatic compensation for voltage drops.

## Battery Mate



90

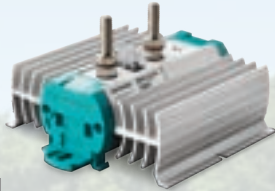
While battery isolators are conventional diode splitters, the Battery Mate's technology is electronic and includes mosfets (transistors). Its components compensate for the voltage drop and ensure that charging continues at the right voltage level, even with several battery banks. The Battery Mate is compatible with any type of alternator/battery charger, in both existing and new systems.





# BATTERY MANAGEMENT

## Charge Mate



91

The Charge Mate series connects both batteries during charging and keeps them isolated when discharging. The Charge Mate 1202 and 2502 are especially practical for small systems, the Charge Mate Pro provides additional functionality by limiting the charge current to the second battery to 40A or 90A.

## Battery Monitoring



92

Our complete line of battery monitoring systems display performance, consumption and available capacity.



## BI Battery Isolators

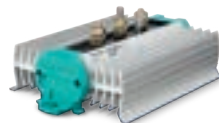
Mastervolt's BI battery isolators are based on conventional diode technology. The diode voltage drop (ca. 0.6V) can be compensated for by adapting the output voltage of the connected charger or alternator. Mastervolt Mass battery chargers and Alpha Pro charge regulators are standardly equipped with automatic voltage drop compensation.



BI 702-S



BI 703



BI 1202-S

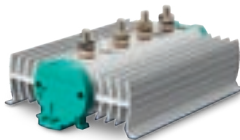


BI 1203-S

Part #	83007021	83007030	83012021	83012031
Max. output charger	50A	50A	80A	80A
Max. output alternator	70A	70A	120A	120A
Compensation diode	yes	no	yes	yes
Dimensions, HxWxD	6.2" x 5.5" x 3.2" 157 x 140 x 80 mm	8.2" x 5.5" x 3.2" 207 x 140 x 80 mm	8.2" x 5.5" x 3.2" 207 x 140 x 80 mm	8.2" x 5.5" x 3.2" 207 x 140 x 80 mm
Weight	1.3 lb / 0.58 kg	2.4 lb / 1.1 kg	2.65 lb / 1.2 kg	2.9 lb / 1.3 kg
# of battery banks	2	3	2	3

## Battery Mate

While BI battery isolators are conventional diode splitters, the Battery Mate's technology is electronic and includes mosfets (transistors). Its components compensate for the voltage drop and ensure that charging continues at the right voltage level, even with several battery banks. The Battery Mate is compatible with any type of alternator/ battery charger, in both existing and new systems. As the voltage loss between the alternator and battery is negligible, the Battery Mate performs far better than conventional battery isolators. This ensures fast and complete charging of your batteries without having to make additional adjustments to the alternator.

Battery Mate  
1602 IGBattery Mate  
1603 IGBattery Mate  
2503 IG

Part #	83116025	83116035	83125035
Max. output charger	120A	120A	200A
Max. output alternator	160A	160A	250A
Dimensions, HxWxD	8.1" x 5.5" x 3.1" 206 x 140 x 79 mm	8.1" x 5.5" x 3.1" 206 x 140 x 79 mm	8.1" x 5.5" x 3.1" 206 x 140 x 79 mm
Weight	2.2 lb / 1 kg	2.2 lb / 1 kg	2.2 lb / 1 kg
# of battery banks	2	3	3



## Charge Mate

A secondary battery is becoming increasingly common. As a second battery can prevent the main battery from depleting and being unable to start, this seems like a safe and reliable solution. The second battery, however, also has to be charged regularly. The Charge Mate series connects both batteries during charging and keeps them isolated when discharging. The Charge Mate 1202 and 2502 are especially practical for small systems, the Charge Mate Pro provides additional functionality by limiting the charge current to the second battery to 40A or 90A. The main battery is therefore charged with priority. The return current is automatically blocked and power dips of the onboard network are reduced. An emergency start function is possible by connecting an optional bypass switch.



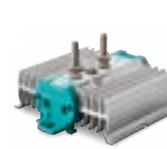
Charge Mate 1202



Charge Mate 2502



Charge Mate Pro 40



Charge Mate Pro 90

Part #	83301202	83302502	83304002	83309002
<b>General Specifications</b>				
Battery voltage	12/24V	12/24V	automatic 12/24V detection	automatic 12/24V detection
Max. current	Bi-directional, 120A	Bi-directional, 500A	Directional, Current limiting to 40A	Directional, Current limiting to 90A; > 77°F derating power
Number of modes	n.a.	on, off, auto, start assist	on, off, auto, 150A start assist	on, off, auto, 150A start assist
Dimensions, h x w x d	3" x 1.8" x 1.8" 76 x 46 x 46 mm	3.5" x 3.1" x 3.3" 90 x 80 x 85 mm	6.2" x 5.5" x 3.2" 157 x 140 x 80 mm	6.2" x 5.5" x 3.2" 157 x 140 x 80 mm
Weight	0.3 lb / 0.125 kg	1.4 lb / 0.65 kg	1.94 lb / 0.88 kg	1.94 lb / 0.88 kg
<b>Technical Specifications</b>				
No-load power consumption	switch open: < 1 mA at 12/24V DC	switch open: < 1 mA at 12/24V DC	switch open: < 1 mA at 12/24V DC	switch open: < 1 mA at 12/24V DC
Inrush current (250ms)	2000A	2000A	n.a.	n.a.
Switch on voltage	13-15V (12V) 26-30V (24V)	13-15V (12V) 26-30V (24V)	13.5V (12V) 27V (24V)	13.5V (12V) 27V (24V)
Switch on delay	5 sec.	30 sec.	5 sec.	5 sec.
Switch off voltage	< 12.75V (12V) < 25.5V (24V)	< 12.25... > 15V (12V) < 25.5... > 30V (24V)	12.75V (12V) 24.5V (24V)	12.75V (12V) 24.5V (24V)
Switch off delay	no	3 minutes	2.5 sec.	2.5 sec.
Relay	electro-mechanical	electro-mechanical	electronically (MOSFETs)	electronically (MOSFETs)
Ambient temperature	-40°F to 149°F (-40°C to 65°C)	-40°F to 140°F (-40°C to 60°C)	-40°F to 140°F (-40°C to 60°C)	-40°F to 140°F (-40°C to 60°C)
Protection degree	IP21	IP21	IP65	IP65

## Mastervolt monitoring: A window into the life of your batteries

Unexpected flat batteries put a dampener on your pleasure. A Mastervolt battery monitoring system brings an end to nasty surprises. A clear display shows performance, consumption and available battery capacity. Management of larger, complex systems is also available. This includes monitoring and operation of multiple functions such as AC and DC power provision via the generator, mains or main engine. The choice is yours.



