

### PRODUCT NUMBER: 28210 - MarincO On-Board Battery Charger

This 28210 model is a 2 bank, 10 amp, 12/24V DC output charger with wide input voltage range (100-240V AC), is microprocessor controlled and has a maintenance mode that will keep the charger fully charged. The MarincO 28210 meets the CEC (California Energy Commission), FCC, CE, is RoHS compliant and has UL and CSA listings (cULus). The 28210 has the same mounting dimensions as the Guest 2611A and 2611A-B and replaces these models.

## 1. DESCRIPTION

### 1.1. Dimensions Reference only

Height 5.5 inches 14.0 cm	Width 7.8 inches 19.7 cm	Depth 2.4 inches 6.2 cm
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### 1.2. Mounting Bulkhead mount (vertical at wall)

Hole diameter is .245 inches / .622 cm or clearance for #10 screw

Left to Right Center to Center = 7.00 inches / 17.78 cm

Top to Bottom Center to Center = 4.25 inches / 10.8 cm

### 1.3. Weight (reference)

Approximately 5.6 lbs. (2.5 kg)

## 1.4. Connection

### 1.4.1. AC

6' (1.8 m) AC Cable with NEMA L5-15P AC Plug. Cable consists of 18/3 SJT cord with one BLACK (HOT), one WHITE (NEUTRAL) and one GREEN (GROUND)

### 1.4.2. DC

4' (1.2 m) DC output cable, 14 gauge wires, SJT with ring terminal connection

## 2. FEATURES

### 2.1. Sense-Send™

Technology senses the power needs of each battery and sends correct charge regardless of Serial or Parallel output connections.

### 2.2. Waterproof

The Maringo 28106 has an IP68 rating. This rating is described as dust tight and protected against the effects of immersion in water under pressure for long periods.

### 2.3. Charge Indicators

Unit has 2 LEDS, one Red and one Green in color. The following table should be used as indicator of the charger status.

	Red	Green
Soft start	On	Off
Bulk	On	Off
Absorption	On	On
Float	Off	On

### 2.4. Protection

- Ignition Protection
- Over Current
- Over charge
- Reverse Polarity
- Thermal Protection
- Short Circuit

### 2.5. Temperature Characteristics

Ambient Operating Temp Full Power	-40 °C to 50 °C
Storage Range	-40 °C to 70 °C

### 3. ELECTRICAL CHARACTERISTICS

#### 3.1. Battery Recommendations

Battery size: Group 24 through 31 (up to 120 Amp-Hr)  
 Battery Type: 12V lead acid (FLOODED and AGM)  
 Maximum Recharger time: 12 hours

#### 3.2. Input rating

Input Voltage Range: 100 to 240V AC 50/60 HZ  
 Input Current rating: 2.5 Amps maximum

#### 3.3. Voltages / Current

	Output Voltage (per bank)	Output Current (per bank)
Bulk	14.3VDC	8 - 10.5 Amps
Absorption	14.3VDC	3 – 10 Amps
Float	13.3VDC	0 – 3 Amps

**3.3.1. Soft Start** - “Soft Start” slowly charges the battery with 14.25V (10% of rated current). As soon as the max Soft Start timer (starts immediately when entering “Soft Start”) of 6 hours is reached or when the battery reaches 10V for 30 seconds the charger switches to the “Bulk stage”.

**3.3.2. Bulk** - “Bulk” charges the battery with 14.3V (100% of rated current) until the battery reaches 13.25V. As soon as the battery reaches 13.25V the Bulk timer will start counting after which it can charge the battery up to 12 hours until the voltage reaches 14.25V. As soon as the max Bulk timer (starts when voltage level is above 13.25V while in “Bulk”) of 12 hours is reached or when the battery reaches 14.25V for 30 seconds the charger switches to the “Absorption stage”.

**3.3.3. Absorption** - “Absorption” charges the battery with 14.25V. As soon as the Absorption timer (starts immediately when entering “Absorption”) reaches 14 hours or when the charge current drops below 10% of the rated current for 30 seconds the charger switches to the “Float stage”.

**3.3.4. Float** - “Float” keeps the charger on a specific voltage level of 13.25V (100% of rated current) for a period and then will switch to the “Maintenance stage”

**3.3.5. Maintenance** - As soon as the re-cycle timer reaches 14 days (336 hours) or when the voltage drops below 12.8V for 30 seconds the charger switches back to “Bulk stage”

## 4. AGENCY CERIFICATIONS

cULus	ANSI/UL 1236 "Battery Chargers for Charging Engine-Starter Batteries" E227501
ABYC	American Boat & Yacht Council = UL 1236 marine section A20 (Battery Chargers), E8 (AC Systems on Boats), E9 (DC Systems on Boats)
CE	2006/95/EC (safety directive) , EN 60950-1:2006 + A11: 2009 + A1:2010 + A12:2011 applied for 230V models
CEC	CB Mark for 120V
FCC	Labeled, FCC Part 15 Class B EN 55022
RoHS	Compliant

## 5. WARRANTY

This product has a 2 year warranty.

## 6. REVISION HISTORY

Revision	Product Specification Change Summary	Initials	Effective Date
A	Initial Release	<i>Mgt</i>	Dec. 2014
B			

Originator: Mark Thomson  
 Approved by: Erik Zwollo

Position: Technical Services  
 Position: