



## FGM Series HF Battery Chargers



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

- Technology: *HF - MOSFET Converter*
- Current ratings: *Up to 60 Amps*
- Voltages: *AC input 230 V +/- 15%*  
*DC output from 12 to 84 V*



### Product Description

The FGM is a **high frequency battery charger**, with singlephase 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

- Material Handling Equipment
- Cleaning Machines
- Recreational Vehicles
- Electric bicycles and scooters

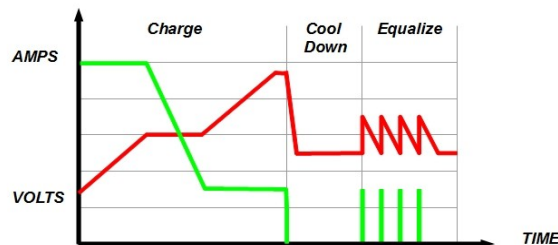
### Options

- Extended battery cables
- Air-pump
- Programming device

## Product Specifications

AC INPUT	
STANDARD VOLTAGES	Singlephase 230 VAC $\pm$ 15% Frequency 50/60 Hz $\pm$ 5 Hz  Dual AC input voltage version 115/230 VAC available
EFFICIENCY	>90%
DC OUTPUT	
STANDARD VOLTAGES	Nominal battery voltages from 12 VDC to 84 VDC.
CURRENT RATINGS	From 12A to 60A.
	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	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.
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

<b>DIMENSIONS</b> (L x W x H mm)	CABINET A: 230 x 120 x 60 (mm) CABINET B: 260 x 140 x 80 (mm) CABINET C: 330 x 170 x 100 (mm)
<b>ENCLOSURE TYPE</b>	Steel enclosure painted in white Plastic cover (ABS) on air inlet
<b>COOLING</b>	FORCED VENTILATION with active fan control
<b>AUDIBLE NOISE</b>	<65 dBA at 1 meter
<b>ENVIRONMENTAL PROTECTION</b>	IP21 (Standard)
<b>AMBIENT TEMPERATURE</b>	OPERATION: -10 / +45 °C STORAGE: -20 / +65 °C
<b>ALTITUDE</b>	<2000m, Derating according to EN62040-3

## USER INTERFACE AND CONNECTIVITY

<b>USER INTERFACE</b>	Two LED display Membrane STOP Pushbutton Fully automatic operation
<b>CONNECTIVITY</b>	<ul style="list-style-type: none"> <li>Digital interface to programming device</li> <li>Integrated Data-logger</li> </ul>

## STANDARDS

<b>QUALITY</b>	ISO 9001:2008
<b>MARKING</b>	CE
<b>EMC</b>	IEC EN 61000-6-2, IEC EN 61000-6-4
<b>SAFETY</b>	IEC EN 50178, IEC EN 62040-1
<b>TEST AND PERFORMANCE</b>	IEC EN 62040-3

STANDARD MODELS						
Standard AC input Voltage Singlephase 230 VAC $\pm$ 15% Frequency 50/60 Hz $\pm$ 5 Hz						
VOLTAGE [Volts]	CURRENT [Amps]	8 HOUR CAPACITY RANGE [Ah]	12 HOUR CAPACITY RANGE [Ah]	AC INPUT CURRENT [Amps]	POWER RATING [kW]	CABINET TYPE
12	12	30-80	30-120	1,8	0,23	A
12	25	100-160	100-240	3,2	0,45	A
24	12	30-80	30-120	3	0,41	A
24	20	80-120	80-200	4,6	0,67	A
24	30	120-180	120-300	7	1	B
24	60	180-360	180-600	12	2	C
36	20	80-120	80-200	6,9	1	B
36	40	160-240	160-420	12	2	C
48	15	60-80	60-160	6,8	1	B
48	30	120-180	120-300	12	2	C
72	20	80-120	80-200	12	2	C
80	20	80-120	80-200	14	2,1	C
84	20	80-120	80-200	14,5	2,1	C
Dual AC input Voltage Version (115/230 VAC)						
24	20	80-120	80-200	9,2-4,6	0,67	B
24	30	120-180	120-300	13-6,5	1	B
36	20	80-120	80-200	13-6,5	1	B
48	15	60-80	60-160	13-6,5	1	B

CABINET A: 230 x 120 x 60 (mm)  
 CABINET B: 260 x 145 x 80 (mm)  
 CABINET C: 330 x 175 x 100 (mm)

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

Printed in Italy by BASSI SRL – 2012  
 Document Revision 1.0