### A choice of instruments for different needs

Measuring the actual amount of energy remaining in a battery is a complicated feat, different to simply checking the level in a water or fuel tank. Many factors influence how much energy the battery can still supply, including its age, the surrounding temperature and the intensity of the loads connected to the battery. Although a voltmeter can give a rough indication of the battery's condition, there is a more accurate and reliable way to obtain information—via one of Mastervolt's battery monitors. Available in four different models:

- **BattMan Lite:** An affordable battery monitor that does exactly that: providing critical information about the status of your battery bank under all circumstances. Moreover it will warn you when your battery bank is empty.
- **BattMan Pro:** Also displays the remaining time until your battery needs to be charged and stores special battery status events.

- **Masterlink BTM-III:** Provides an accurate indication of the voltage, current, amp-hours, remaining time and remaining capacity of battery bank 1, and the actual and estimated capacity of battery banks 2 and 3. The built-in microprocessor calculates the remaining capacity and stores historic data.
- **MasterShunt + EasyView 5:** MasterBus integrated battery monitor collecting detailed information on the status of your batteries. The MasterBus remote panel with touchscreen controls provides information on the charge process as well as other system information.

### TECH TIP

#### Warning System

A Mastervolt battery monitor can also function as an active warning system. A potential-free contact can give a signal to an acoustic alarm or even an automatic start/stop system for the generator.

## Battery Monitoring Specifications



BattMan Lite



BattMan Pro

Masterlink  
BTM-IIIMasterShunt +  
EasyView 5

Part #	70405060	70405070	70403163	77020115 + 77010310
Application	Battery monitor, 12/24V DC with large, splash proof display (IP65) and power bar	Battery monitor, 12/24V DC with large, splash proof display (IP65) and power bar. Displays remaining time and stores special battery status events	Battery monitor, 12/24V DC with LCD display and LED bar	The MasterShunt in combination with an EasyView 5 panel is the most advanced battery monitor you can find Touchscreen control of all functions
<b>General Specifications</b>				
Number of battery outlets	2; service (fully), starter (voltage)	2; service (fully), starter (voltage)	3; service, starter & bowthruster	one battery set per MasterShunt
Display/read-out	voltage, current, amp-hours, battery capacity in %	voltage, current, amp-hours, time remaining, battery capacity in %, special battery status events	voltage, current, amp-hours, time remaining, battery capacity in %, special battery status events	voltage, current, amp-hours, time remaining, battery capacity in %, inverter & charger operation, Power Sharing, special battery status events
Dimensions, hxxwxd	Ø 2.5" / 3.1" Ø 64 mm, depth 79 mm	Ø 2.5" / 3.1" Ø 64 mm, depth 79 mm	2.6" x 4.7" x 1.6" 65 x 120 x 40 mm	4.5" x 4.5" x 1.5" 113 x 127 x 43 mm
Dimensions shunt, hxxwxd	3.3" x 1.7" x 1.4" - M8 87 x 45 x 35 mm - M8	3.3" x 1.7" x 1.4" - M8 87 x 45 x 35 mm - M8	3.3" x 1.7" x 1.7" - M8 84 x 44 x 44 mm - M8	5.9" x 5.9" x 2.5" 150 x 150 x 65 mm
Built-in depth	2.8" (72.5 mm)	2.8" (72.5 mm)	2.2" / 1.6" (55 / 40 mm) (incl./excl. cover and cable)	surface mount
Weight	0.22 lb / 0.10 kg (excl. shunt)	0.29 lb / 0.13 kg (excl. shunt)	0.6 lb / 0.25 kg	2.2 lb / 1 kg
<b>Technical Specifications</b>				
Max. Ah capacity	999 Ah	9999 Ah	9999 Ah	9999 Ah
Supply voltage	9-35V	9-35V	8-50V	8-60V
Voltage range	0-35V	0-35V	7-35V	0-60V
Current consumption (backlight off)	8 mA / 12V 6 mA / 24V	8 mA / 12V 6 mA / 24V	28 mA / 12V 16 mA / 24V	32 mA / 12V 17 mA / 24V
Current consumption (backlight on)	30 mA / 12V 18 mA / 24V	30 mA / 12V 18 mA / 24V	100 mA / 12V 50 mA / 24V	100 mA / 12V 50 mA / 24V
Voltage resolution	0.1V	0.01V	0.01V	0.1V
Voltage accuracy	± 0.3%	± 0.3%	± 0.6%	± 0.6%
Shunt specification	500A / 50 mV (service set)	500A / 50 mV (service set)	500A / 50 mV (service set)	digital shunt
Current measurement range	0-500A	0-500A	0-500A (option incl. 1000A)	0-500A
Current accuracy	± 0.4%	± 0.4%	± 0.8%	± 0.8%
Battery alarm contact	yes, potential free	yes, potential free	yes, open collector	yes, via MasterBus alarm interface
Remaining time indication	no	yes	yes	yes
Historical data	no	yes	yes	yes
MasterBus compatible	no	no	no	yes
Connection cable (6-wire) necessary	yes	yes	no	no
Modular cable necessary	no	no	no	MasterBus cable included
Languages on display	universal	universal	English, Dutch, French, Spanish, German, Danish, Finnish, Norwegian, Italian, Swedish	English, Dutch, French, Spanish, German, Danish, Finnish, Norwegian, Italian, Swedish



RELIABLE



COST SAVING



EASY INSTALL



WATERPROOF



# TRANSFORMERS





# TRANSFORMERS

## Soft Start for IVET Transformer Series



98

Ideal for peak loads when connecting to shore power.

## Mass GI Transformers



98

Mastervolt's Mass GI offers the latest high-frequency switching technology as well as Soft Start for peak loads when connecting to the shore.

