



MFC – PulseMix² Traction Battery Charger

**MAXIMIZE BATTERY LIFE AND PERFORMANCE,
REDUCE ENERGY USE AND CARBON EMISSION**



- ▲ **Technology:** MFC power converter (patented)
- ▲ **Current ratings:** From 60 to 320 Amps
- ▲ **Voltages:** AC input from 200 to 600 VAC
DC output from 12 to 120 VDC



Product Description

The MFC-PulseMix² is a revolutionary traction battery charger, designed for conventional and opportunity charging applications.

It is based on a new power conversion technology, invented by Bassi, featuring an unprecedented combination of very high efficiency, unity power factor (PFC), programing flexibility and precise charge control.

The charging curve is an enhanced version of the standard **WSa** (Pulsed Wa).

Thanks to the **ultra-filtered output current** and the **PulseMix²** technology, this charger ensures a perfect mixing of the electrolyte (without using air-pumps), it reduces the water consumption and the temperature rise of the battery, and it minimizes energy consumption.

The MFC is controlled by the new **digital board Bassi G-01**, equipped with alphanumeric display & keyboard, Charge History Logger, Programmable Clock and Calendar, Audible Alarm and Connectivity package, compatible with wireless Battery Identification Modules and the WEB based Fleet Management System **DoctorFleet.com**.

With the control board G-01, the programmable features of the MFC chargers are almost infinite.

Typical Applications

- Forklifts and other Vehicles for Material Handling Single or Multiple-Shifts Operations
- Opportunity/Rapid charging applications
- Airport Ground Support Equipment

Main Features

- **The Most Efficient** and **Cost Effective** technology available today
- Maximizes battery life, reduces water consumption and maintenance
- **Energy metering** functions, with automatic calculation of the savings: **Energy (kWh)**, **Cost (\$)** and **CO2 emission (kg)**
- Different Power VS Speed configurations, with charging times from **6 to 14 hours**
- Complete electronic protection system
- Battery voltage/temperature compensation (optional probe required)
- Very low output current ripple, reduces battery temperature
- Very quiet operation
- Integrated data-logger with dual serial port (RS-485), compatible with **DoctorFleet.com**
- Very **Robust** and **Reliable** design

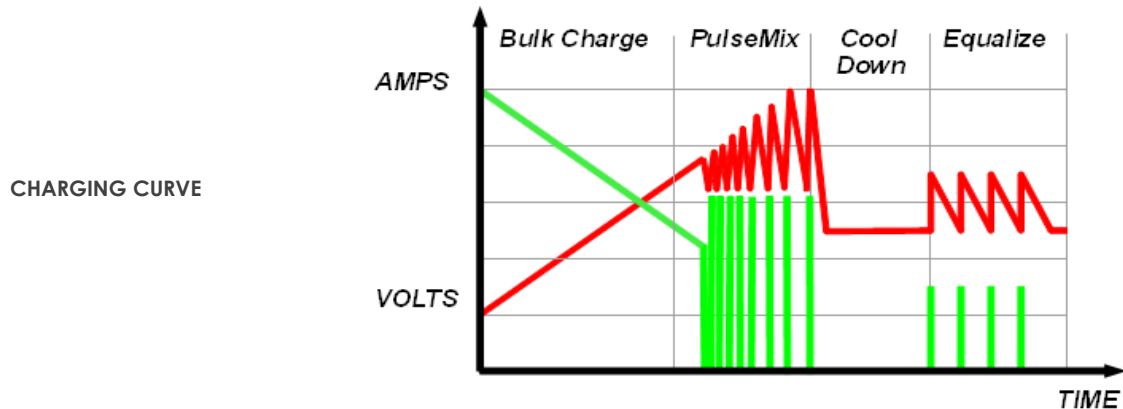
Options

- Wireless connection to DoctorFleet.com
- Extended data-logger with USB port
- Anti-arcing protection on battery disconnection
- Wireless Battery Identification Modules
- Enclosure type IP54 or NEMA 3R (outdoor rated)

Product Specifications

AC INPUT	
STANDARD VOLTAGES	Single-phase 220-230-240 VAC ± 10% Three-phase 220-240, 400-415, 440, 480, 600 VAC ± 10% Frequency 50/60 Hz ± 5 Hz
EFFICIENCY	>90% (*)
POWER FACTOR	Single-phase models >90% (*) Three-phase models >97% (*)

DC OUTPUT	
STANDARD VOLTAGES	Nominal battery voltages: 12, 24, 36, 48, 72, 80, 96, 110, 120 VDC.
CURRENT RATINGS	60, 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300, 320 AMPS.
	Modified W5a (DIN 41773), with Automatic Weekly Equalization, Maintenance and Manual Desulphation cycle.



PROTECTION	
WRONG BATTERY	If the battery voltage is outside the acceptable limits, 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	STANDARD: When the battery is connected, no arcing is generated at the connectors. OPTIONAL: Anti-arcing protection in case of battery disconnection 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.
BLACK-OUT OF THE AC INPUT	<p>The charger features an intelligent management of the AC input black-outs.</p> <p>When a black-out of the AC input occurs, all the data related to the charge cycle that was in progress are saved in the Charge History Logger, and remains available for future review.</p> <p>When the AC input is restored, the charger restarts from the exact point of interruption, and it completes the charge cycle normally.</p> <p>The charger adds a random delay on start (from 3 to 20 seconds). When many chargers are connected to the same AC source, this feature prevents all the chargers from turning on simultaneously and causing a high AC input current spike.</p>



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**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.

MECHANICAL AND ENVIRONMENTAL**DIMENSIONS
(W x H x D mm)**

CABINET A: 500 x 900 x 440
CABINET B: 550x 1300 x 550

COLOR

Front Panel: STAINLESS STEEL
Side – Back Panels: WHITE PAINT
Plastic Covers: GREEN

COOLING

NATURAL or 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 Bassi wireless Battery Identification Modules (BMOD)
- Integrated Data-logger (200 cycles)
- Extended Data-logger (600 cycles) with USB port (Optional)
- Wireless card (Optional)

STANDARDS**QUALITY**

ISO 9001:2008

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

NOTES

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

The information contained in this publication is subject to variations without notice.

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