



## ChargePro *PLUS* Charging Package Charge on the Go

### OWNER'S MANUAL

Includes: On board charger, 12VDC or 24VDC alternator module, Cable sets with circuit breakers

<b>Models</b>	<b>Charger Amperage (Total)</b>	<b>Alternator Module Max. Amps</b>	<b>System Volts</b>
<b>36082-12</b>	8 (4/4) Amps	60 Amps	12VDC System
<b>36202-12</b>	20 (10/10) Amps	60 Amps	12VDC System
<b>36082-24</b>	8 (4/4) Amps	60 Amps	24VDC System
<b>36202-24</b>	20 (10/10) Amps	60 Amps	24VDC System

### IMPORTANT NOTICE

This manual contains important safety and operating instructions for the charger. Read the entire manual before using. Also read all instructions and cautions for and on the charger, batteries and equipment in the vicinity of the batteries.

**SAVE THESE INSTRUCTIONS**

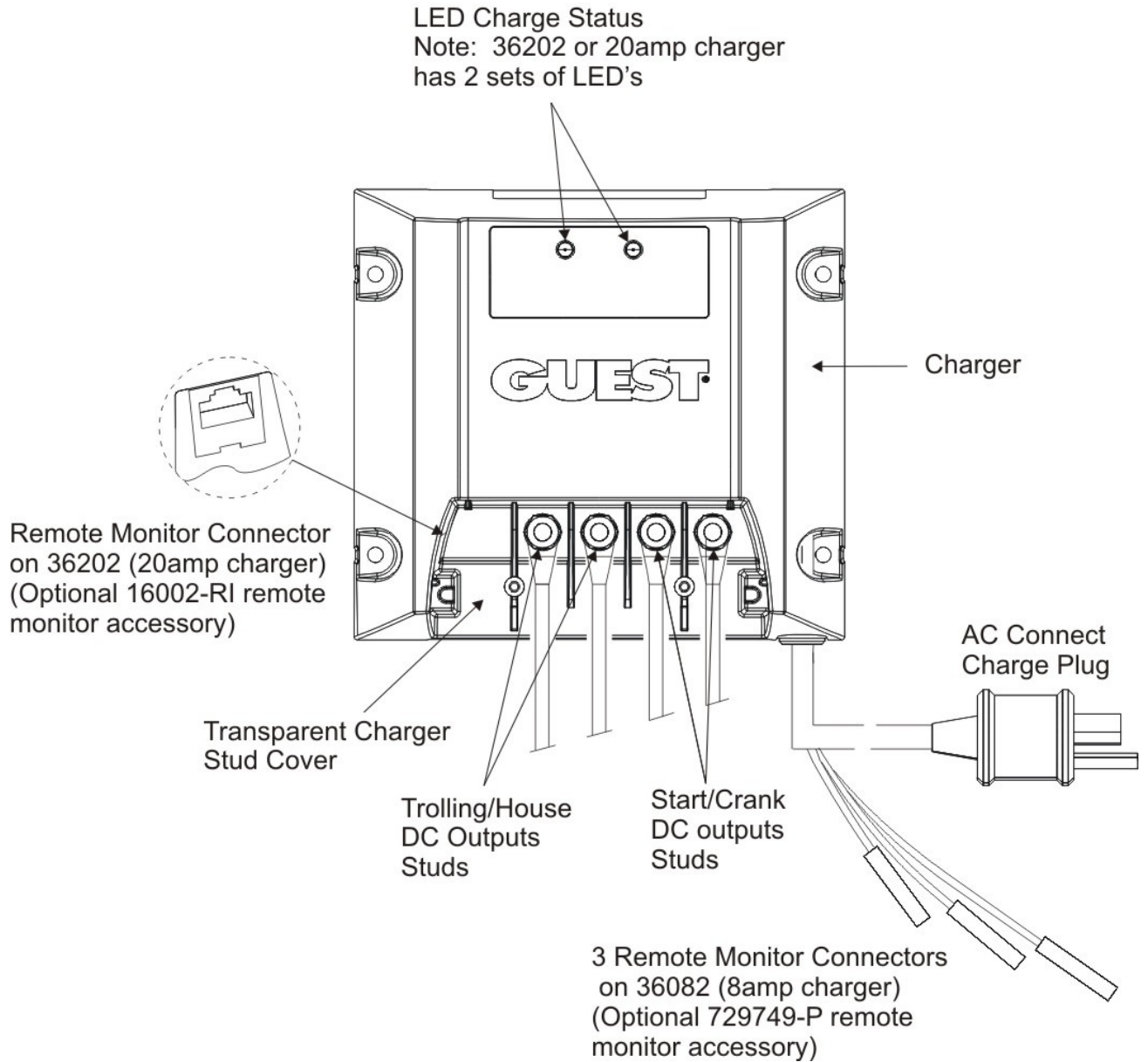
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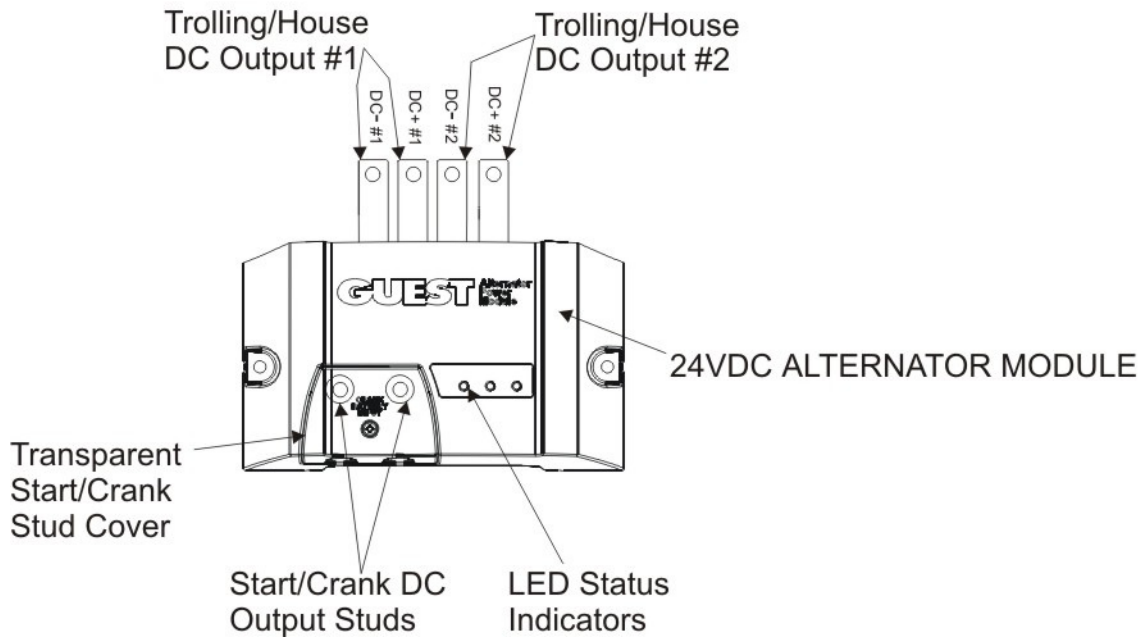
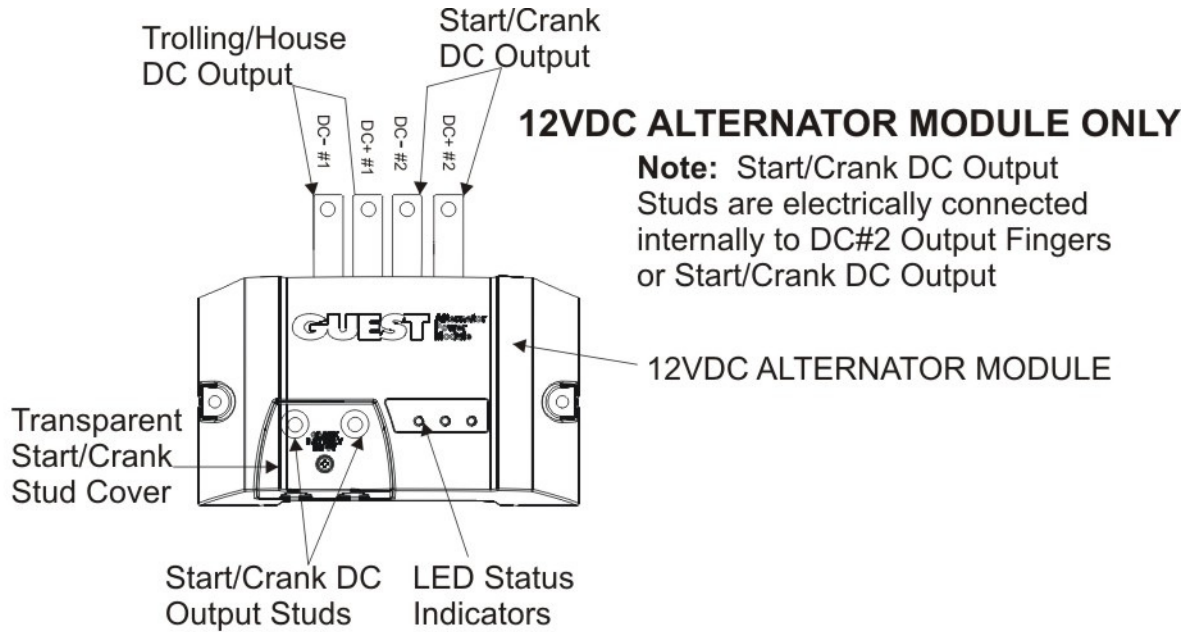
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# 1. Product Overview