## IVET Transformers



98

High output isolation transformers without the housing for self-installation. Multi-tap design for 120V/230V/240V input and output.

## Mastervolt Transformers:

### A safe connection between grid power and your onboard network

A safe connection between vessel and shore installation is an essential part of your electrical system. A galvanic electrical isolation between shore power and the on board power prevents any electrical corrosion of metal parts while keeping you earthed.

Both the unique HF technology-based Mass GI and the reliable 50 Hz transformer-based IVET series offer you complete protection against galvanic corrosion.

#### Select the right transformer for your system:

##### Lightweight Mass GI Transformer

- Ultra modern high-frequency electronic switch technology
- Lightweight and compact
- Integrated Soft Start function
- Connect to voltages from 90V to 255V and from 45 Hz to 65 Hz
- Units can be parallel coupled for higher capacity
- Higher efficiency, limited heat development

##### IVET Heavy-duty Series

- High-quality isolation transformers without casing for self installation
- Optional Soft Start, in synthetic casing
- Capacities of 2.5 kW to 22 kW







### Soft Start for the IVET heavy-duty series

The Soft Start automatic switch suppresses the inrush current from the transformer and prevents the fuse from blowing.

### Automatically adjust the grid power



Mastervolt supplies three automatic switching systems for capacities of 6, 9 and 13 kW that - combined with an IVET transformer - adjust grid power to the onboard system. As a result, a 230V/50 Hz system can easily function with an American or Caribbean AC connection. Do ensure that the frequency on board (50 or 60 Hz) is the same as the frequency of the incoming current.

### Modern transformer technology: Light, silent, reliable and easy

The Mass GI is supplied with the latest high-frequency switching technology as well as Soft Start for peak loads when connecting to the grid. LED lights on the casing indicate load and overload. The transformer can be remotely controlled via a MasterBus compatible display. The Mass GI is 75% lighter and 60% smaller compared to low frequency transformers.

### Higher capacity via parallel switching

Parallel switching of the Mass GI units increases the AC power capacity. Two 16A/3.5 kW units ensures 32A/7 kW, four units give 64A/14 kW.

### Install anywhere

With its robust aluminium casing, this isolation transformer can be fitted in any position on wall or floor. No rubber mountings are necessary because the unit does not vibrate or hum. The Mass GI also features professional connections with strain relief cable glands.

## TECH TIP

- Determine AC power and onboard current: 230V, 120V or both?
- Determine the capacity: maximum load with onboard power usage = amount of amps and kW.

## Isolation Transformers

## Specifications



Mass GI 3.5






Mass GI 7



IVET 3.5



IVET 4.5

Part #	88000355	88000705	85000350	85000450
<b>Input</b>				
Input voltage	90–255V	90–255V	110/220/240V (adjustable)	110/220/240V (adjustable)
Input frequency	45–65Hz	45–65Hz	45–65Hz	45–65Hz
Nominal input current at 230V	16A	32A	16A	20A
No load consumption	22 W	44 W	<10 W	<10 W
Earth leakage protection	no	no	no	no
<b>Output</b>				
Output voltage (equal to input)	90–255V, ± 5%	90–255V, ± 5%	110/220/240V, ± 5%	110/220/240V, ± 5%
Output frequency	equal to input	equal to input	equal to input	equal to input
Soft Start	yes	yes	option	option
Switch off behaviour breaker	B-characteristic	B-characteristic	n.a.	n.a.
Efficiency	>93%	>93%	>93%	>93%
<b>General Specifications</b>				
Power	3500 W (up to 4 units parallel = 14 kW)	7000 W	3500 W	4500 W
Technology	high frequency	high frequency	E-core	E-core
Dimensions, HxWxD	13.4" x 10.3" x 5.7" 340 x 261 x 144 mm	13.4" x 10.3" x 9.8" 340 x 261 x 250 mm	13" x 7.9" x 7.3" 330 x 200 x 185 mm	13" x 9.4" x 7.3" 330 x 240 x 185 mm
Weight	13.2 lb / 6 kg	22 lb / 10 kg	66.1 lb / 30 kg	77.2 lb / 53 kg
Ambient temperature	32°F to 104°F, derating power > 104°F (0°C to 40°C, derating power > 40°C)			
Switch off at	176°F / 80°C	176°F / 80°C	n.a.	n.a.
Cooling	variofan	variofan	natural cooling	natural cooling
Operating humidity	max. 95%	max. 95%	max. 95%	max. 95%
Protection degree	IP23	IP23	IP00	IP00
MasterBus compatible	yes	yes	no	no
<b>Options</b>				
EasyView 5 77010310	 option	option	n.a.	n.a.
Waterproof system monitor with 'daylight readable' color display and intuitive multi-language touchscreen to show the key system information at a glance. There is also a logbook feature for warnings and alarms, along with a buzzer and alarm notifications. The home button gives access to favorite pages.				
Soft Start 13 kW 55003300	 included	included	option	option
Automatic switch that suppresses the inrush current from the isolation transformer to prevent the shore power fuse from blowing.				
Soft Start 22 kW 55003400	 included	included	n.a.	n.a.
Automatic switch that suppresses the inrush current from the isolation transformer to prevent the shore power fuse from blowing.				

Transfer systems with Soft Start and automatic detection of the input voltage



6 kVA



9 kVA



13 kVA



Soft Start 13 kVA



Soft Start 22 kVA

Part #	55010600	55010900	55011300	55003300	55003400
Voltage	120/230V	120/230V	120/230V	230V	230V
Power	6 kW	9 kW	13 kW	2.5–13 kW	13–22 kW
Max. input current	60A at 120V 30A at 230V	80A at 120V 40A at 230V	130A at 120V 70A at 230V	n.a.	n.a.
Dimensions, HxWxD	15.7" x 11.8" x 8.3" 400 x 300 x 210 mm	15.7" x 11.8" x 8.3" 400 x 300 x 210 mm	15.7" x 11.8" x 8.3" 400 x 300 x 210 mm	7.9" x 7.1" x 4.5" 200 x 180 x 115 mm	7.9" x 7.1" x 4.5" 200 x 180 x 115 mm
Weight	26.5 lb / 12 kg	27.6 lb / 12.5 kg	28.7 lb / 13 kg	2.6 lb / 1.2 kg	3.3 lb / 1.5 kg

For detailed specifications, scale drawings, 3D files, certificates and manuals see [mastervolt.us](https://mastervolt.us).



