



**VERY COMPACT AND LIGHT WEIGHT DESIGN,  
PROGRAMMABLE CHARGING CURVE,  
HIGH ELECTRICAL EFFICIENCY**

- ↑ Technology: *HF - MOSFET Converter*
- ↑ Current ratings: *Up to 240 Amps*
- ↑ Voltages: *AC in 400 VAC +/- 15%  
DC out 12-80 VDC*



### Product Description

The HF is a **high frequency battery charger**, with three-phase AC input voltage, suitable for on-board or off-board installation, and capable of charging Lead-Acid or Gel batteries.

The installation on board of vehicles is simplified by the **compact size, light weight** and the regular shape. The unit is well protected against dust and humidity, by complete conformal coating of the electronic boards.

The power electronics are based on semiconductors (**MOSFET**) of the last generation, with a complete set of protection circuits: reverse polarity of the battery (DC relay), wrong voltage of the battery, overload, overtemperature.

The charging curve can be modified through a programming device (optional), which allows to download information from the integrated charge history **Datalogger**.

### Main Features

- Very **Reliable** design, easy maintenance
- **Programmable** charging curve.
- Maximizes battery life, reduces water consumption and maintenance
- Complete electronic protection system
- Integrated relay to inhibit vehicle use while it's being charged
- Very quiet operation
- Integrated **data-logger**
- Anti-Arcing protection (auxiliary wires required)

### Typical Applications

- Forklifts and other Vehicles for Material Handling Single or Multiple Operations
- Golf carts and recreational vehicles
- Airport Ground Support Equipment

### Options

- Extended battery cables
- Air-pump
- Programming device

## Product Specifications

AC INPUT	
STANDARD VOLTAGES	Three-phase 400 VAC $\pm$ 15% Frequency 50/60 Hz $\pm$ 5 Hz
EFFICIENCY	>90%
DC OUTPUT	
STANDARD VOLTAGES	Nominal battery voltages from 24V to 80 VDC.
CURRENT RATINGS	From 40A to 240A.

Programmable, suitable for Lead-Acid or Gel-cell batteries.  
Automatic equalization.

CHARGING CURVE



PROTECTION	
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 overload.
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>
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: 540 x 340 x 130 (mm) CABINET B: 590 x 435 x 265 (mm)
ENCLOSURE TYPE	Steel enclosure painted in white Plastic cover (ABS) on air inlet
COOLING	FORCED VENTILATION with active fan control
AUDIBLE NOISE	<65 dBA at 1 meter
ENVIRONMENTAL PROTECTION	IP21 (Standard)
AMBIENT TEMPERATURE	OPERATION: -10 / +45 °C STORAGE: -20 / +65 °C
ALTITUDE	<2000m, Derating according to EN62040-3
USER INTERFACE AND CONNECTIVITY	
USER INTERFACE	Two LED display Membrane STOP Pushbutton Fully automatic operation
CONNECTIVITY	<ul style="list-style-type: none"> <li>Digital interface to programming device</li> <li>Integrated Data-logger</li> </ul>
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



## HF Battery Chargers

STANDARD MODELS						
VOLTAGE [Volts]	CURRENT [Amps]	8 HOUR CAPACITY RANGE [Ah]	12 HOUR CAPACITY RANGE [Ah]	AC INPUT CURRENT [Amps]	POWER RATING [kW]	CABINET TYPE
24	120	360-720	360-1400	8	4	A
24	240	720-1400	720-2400	15	8	B
36	50	300-480	300-540	5	2,5	A
36	80	360-720	300-840	8	4	A
36	120	360-720	360-1400	12	6	A
36	160	600-960	600-1600	16	8	B
36	240	720-1400	720-2400	23	12	B
48	50	300-480	300-540	7	3,5	A
48	80	360-720	300-840	11	5,5	A
48	120	360-720	360-1400	16	8	A
48	160	600-960	600-1600	21	11	B
48	240	720-1400	720-2400	31	16	B
72	40	160-240	160-420	8	4	A
72	80	360-720	300-840	16	8	A
72	120	360-720	360-1400	24	12	B
72	160	600-960	600-1600	31	16	B
80	40	160-240	160-420	8	4,5	A
80	80	360-720	300-840	16	9	A
80	120	360-720	360-1400	24	13	B
80	160	600-960	600-1600	32	18	B