## Battery Charger: Models 36082 and 36202



# Alternator Modules: 12VDC Systems and 24VDC Systems



## 2. INSTALLING THE CHARGER & ALTERNATOR MODULE SYSTEM

### **WARNINGS**

**THIS CHARGER SHOULD BE USED TO CHARGE ONLY LEAD ACID, GEL CELL, OR AGM BATTERIES. USE ON OTHER BATTERY TYPES MAY EXPLODE AND CAUSE PERSONAL INJURY.**

**RISK OF EXPLOSIVE GASES! WORKING IN THE VICINITY OF LEAD ACID BATTERIES IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL OPERATION. THEREFORE IT IS OF THE UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR CHARGER YOU FOLLOW THE INSTRUCTIONS EXACTLY.**

### **Personal Safety Precautions**

Adhere to the following personal safety precautions when installing or working with the chargers:

1. Someone should be within voice range or close enough to come to your aid when you work near a lead-acid battery.
2. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
3. Wear complete eye protection and clothing protection. Avoid touching eyes while working near a battery.
4. If battery acid contacts skin or clothing, wash them immediately with soap and water. If acid enters the eye, flood the eye with cold, running water for at least ten minutes and get medical attention.
5. Never smoke or allow an open flame in the vicinity of the battery.
6. Do not drop a metal tool onto the battery. It may spark, short circuit the battery and may cause an explosion.
7. Remove all personal metal items such as rings, bracelets, necklaces, and watches when working near a lead-acid battery. A battery can produce short circuit currents high enough to weld a ring or the like to metal, causing a severe burn.

### **Preparing to Charge Precautions**

Before charging a battery with the charger, read the following precautions:

1. Do **NOT** operate the charger if the cables or an LED is damaged.
2. Make sure all accessories on the product you are charging are **OFF**.
3. If the battery or batteries must be removed from the product, always remove the grounded terminal from the battery first.

4. Be sure the area around the battery is well ventilated while the battery is being charged. Gas can be forcefully blown away using a piece of cardboard or other non-metallic material as a “hand fan”.
5. Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
6. Add distilled water in each cell until battery acid reaches levels specified by the battery manufacturer, if applicable. Do not overfill. For all batteries, carefully follow the manufacturer’s recharging instructions.
7. Never allow the ring terminals to touch each other.
8. **NEVER** charge a frozen battery.
9. Please be sure the DC system to which the charger is connected is not drawing excessive current from the battery for extended periods of time while the charger is operating. This is important to ensure the charger correctly transitions through each charging stage to finish with the float voltage level. If the DC system is drawing continuous current while charging, reduced life or damage to the battery may occur.

### **Choosing Charger and 12VDC or 24VDC Module System Location**

The charger & 12VDC or 24VDC system should have at least eight inches of unobstructed area on all sides of the unit for effective cooling. Additionally a minimum of 7 inches is needed below the charger base to allow for the installation of the 12VDC or 24VDC module. The case of this charger will become warm during operation. Because the charger is convection cooled (airflow over the back of the charger), the optimum mounting position for the charger is vertical. Mounting on its back on a horizontal surface may cause the charger to slightly reduce amperage output due to the thermal protection built in. Do not install the charger on carpeted, upholstered, or varnished surfaces.

