

# Mac Plus 24/12-50



Product code: 81205200

## Boost the charging voltage of your service battery!

Charging the service batteries on board of a vehicle or vessel can be challenging. Recharging tends to take a long time and batteries may not receive a full charge. This is a common problem found in boats, service vans, campers and trucks. Smart alternators and start/stop systems make the problem even worse.

## 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 12 V or 24 V. 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.

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

Features:

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

## Applications

Boost charge voltage when service battery is located further from charging source or in systems with a smart alternator. When a stable power supply or different system voltage is needed.

## Euro 5/6 solution

Charging service batteries in Euro 5/6 applications?

The Mac Plus provides constant power to the service battery, even when the alternator is inactive.

## Parallel operation

The parallel configuration of several units will provide you over 100 amperes. Advanced high-frequency technology with modern microprocessors ensures minimum power loss when switching from 24 to 12 V 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.

# Specifications

## Specifications battery charger

Battery temperature sensor	yes, included
Battery voltage sense	yes

## General specifications

Status indicator	yes, 3-color LED
Output voltage	10-15 V
Nominal output voltage	12 V
Output voltage stabilisation	2 % at extremes of tem-ps, load and input
Output voltage ripple (peak peak)	max. 1 %
Max. output power	750 W
Nominal output power	710 W
Max. output current	50 A
Output charge current (3-step mode)	50 A
Nominal input voltage	24 V
Input voltage range	19-30 V
Max. input current	30 A
Galvanic isolation	no
Voltage limited	yes
Efficiency	> 95 % (at nom. input voltage, full load); peak 97 %
Parallel configuration	yes
Alarm contact	yes, through MasterBus
MasterBus powering	no
Engine run signal input	yes (active high/active low)
DIP switches	yes, for basic setup
Dimensions, hxxxd	255 x 165 x 66 mm 10.0 x 6.5 x 2.6 inch
Weight	2 kg 4.4 lb
Compliance	CE, E-Mark, SAE J1171 & ISO 8846 Ignition Protected

## Technical specifications

No-load consumption	< 2 mA
Charge characteristic	3-step+
Battery types	flooded, Gel, AGM, spiral, Lithium Ion, traction, user defined
3-Step charge option	yes (DIP switch settings)
DC consumption	< 5 mA
Connections	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.)	-25 °C to 60 °C; derating > 40 °C -13 to 140 °F
Cooling	natural cooling
Protection degree	IP23
Protections	overload, over temperature, DC short circuit, reversed polarity (fuse)
MasterBus compatible	yes