IVET 6

85000600



IVET 8

85000800



IVET 10

85001000



IVET 13

85001300



IVET 18

85001800



IVET 22

85002200

110/220/240V  
(adjustable)

45-65Hz

26A

&lt;10 W

no

110/220/240V  
(adjustable)

45-65Hz

35A

&lt;10 W

no

110/220/240V  
(adjustable)

45-65Hz

44A

&lt;10 W

no

110/220/240V  
(adjustable)

45-65Hz

57A

&lt;10 W

no

110/220/240V  
(adjustable)

45-65Hz

78A

&lt;10 W

no

110/220/240V  
(adjustable)

45-65Hz

96A

&lt;10 W

no

120/220/240V,  $\pm 5\%$ 

equal to input

option

n.a.

&gt;93%

120/220/240V,  $\pm 5\%$ 

equal to input

option

n.a.

&gt;93%

120/220/240V,  $\pm 5\%$ 

equal to input

option

n.a.

&gt;93%

120/220/240V,  $\pm 5\%$ 

equal to input

option

n.a.

&gt;93%

120/220/240V,  $\pm 5\%$ 

equal to input

option

n.a.

&gt;93%

120/220/240V,  $\pm 5\%$ 

equal to input

option

n.a.

&gt;93%

6000 W

8000 W

10 kW

13 kW

18 kW

22 kW

E-core

E-core

E-core

E-core

E-core

E-core

15" x 9.5" x 8.5"  
380 x 240 x 215 mm16.9" x 11" x 8.3"  
430 x 280 x 210 mm16.9" x 11" x 9.5"  
430 x 280 x 240 mm19.3" x 12.6" x 9"  
490 x 320 x 230 mm19.3" x 12.6" x 10.2"  
490 x 320 x 260 mm19.3" x 12.6" x 11.4"  
490 x 320 x 290 mm

110.2 lb / 50 kg

130 lb / 59 kg

165.4 lb / 75 kg

198.4 lb / 90 kg

242.5 lb / 110 kg

286.6 lb / 130 kg

32°F to 104°F, derating power &gt; 104°F (0°C to 40°C, derating power &gt; 40°C)

n.a.

n.a.

n.a.

n.a.

n.a.

n.a.

natural cooling

natural cooling

natural cooling

natural cooling

natural cooling

natural cooling

max. 95%

max. 95%

max. 95%

max. 95%

max. 95%

max. 95%

IP00

IP00

IP00

IP00

IP00

IP00

no

no

no

no

no

no

n.a.

n.a.

n.a.

n.a.

n.a.

n.a.

option

option

option

option

n.a.

n.a.

n.a.

n.a.

n.a.

option

option

option

In addition to Mastervolt isolation transformers, we also supply ProMariner galvanic isolators, the ProSafe series.



For more information, please consult the ProMariner product catalog or [promariner.com](http://promariner.com).

**ProMariner™**



# ALTERNATORS & REGULATORS



# ALTERNATORS & REGULATORS

## Alpha and Alpha Compact Alternators



104

Standard alternators only supply the specified capacity at a high rpm. The Mastervolt Alpha alternator is specifically designed to charge powerfully, even with a low engine rpm. Alpha Compact “automotive style” alternators provide an easy fit on factory-installed PTO (power take-off) brackets available from most engine manufacturers.

## Alpha Pro Charge Regulators



106

Measures battery temperature and adjusts charging process automatically for a safe, fast charge.

## Solar ChargeMaster



108

The Mastervolt Solar ChargeMaster charge regulators maximize yield from the often very irregular supply of sunlight. Robust power electronics align the energy from the solar panels to the charge status of the batteries.



Using engines to generate electricity to replenish batteries while on the run requires alternators available from Mastervolt.



## Alternators and Charge Regulators: For rapidly recharged batteries

The existing alternator on the main engine is designed to charge the starter battery. As a result the combination is not ideal for fast and full charging of other batteries, especially if you want to charge the batteries over a short time or when powering a heavy load.

### There are two options to solve this issue:

Equip the standard alternator with a Mastervolt Alpha Pro charge regulator. This charge regulator maximizes the output of alternators by regulating the alternator in a way that ensures

the batteries receive the optimum charge. The proven 3-step+ charge method guarantees fast and safe charging of your batteries.

You can also choose a powerful second Mastervolt Alpha alternator with Alpha Pro charge regulator. This combination was specifically designed for charging service batteries, and allows you to charge quickly and turn off your engine when you want.



### TECH TIP

A second alternator on the main engine, combined with a larger battery bank and inverter, could be an alternative for a generator.

### Alpha Pro Charge Regulators

- Suitable for 12V and 24V
- Including plug & play connection cable, an adapter cable for Bosch alternators is optional
- The Alpha Pro series is suitable for alternators up to 400A charge current
- Automatic voltage and temperature compensation
- 'Keep alive' function for tachometer
- MasterBus compatible



The charge regulator measures the battery temperature and adjusts the charging process accordingly, resulting in a safe and fast charge. Therefore the battery is always kept in good condition.



### Alpha Alternator Series

- Fast and complete charging of all batteries
- Power supply for all consumers
- 12V and 24V versions
- 75A to 200A charge current
- As standard, delivered with Alpha Pro MB charge regulator for an optimal performance and longer-lasting batteries

Using a Battery Mate, Charge Mate or BI battery isolator in conjunction with an Alpha Alternator, makes it possible to easily charge two or three separate battery banks simultaneously.

### Alpha Compact Alternator Series

Alpha Compact "automotive style" alternators provide an easy fit on factory-installed PTO (power take-off) brackets available from most engine manufacturers. If space is limited, Alpha Compact can also be used to exchange the stock alternator for a more powerful model.

- Plug and play solution, with Alpha Pro III regulator included.
- Up to 40% lighter and 25% more compact than conventional alternators
- Up to 30% lower fuel consumption
- OEM quality with optimized material composition
- Suitable for use in high temperature areas
- Cable and electronic parts protected against oil, moisture and dust
- Engine RPM signal
- Wide range of accessories available
- Models with suffix "VP" are a perfect fit for Volvo Penta engines





### For all engine types

Alpha alternators are equipped with several fixations for customized alternator brackets, available from your installer or engine supplier. Some engine brands come with Mastervolt alternator brackets as an option.