**NOTE: Read the WARNINGS in the DC Connections section on PAGE 10 before proceeding to this section**

### **Mounting the Charger first**

1. Use corrosion resistant # 10 bolts for the 36082 charger models and ¼” bolts for the 36202 charger models, backed by a flat washer, and secured to the mounting surface with a split-ring lock washer.
2. Hold the charger to the mounting surface and mark the holes.
3. Remove the charger and drill the mounting holes.
4. Align the charger and assemble the mounting hardware and secure.

## **Mounting the 12VDC Alt. Module to the Charger**

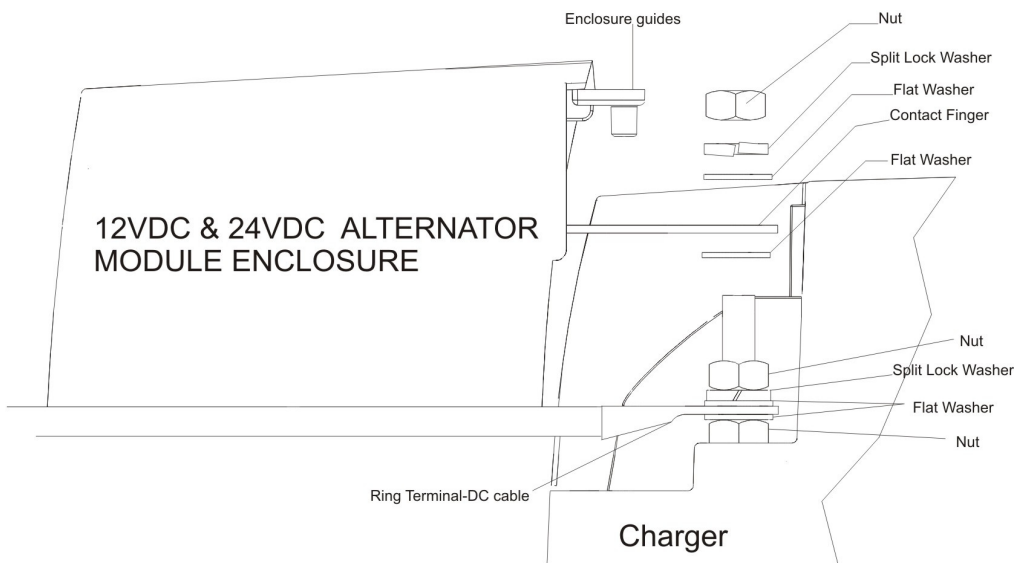
1. Use corrosion resistant # 10 bolts, backed by a flat washer, and secured to the mounting surface with a split-ring lock washer.
2. Turn off all AC power to your boat and battery charger and do not operate the engine while installing the 12VDC Alt. module.
3. Review Diagram 1 and 4 for positioning the DC output cables. Apply the trolling/house output cables first then the start/crank output cables. Observe your connects for correct polarity of the cables.
4. Remove the top cover plate and review Diagram 4 for the correct hardware stack up between the charger and the 12VDC Alt. Module fingers
5. Align the 12VDC Alt. Module enclosure guides on the case into the charger locators and the fingers to the studs of the charger and push down till the case is flat against the mounting surface.
6. Hold the 12VDC Alt. Module to the mounting surface and mark the holes.
7. Remove the 12VDC Alt. Module and drill the mounting holes.
8. Align the 12VDC Alt. Module to the charger and assemble the mounting hardware per Diagram 4 to the studs of the charger. Torque to 35 lb-in
9. Assemble the mounting hardware through the 12VDC Alt. Module case and secure.
10. Apply the stud cover to the charger/12VDC or 24VDC Alt. Module.

