

TRACTION BATTERY CHARGER SMF MULTIFREQUENCY BATTERY STATION



- ✓ MAXIMIZE BATTERY LIFE AND PERFORMANCE,
- ✓ REDUCE ENERGY USE AND CARBON EMISSION

- *Technology: SMF power converter (patented)*
- *Current range: 60 to 320 A*
- *Input voltage range: 200 to 600 V CA*
- *Output voltage: 12 to 120 VCC*



Product Description

The SMF-PulseMix2 is a revolutionary traction battery charger, designed for conventional and opportunity charging applications. It is based on a new power conversion technology, featuring an unprecedented combination of very high efficiency, unity power factor (PFC), programming flexibility and precise charge control.

The charging curve is an enhanced version of the standard W_{Sa} (Pulsed W_a). 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 SMF is controlled by the new digital board Amperis 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 SMF 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)

Specifications

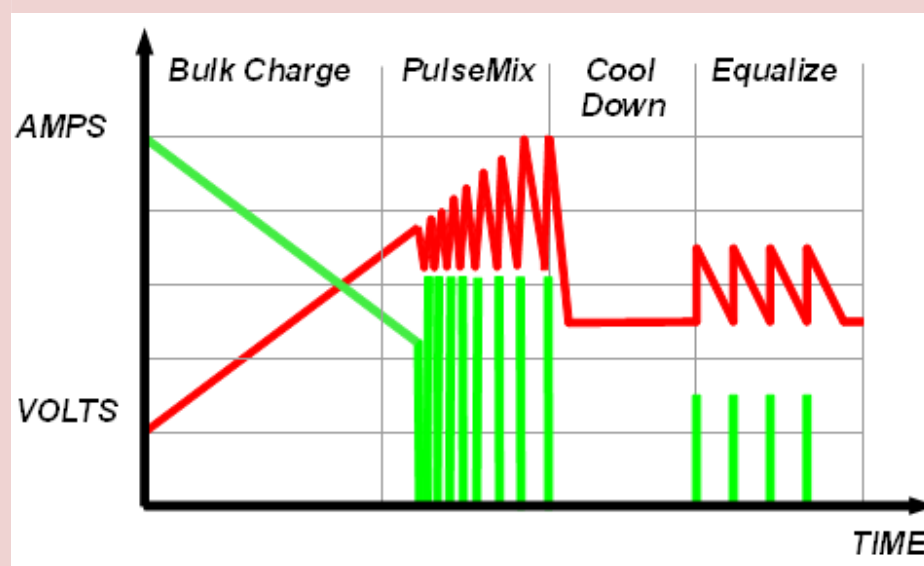
MODELS

SMF- PULSEMIX

MAINS	
TYPE	BATTERY CHARGER
STANDARD	Single phase 220-230-240 V AC $\pm 10\%$
VOLTAGES	Three phase 220-240, 400, 440, 480, 600 V AC $\pm 10\%$ Frequency 50/60 Hz ± 5 Hz
EFFICIENCY	>90% (*)
POWER FACTOR	Single phase > 90% (*) Three phase > 97% (*)
DC OUTPUT	
STANDARD	
VOLTAGES	Nominal battery voltages: 12, 24, 36, 48, 72, 80, 96, 110, 120 V DC
MAX OUTPUT	
CURRENT	60, 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300, 320 A

Modified WSa (DIN 41773), with Automatic Weekly Equalization, Maintenance and Manual Desulphation cycle.

CHARGING CURVE



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 The charger features an intelligent management of the AC input black-outs. 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.
When the AC input is restored, the charger restarts from the exact point of interruption, and it completes the charge cycle normally.
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.

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.

CARACTERÍSTICAS MECÁNICAS Y AMBIENTALES

DIMENSIONS (W x H x D)
Cabinet A : 500x 900 x 440 (mm)
Cabinet B: 550x1300x550 (mm)

ENCLOSURE	Front Panel: STAINLESS STEEL Side – Back Panels: WHITE PAINT Plastic Covers: GREEN
COOLING	NATURAL or FORCED VENTILATION with active fan control
AUDIBLE NOISE	< 65 dB at 1 meter
ENVIROMENTAL PROTECTION	IP21 (Standard) IP54(Optional)
AMBIENT TEMPERATURE	Operation: -10/+50 °C Storage: -20/+70 °C
ALTITUDE	< 2000 m Derating according to EN62040-3
USER INTERFACE AND CONNECTIVITY	
USER INTERFACE	Alphanumeric LCD Display, 5x LEDs, membrane keyboard and Audible Alarm
CONNECTIVITY	<ul style="list-style-type: none"> ✓ Dual RS-485 port for daisy chain interconnection, compatible with WEB based Fleet Management System (DoctorFleet.com) ✓ Compatible with Amperis 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

NOTES

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