### Alpha Pro: Easy to operate

Easy operation LEDs on the body of the charge regulator indicate the charge phase. The Alpha Pro is designed as a 'fit all' solution. Just one unit is needed for both 12V and 24V applications, with a simple selector switch to set the regulator to the right voltage. The charge regulator can also be used on any other brand of alternator that has a standard Bosch connector, using a Bosch adapter cable (optional).

### Wide range of accessories available



Freewheeling multigroove pulleys are available in various diameters and widths for an optimal pulley ratio and belt alignment.



### High performance plug & play alternators



Compared to conventional alternators, Alpha Compact offers lower weight, smaller dimensions and reduced fuel consumption.



### MasterBus Connectivity

The Alpha Pro is compatible with MasterBus, allowing easy monitoring via an EasyView touchscreen. In a MasterBus system, the voltage drop over the battery cable and the battery temperature is compensated automatically.

### Performs above 104°F (40°C)



Forced cooling by fan operation of the pulley provides a lot of power in higher temperatures, especially close to the engine.

## Alpha Compact Alternators






**EXPANDED OFFERING**


### Specifications

Part #	Alpha 14/120 46214120	Alpha 14/200 46214200	Alpha 28/110 46228110	Alpha 28/150 46228150
<b>General Specifications</b>				
Mounting	swivel arm	direct mounting	swivel arm	swivel arm
Pulley	no	yes	no	no
Weight	14.8 lb / 6.7 kg	16.5 lb / 7.5 kg	16.3 lb / 7.4 kg	17.4 lb / 7.9 kg
Rotational direction	clockwise	clockwise	clockwise	clockwise
Galvanic isolation	non-isolated	non-isolated	non-isolated	non-isolated
Isolated operation	yes, with optional isolation bushings	yes, with optional isolation bushings	yes, with optional isolation bushings	yes, with optional isolation bushings
Cooling	integrated dual fan	integrated dual fan	integrated dual fan	integrated dual fan
Temperature sensor	integrated, RJ12 connection	integrated, RJ12 connection	integrated, RJ12 connection	integrated, RJ12 connection
<b>Technical Specifications</b>				
System voltage	12V	12V	24V	24V
Nominal current (at 6000 rpm, 77 °F)	120A	200A	110A	150A
Charge current (at 1800 rpm, 77 °F)	70A	106A	41A	28A
Cut-in speed	1300 rpm	1350 rpm	1400 rpm	1700 rpm
Max. rotational speed	20000 rpm	20000 rpm	15000 rpm	16000 rpm
Power Take Off (kW / hp)	3.4 / 4.5	5.6 / 7.6	6.2 / 8.3	8.4 / 11.4
Max. operating temperature	248°F (120°C)	248°F (120°C)	248°F (120°C)	248°F (120°C)
<b>Connections</b>				
Positive output stud	2x M8	2x M8	2x M8	2x M8
W (rpm) signal connection	isolated fast-on	isolated fast-on	isolated fast-on	isolated fast-on
Field current connection	Mastervolt plug	Mastervolt plug	Mastervolt plug	Mastervolt plug

### Accessories

#### Clutch Pulley

48420110		6 ribs (Ø 49.8, W = 40.3 mm)	48420120		6 ribs (Ø 56.2, W = 42.8 mm)	48420130		6 ribs (Ø 55, W = 36.1 mm)
48420100		8 ribs (Ø 57.4, W = 37.4 mm)	48420140		8 ribs (Ø 56, W = 38.9 mm)	48420150		8 ribs (Ø 50, W = 49.3 mm)

#### Serpentine Pulley

48400030		6 ribs (Ø 92, W = 31 mm)	48420160		8 ribs (Ø 66.1, W = 34.6 mm)
48420170		8 ribs (Ø 48.1, W = 39.4 mm)	48420180		2x 8 ribs (Ø 66.1, W = 68.7 mm)

#### Misc. Items

48420240		6pc Isolating Kit M8x2; M10x4	48420200		Oil Pressure Switch Isolated M10x1	48420220		B+ Adapter M10
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Alpha 28/200  
46228203



Alpha 28/80 VP  
46228082



Alpha 28/110 VP  
46228112



Alpha 28/150 VP  
46228152

direct mounting	swivel arm	swivel arm	swivel arm
no	yes	yes	yes
16.5lb/7.8kg	15.2 lb / 6.9 kg	16.3 lb / 7.4 kg	17.4 lb / 7.9 kg
clockwise	clockwise	clockwise	clockwise
non-isolated	non-isolated	non-isolated	non-isolated
yes, with optional isolation bushings	yes, with optional isolation bushings	yes, with optional isolation bushings	yes, with optional isolation bushings
integrated dual fan	integrated dual fan	integrated dual fan	integrated dual fan
integrated, RJ12 connection	integrated, RJ12 connection	integrated, RJ12 connection	integrated, RJ12 connection
24V	24V	24V	24V
200A	85A	110A	150A
50A	45A	40A	30A
1350 rpm	1400 rpm	1400 rpm	1700 rpm
20000 rpm	15000 rpm	15000 rpm	16000 rpm
8.4 / 11.4	4.8 / 6.4	6.2 / 8.3	8.4 / 11.4
248°F (120°C)	248°F (120°C)	248°F (120°C)	248°F (120°C)
2x M8	2x M8	2x M8	2x M8
isolated fast-on	isolated fast-on	isolated fast-on	isolated fast-on
Mastervolt plug	Mastervolt plug	Mastervolt plug	Mastervolt plug