## **Mounting the 24VDC Alt. Module to the Charger**

1. Use corrosion resistant # 10 bolts, backed by a flat washer, and secured to the mounting surface with a split-ring lock washer.
2. Turn off all AC power to your boat and battery charger and do not operate the engine while installing the 24VDC Alt. Module.
3. Review Diagram 2, 3 and 5 for positioning the DC output cables. Apply the trolling/house output cables first then the start/crank output cables. Observe your connects for correct polarity of the cables.
4. Remove the top cover plates and review Diagram 6 and 7 for the correct hardware stack up between the charger and the 24VDC Alt. Module fingers
5. Align the 24VDC Alt. Module enclosure guides on the case and the fingers to the studs of the charger and push down till the case is flat against the mounting surface.
6. Hold the 24VDC Alt. Module to the mounting surface and mark the holes.
7. Remove the 24VDC Alt. Module and drill the mounting holes.
8. Align the 24VDC Alt. Module to the charger and assemble the mounting hardware per Diagram 8 to the studs of the charger. Torque to 35 lb-in.
9. Assemble the mounting hardware through the 24VDC Alt. Module case and secure.

## Diagram 1

**Hardware stack up for installation of the 12VDC Alternator Module onto a 36082 (8 Amps) or 36202 (20 Amps) charger**

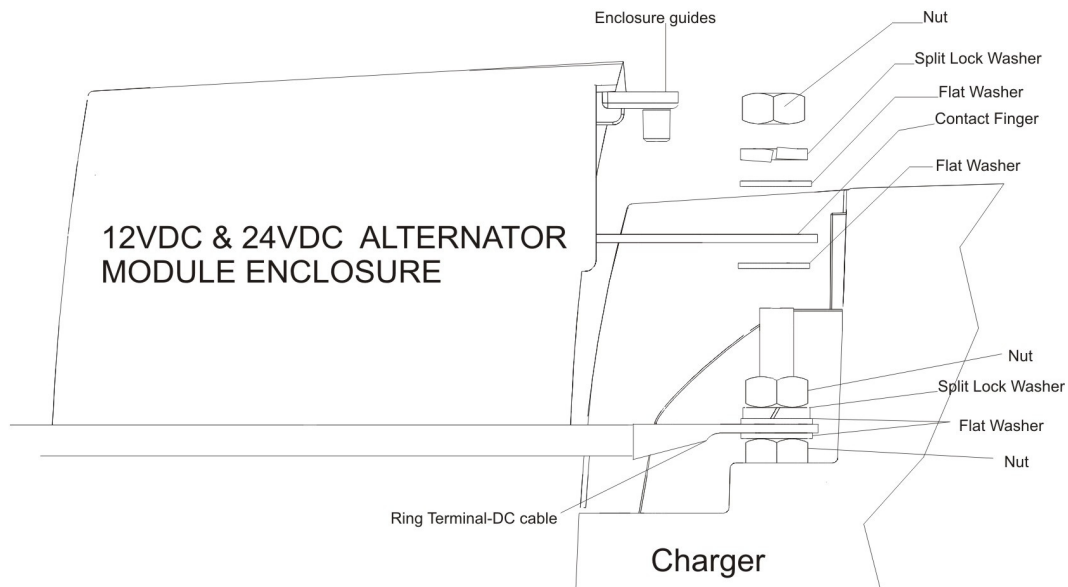


