

# BATTERY CHARGER AMPERIS MMF

The most advanced technology for battery formation, conditioning, test and desulphation.



- ✓ IGBT-HF Hybrid Converter
- ✓ From 50 to 600 Amps
- ✓ DC output from 12 to 700 VDC



\*\*Cabinet up to 3kW

Ref. MMF-P

### Product description:

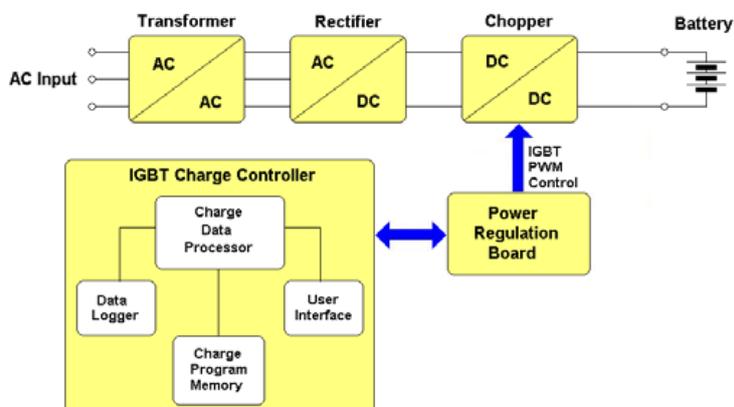
The MMF is a universal battery charger, digitally controlled and programmable.

It can operate with batteries of any type, from individual cells to complete packs, and it can be programmed to support applications of any type (Formation, Conditioning, Recovery, Desulphation and Regeneration).

It is based on a new hybrid power conversion technology, featuring an unprecedented combination of very high efficiency, unity power factor (PFC), universal capabilities and precise charge control.

The two parts that are combined together to compose this "Hybrid" system are:

- Special isolation transformer, with line frequency multiplication system;
- High frequency switchmode converter, based on IGBT technology.



The MMF features a very complete set of charging curves, and the user can complete it by programming new ones, following a very simple procedure.

Thanks to the ultra-filtered output current, this charger ensures a minimal temperature rise in the battery during the recharge process. Moreover, the MMF is suitable to charge battery types that require perfectly constant current and virtually zero ripple.

The MMF is equipped with alphanumeric display & keyboard, Charge History Logger, Programmable Real-Time Clock and Calendar, Audible Alarm and Connectivity package, compatible with wireless Battery Identification Modules and the WEB based Fleet Management System **DoctorFleet.com**.

### Typical applications

- Battery Formation
- Battery Service Shops
- Battery Testing Laboratories

### Main features

- The Most Energy Efficient technology available
- Very Reliable design, easy maintenance
- True Universal Charging capability: Multi-Voltage, Multi-Capacity, Multi-Chemistry, from single cell to
- Full set of standard charging curves factory
- Possibility to Create and Save Customized Charging curves of any type
- Intelligent electronic protection system (includes soft-start, battery polarity reversal, output short circuit and over-temperature)
- Very quiet operation
- Battery voltage/temperature compensation (battery temperature probe required)
- Anti-Arcing protection (auxiliary wires required)



## BATTERY CHARGER AMPERIS MMF

*The new generation of Universal Chargers*

---

### Optional

- Wireless connection to DoctorFleet.com
- Extended data-logger with USB port
- Enclosure type IP54 or NEMA 3R (outdoor rated)
- Submersible probe for battery temperature

### Product specifications

Models	AMPERIS Battery Charger MMF
<b>AC INPUT</b>	
TYPE	Battery Charger MMF
STANDARD VOLTAGES	Single-phase 220-230-240 VAC $\pm$ 10% Three-phase 220-240, 400, 440, 480, 600 VAC $\pm$ 10% Frequency 50/60 Hz $\pm$ 5 Hz
EFFICIENCY	>90% (*)
POWER FACTOR	> 0,90 (*)
<b>DC OUTPUT</b>	
STANDARD VOLTAGES	From single battery cell to 600 VDC.
CURRENT RATINGS	From 50A to 300A.
CHARGING CURVE	User configurable.
<b>PROTECTION</b>	
WRONG BATTERY AND REVERSE POLARITY	If the battery voltage is outside the acceptable limits, or the polarity is reversed, the charger remains in stand-by mode and gives error/warning message.
ELECTRONIC OVERLOAD PROTECTION	Complete protection in case of output short circuit or overload.
ANTI-ARCING	<b>WITHOUT AUXILIARY WIRES:</b> When the battery is connected, no arcing is generated at the connectors. If the battery is disconnected while it's being charged, arcing is possible, so it's necessary to turn off the charger before to disconnect the battery. <b>WITH AUXILIARY WIRES (RECOMMENDED):</b> Full Anti-arcing protection in case of battery disconnection, even while the charge is in progress.
POWER-ON SELF-TEST	Every time the unit is powered, an automatic self-test of the power electronics and the control boards is executed in less than 10 seconds. In case of fault, the unit remains in safe stand-by mode and gives fault messages.
AUTOMATIC SHUTDOWN ON BATTERY DISCONNECTION	If the battery is disconnected while the charge is in progress, the charger turns-off automatically within 3 seconds and a specific message is saved in the Charge History Log.
SAFETY TIMER	An independent safety timer turns the charger off in case of malfunction of the main control unit.



## BATTERY CHARGER AMPERIS MMF

*The new generation of Universal Chargers*

### MECHANICAL AND ENVIRONMENTAL

#### DIMENSIONS

(W x H x D mm)

Cabinet A: 500 x 900 x 440 (mm)

Cabinet B: 620 x 1050 x 550 (mm)

#### ENCLOSURE

Steel

#### COOLING

FORCED VENTILATION with active fan control

#### AUDIBLE NOISE

<65 dBA at 1 meter

#### ENVIRONMENTAL PROTECTION

IP21 (Standard)  
IP54 (Optional)

#### AMBIENT TEMPERATURE

OPERATION: -10 / +50 °C  
STORAGE: -20 / +70 °C

#### ALTITUDE

<2000m  
Derating according to EN62040-3

### USER INTERFACE AND CONNECTIVITY

#### USER INTERFACE

Alphanumeric LCD Display, 5x LEDs, membrane keyboard and Audible Alarm

#### CONNECTIVITY

- Dual RS-485 port for daisy chain interconnection, compatible with WEB based Fleet Management System (DoctorFleet.com)
- Compatible with wireless Battery Identification Modules (BMOD)
- Integrated Data-logger (200 cycles)
- Extended Data-logger (600 cycles) with USB port (Optional)
- Wireless card (Optional)

### STANDARDS

#### MARKING

CE

#### EMC

IEC EN 61000-6-2, IEC EN 61000-6-4

#### SAFETY

IEC EN 50178, IEC EN 62040-1

#### TEST AND PERFORMANCE

IEC EN 62040-3

#### NORTH AMERICAN STANDARDS

UL 1564 "Industrial battery chargers"

cCSAus Listed

CSA 22.2 107.2-01 "Battery Chargers"

#### NOTES

(\*) = Reported Efficiency and Power Factor values are AVERAGE values, measured over the entire charging cycle. Peak Efficiency and Power Factor are higher.