## Alpha Alternators Specifications



Alpha 12/90



Alpha 12/130



Alpha 24/75



Alpha 24/110



Alpha 24/150

Part #	48212090	48212130	48224075	48224110	48224150
Delivered with serpentine pulley	48400010	48400020	48400020	48400020	48400020
<b>General Specifications</b>					
Charge Regulator	an Alpha Pro III charge regulator comes standard with all models	for use with alpha Pro regulator 45513000 (order separately, see pg 106)	an Alpha Pro III charge regulator comes standard with all models	an Alpha Pro III charge regulator comes standard with all models	an Alpha Pro MB charge regulator comes standard with all models
Total charge current	90A	130A	75A	110A	150A
Cable length regulator/alternator	1.5 m, oil resistant connection cable, delivered as standard		1.5 m, oil resistant connection cable, delivered as standard		
Belt section	2xA	2xA	2xA	2xA	2xA
Isolated from mass	yes	yes	yes	yes	yes
Directions of revolutions	2	2	2	2	2
Mounting	five to six, six o'clock & five past six	six o'clock	six o'clock	six o'clock	five to six, six o'clock & five past six
Dimensions	go to <a href="http://mastervolt.com/alternators">mastervolt.com/alternators</a> for drawings		go to <a href="http://mastervolt.com/alternators">mastervolt.com/alternators</a> for drawings		
Weight	12.1 lb / 5.5 kg	22.3 lb / 10.1 kg	22.3 lb / 10.1 kg	22.3 lb / 10.1 kg	28.9 lb / 13.1 kg
<b>Technical Specifications</b>					
Charge voltage absorption	14.25V	14.25V	28.5V	28.5V	28.5V
Charge voltage float	13.25V	13.25V	26.5V	26.5V	26.5V
Pulley (double) diameter	2.9" / 73 mm	3.5" / 89 mm	3.5" / 89 mm	3.5" / 89 mm	3.5" / 89 mm
<b>Options</b>					
Serpentine pulley 48400030	n.a.	n.a.	n.a.	option	option



## Alpha Pro Charge Regulators

### Specifications



Alpha Pro III

Part #	45513000
Part # (with 13ft harness and temperature sensor)	45513040
<b>General Specifications</b>	
Link to MasterShunt	yes
Connection to Mastervolt alternator	yes
Connection to Bosch alternator	yes, using a Bosch adapter cable (part # 45510500)
Cooling	fanless
Nominal output voltage	12V / 24V
Cable length regulator/alternator	5ft / 1.5 m oil resistant connection cable
Connection plug regulator/alternator	Alpha/Mastervolt
Display/read-out	LED display
MasterBus powering	yes
Dimensions, hwxwd	3.5" x 4.3" x 1.2" 90 x 109 x 30 mm
Weight	0.9 lb / 0.4 kg
Delivered with	battery temperature sensor with 20 ft (6 m) cable
Approvals	CE
<b>Technical Specifications</b>	
Charge characteristic	IUoUo, automatic / 3-step+ for Gel/AGM/ flooded/Lithium Ion
Charge voltage Bulk/ Absorption	default setting for AGM, Gel and Lithium Ion (adjustable)
Absorption time	4 hours, adjustable from 2 minutes to 12 hours
Charge voltage Float	default setting for AGM, Gel and Lithium Ion (adjustable)
Temperature compensation	-17 mV / °F (-30 mV / °C)
Voltage compensation	voltage drop compensation in DC cables up to 3V
Alternator type	all alternators with negative excitation
Field currents	up to 20 amps
MasterBus compatible	yes
<b>Options</b>	
Bosch adapter cable 45510500	option* Connection cable for any other brand of alternator that has a standard Bosch connector.
Alternator temperature sensor 41500400	option* When used in combination with non-Mastervolt alternators, this alternator temperature sensor may offer additional protection against over heating (see manual for instructions).

### Benefits of a Mastervolt Charge Regulator

The Alpha Pro charge regulator maximizes the output of Mastervolt Alpha alternators or any other alternator by regulating the alternator in a way that the batteries receive the optimum charge. The proven 3-step+ charge method used by all Mastervolt battery chargers guarantees fast and safe charging of your batteries.

The Alpha Pro helps to cut emissions by requiring less run time because it maximizes the power from any alternator. A battery can be charged quickly even at very low RPM, especially when connected to an Alpha series alternator. By connecting the Alpha Alternator to a Battery Mate or battery isolator, several battery banks can be charged simultaneously.

Does your tachometer sometimes indicate zero while the engine is running? The 'keep alive' function of the Alpha Pro gets rid of this problem forever.



The Alpha Pro comes standard with connection cable and battery temperature sensor.

\*option only for 45513000. 41500400 is included with 45513040

## Solar ChargeMaster: Using the sun as an additional energy source

Solar cells provide power from daylight. This renewable energy source boosts your independence and also helps keep your battery in optimal condition. Mastervolt Solar ChargeMaster charge regulators maximize yield from the often very irregular supply of sunlight. Robust power electronics convert the energy from the solar panels, taking the charge status of the batteries into account.

### Efficient, Reliable and Safe

Mastervolt's solar charge regulators are suitable for energy systems with system voltages of 12V, 24V and 48V (SCM60 MPPT-MB), and charge any battery type, including Mastervolt Lithium Ion (MLI) batteries. They ensure an optimal and efficient charge cycle and are highly reliable. The 3-step+ charging method guarantees an extra-long lifespan for your batteries. A MasterBus connection is available for optimal integration within the energy system.

### Versatile and Flexible

Mastervolt solar charge regulators can be used flexibly to complement your energy system, or in places where no electricity is available, such as remote holiday cottages or chalets. In addition, the solar charge regulators are a perfect mobile solution for campers, special vehicles, yachts and traffic & information signs. They are also ideal for professional applications at remote petrol stations, telecom relay stations or offshore units.

### Which Solar ChargeMaster is best for your application?

#### PWM models

The SCM20 and SCM40 PWM models are both suitable for 36-cell panels (12V systems) and 72-cell panels (24V systems). A clear integrated display, suitability for high ambient temperatures and compatibility with negative grounding. Recommended PV power ranges from 360 Wp to 1440 Wp.

#### MPPT models

The SCM25 MPPT is Mastervolt's smallest MPPT charge regulator. With 200 to 700 Wp in solar panels, switchable output and buzzer, this Solar ChargeMaster is very well suited to small and medium systems. The innovative MPPT technology charges your batteries up to 30% faster than PWM regulators – with the same number of panels.

The SCM60 MPPT-MB is the largest MPPT solar charge regulator in our range. With 600 to 3600 Wp in solar panels, connections for 12V, 24V and 48V battery banks and an integrated MasterBus connection, this Solar ChargeMaster is perfect for large and medium-sized systems. Besides the traditional 36-cell and 72-cell panels, the MPPT models are also ideal for the inexpensive 60-cell panels.



### Features of the Solar ChargeMaster range

- High efficiency: your batteries are charged quickly
- Capacity for solar panel configurations of up to 3600 Wp
- Suitable for AGM, Gel and flooded batteries.
- Fast and flexible setting of battery type
- Battery temperature sensor for long lifespan of your batteries
- Automatic detection 12V, 24V and 48V (SCM60 MPPT-MB)
- Switchable output
- Noiseless operation
- Large, clear LCD display
- Fully protected against overtemperature, overload, high/low battery voltage, high/low PV voltage, short circuit and reverse polarity


### Additional features of the MPPT models

- Charges up to 30% faster with the same number of solar panels
- Fewer cables, quick installation and lower losses
- Suitable for all solar panels, including the inexpensive 60-cell panels
- Suitable for humid environments (IP23)
- Also suitable for Mastervolt Lithium Ion (MLI) batteries.
- Audible signal (SCM25 MPPT)
- Monitoring and control via MasterBus (SCM60 MPPT-MB)

## Solar ChargeMaster

### Specifications



	SCM25 MPPT	SCM60 MPPT-MB	SCM20 PWM	SCM40 PWM
Part #	131902500	131906000	131822000	131824000
<b>General Specifications</b>				
Display/read-out	backlit LCD with PV power, load power, battery voltage, charge current, warnings, battery state of charge, battery setting			
Dimensions, HxWxD	5.3" x 7.5" x 3.0" 135 x 190 x 75 mm	15.7" x 6.6" x 4.1" 398 x 168 x 104 mm	3.9" x 7.4" x 2.1" 98 x 189 x 2.1 mm	3.9" x 7.4" x 2.1" 98 x 189 x 2.1 mm
Weight	2.9 lb / 1.3 kg	12.1 lb / 5.5 kg	1.1 lb / 0.5 kg	1.1 lb / 0.5 kg
Alarms	buzzer	via MasterBus	n.a.	n.a.
Cooling	passive	passive	passive	passive
Protection degree	IP23	IP23	IP23	IP23
Grounding	(-) terminal	(-) terminal	common negative grounding	common negative grounding
<b>Technical Specifications</b>				
Technology	MPPT (Max. Power Point Tracker)		PWM (Pulse Width Modulation)	
Temperature range (ambient temp.)	-4°F to 131°F (-20°C to 55°C)		4 °F to 122 °F, derating power > 104 °F (-20 °C to 50 °C, derating power > 40 °C)	
Cable size	max. 10 mm <sup>2</sup> Litz wire	max. 35 mm <sup>2</sup> Litz wire	max. 16 mm <sup>2</sup> Litz wire	max. 16 mm <sup>2</sup> Litz wire
Protections	over temperature, overload, high/low battery voltage, high/low PV voltage, short circuit, reverse polarity & HV transients			
MasterBus communication	no	yes	no	no
Relative humidity	95% non-condensing	95% non-condensing	95% non-condensing	95% non-condensing
<b>Battery Charger Specifications</b>				
System voltage (battery)	12/24V auto select	12/24/48V auto select	12/24V auto select	12/24V auto select
Battery types	AGM, Gel, flooded, Lithium Ion (LiFePO4)	AGM, Gel, flooded, Lithium Ion (LiFePO4)	AGM, Gel, flooded,	AGM, Gel, flooded,
Battery temperature sensor	yes	yes	optional	optional
Lithium Ion protection	via Multipurpose Contact Output, Part # 77030500	yes, via MasterBus connection	n.a.	n.a.
Max. charge current at 104°F (40°C)	25A	60A	20A	40A
Switchable output (max. current)	25A	via MasterBus	20A	40A
Energy consumption (night)	5 mA	< 1 mA	< 7 mA	< 7 mA
<b>Solar Input (DC) Specifications</b>				
Nom. PV current at 104°F (40°C)	18A	50A	20A	40A
PV start voltage (12V/24V)	15V / 27V	n.a.	n.a.	n.a.
PV start voltage (12V/24V/48V)	n.a.	15V / 27V / 51V	n.a.	n.a.
Nom. PV voltage (12V)	15-66V	13.2-115V	n.a.	n.a.
Nom. PV voltage (24V)	30-66V	26.4-115V	n.a.	n.a.
Nom. PV voltage (48V)	n.a.	52.8-115V	n.a.	n.a.
Max. PV voltage (Tmin)	75V	145V	n.a.	n.a.
Max. PV power (12V)	360 Wp	900 Wp	360 Wp	720 Wp
Max. PV power (24V)	720 Wp	1800 Wp	720 Wp	1440 Wp
Max. PV power (48V)	n.a.	3600 Wp	n.a.	n.a.
Max. efficiency	> 98%	> 98%	n.a.	n.a.
Static MPP efficiency	99.9%	99.9%	n.a.	n.a.
<b>Options</b>				
Temperature Sensors 41500500, 6M 41500800, 15M	 included option	included option	option option	option option



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131822000	108	28020700	30	35512000	17	43020600	44	48420100	104
131824000	108	28021000	30	35513000	17	44010250	44	48420110	104
131902500	108	28021500	30	35513500	17	44020120	44	48420120	104
131906000	108	28022000	30	35522000	17	44310305	40	48420130	104
21709150	35	28022500	30	35523000	17	44310505	40	48420140	104
21709200	35	28210700	29	35523500	17	44310755	40	48420150	104
21709300	35	28211000	29	35524500	17	44311005	40	48420160	104
24012000	24	28211500	29	35545000	17	44320205	40	48420170	104
24020800	24	28212500	29	36211200	19	44320305	40	48420180	104
24021002	25	28213500	29	36211201	19	44320405	40	48420200	104
24021500	24	28220700	30	36212000	19	44320605	40	48420220	104
24022500	24	28221000	30	36212001	19	44320805	40	48420240	104
24095100	24	28221500	30	38013000	12	44321105	40	55003300	98
24112000	24	28222500	30	38023500	12	45510500	106	55003400	98
24120800	24	28410700	29	38343500	12	45513000	106	55003500	56
24121500	24	28411000	29	38513000	12	45513040	106	55006000	56
24122500	24	28411500	29	38523500	12	46214120	104	55006010	56
24195100	24	28412500	29	40020156	37	46214200	104	55006015	56
25012002	25	28413500	29	40020256	37	46228082	104	55008205	56
26024000	24	28420700	30	40020506	37	46228110	104	55010600	98
28010302	29	28421000	30	40020756	37	46228112	104	55010900	98
28010502	29	28421500	30	40021006	37	46228150	104	55011300	98
28010700	29	28422500	30	40031006	37	46228152	104	55106100	56
28011000	29	28510700	29	40040256	37	46228203	104	61002600	68
28011500	29	28512000	29	40040506	37	48212090	105	61004000	68
28012000	29	28520700	30	40120756	37	48212130	105	62000550	68
28012500	29	28522000	30	40720266	37	48224075	105	62000700	68
28013500	29	35012000	18	41500400	106	48224110	105	62000900	68
28020300	30	35013000	18	41500500	12	48224150	105	62001300	68
28020302	30	35022000	18	41500700	19	48400010	105	62001600	68
28020500	30	35023000	18	41500800	12	48400020	105	62002250	68
28020502	30	35511500	17	43011000	44	48400030	104	62002700	68

PN	Page	PN	Page	PN	Page	PN	Page	PN	Page
63001500	68	70403163	93	77040000	86	81205405	48	83302502	91
63001851	68	70404110	24	77040010	86	81206205	48	83304002	91
6369230060	86	70405060	93	77040015	86	81206405	48	83309002	91
64000250	66	70405070	93	77040020	86	81300100	50	85000350	99
64000550	66	70405080	29	77040050	86	81300200	50	85000450	99
64000850	66	70405080	30	77040100	86	81300300	50	85000600	99
64001200	66	77010030	79	77040300	86	81300400	50	85000800	99
64001400	66	77010050	37	77040600	86	81400100	53	85001000	99
64002000	66	77010310	12	77041000	86	81400200	53	85001300	99
66011250	64	77010600	79	77041500	86	81400300	53	85001800	99
66013000	64	77010700	19	77042500	86	81400330	53	85002200	99
66016000	64	77020115	37	77045000	86	81400400	53	88000355	99
66021250	64	77020200	40	77050000	86	81400500	53	88000705	99
66021250	65	77030100	12	77060050	86	81400600	53		
66026000	64	77030300	84	77060100	86	81400700	53		
68000280	67	77030450	50	77060200	86	81400800	53		
68000420	67	77030500	44	77060500	86	81500100	52		
68000500	67	77030700	24	77061050	86	81500200	52		
68000580	67	77030800	82	77061100	86	81500300	52		
68000750	67	77030900	83	77061200	86	81500350	52		
68001000	67	77031100	84	79007712	64	81500400	52		
68001250	67	77031200	24	79007724	64	81500500	52		
68001500	67	77031300	83	80-911-0072-00	84	81500600	52		
68001651	67	77031400	83	80-911-0090-00	85	81500700	52		
68002200	67	77031500	84	80-911-0095-00	85	83007021	90		
68002700	67	77031550	84	81205100	48	83007030	90		
68061100	69	77031800	83	81205105	48	83012021	90		
68061200	69	77031850	82	81205200	48	83012031	90		
68061300	69	77032400	83	81205205	48	83116025	90		
68061400	69	77032600	82	81205300	48	83116035	90		
7032700	82	77032700	28	81205305	48	83125035	90		
70400050	37	77032900	19	81205400	48	83301202	91		

# Ingress Protection (IP) Ratings Guide

Example:

An IP65 rating can be determined using the adjacent table and example:

- The first number of the rating example, 6, in the gray column means the enclosure is dust tight
- The second number of the rating example, 5, in the blue column means the enclosure is protected against jets of water

The IP rating system was established by the International Electrotechnical Commission (IEC), an organization for international standards and conformity assessment. The IEC collaborates closely with the International Organization for Standardization (ISO). A complete description of the IP ratings and associated tests is found in IEC Publication 529. Although these ratings were initially developed as a way to classify enclosures, they now provide a convenient, practical way to compare levels of sealing. Many electrical products have an Ingress Protection (IP) rating which identifies the environmental factors needing consideration prior to the product's installation.

This is important when deciding when to mount products in a dry and clean environment versus a wet and/or dusty environment. The IP rating indicates the degree of protection provided. The numbers following IP represent levels of sealing and can range from no protection to full protection against dust and water. The table provides a description of the protection at each level.

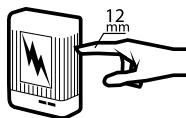
## SOLIDS

1



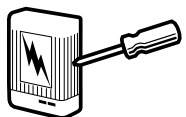
Protected against a solid object greater than 50 mm such as a hand.

2



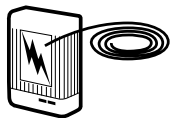
Protected against a solid object greater than 12 mm such as a finger.

3



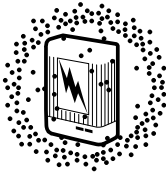
Protected against a solid object greater than 2.5 mm such as a screwdriver.

4



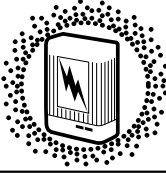
Protected against a solid object greater than 1 mm such as a wire.

5



Dust Protected. Limited ingress of dust permitted. Will not interfere with operation of the equipment. Two to eight hours.

6



Dust tight. No Ingress of dust. Two to eight hours.

Rating Example:

**IP65**

INGRESS PROTECTION

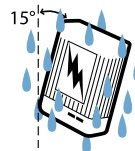
## WATER

1



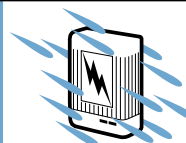
Protected against vertically falling drops of water. Limited ingress permitted.

2



Protected against vertically falling drops of water with enclosure tilted up to 15 degrees from the vertical. Limited ingress permitted.

3



Protected against sprays of water up to 60 degrees from the vertical. Limited ingress permitted for three minutes.

4



Protected against water splashed from all directions. Limited ingress permitted.

5



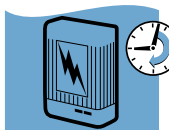
Protected against jets of water. Limited ingress permitted.

6



Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities.

7



Protection against the effects of immersion in water between 15 cm and 1 m for 30 minutes.

8



Protection against the effects of immersion in water under pressure for long periods.



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