NOTE: Torque all hardware to 35lb-in

## Diagram 2

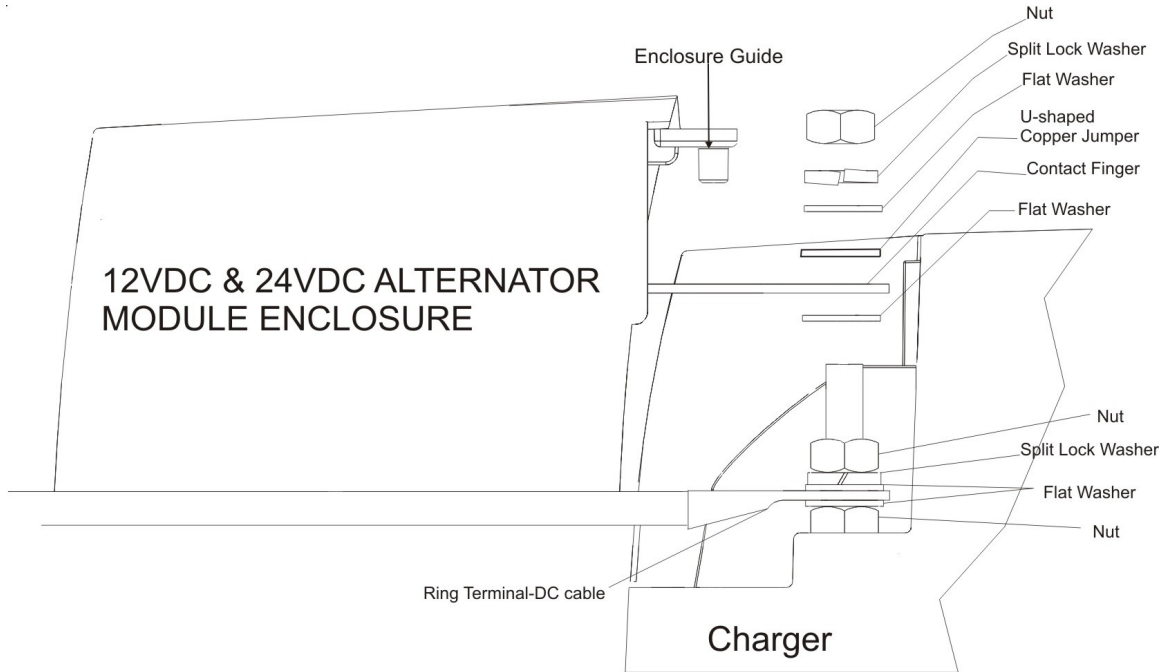
**Hardware stack up for installation of the 24VDC Alternator Module onto a 36082 (8 Amps) or 36202 (20 Amps)**

**NOTE: This stack up is used on the following outputs: DC-#1 and DC-#2 ONLY**



NOTE: Torque all hardware to 35lb-in

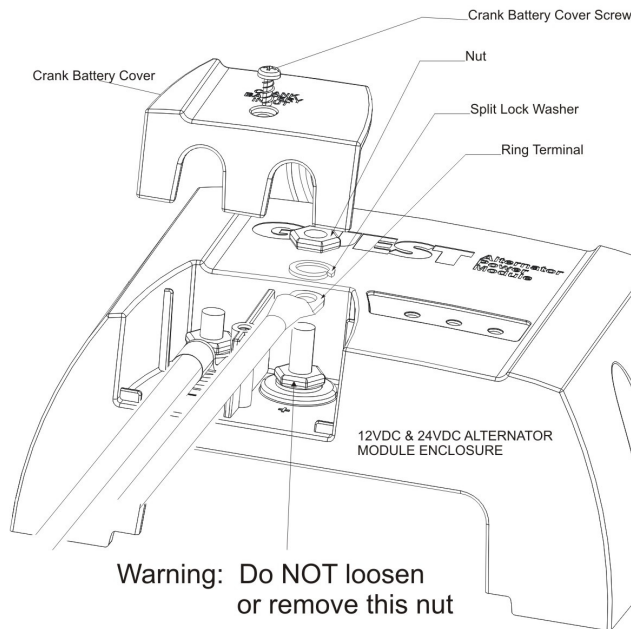
**NOTE: This stack up is used on the following outputs:  
DC + #1 and DC - #2 terminals ONLY**



NOTE: Torque all hardware to 35lb-in

**Diagram 3**

**Hardware stack up for installation of the Start/Crank battery cables to the 24VDC Alternator Module**



NOTE: Torque all hardware to 35lb-in

### 3. DC AND AC CONNECTIONS

FOR FURTHER INFORMATION REGARDING AC AND DC WIRING STANDARDS PLEASE SEE ABYC (AMERICAN BOAT AND YACHT COUNCIL) STANDARDS AND TECHNICAL INFORMATION REPORTS FOR SMALL CRAFT, SECTION E-11.

#### DC CABLE KITS:

Positive and Negative cables have been added to your package. The conductors are sized using #10AWG gauge and are equipped with 50amp manual resettable circuit breakers for over current protection.

#### ***WARNINGS***

**DO NOT REMOVE THE CIRCUIT BREAKERS FROM THE CABLES FOR ANY REASON. REMOVAL OF THE CIRCUIT BREAKER MAY CAUSE PROPERTY DAMAGE AND PERSONAL INJURY.**

#### Making DC Connections for the 12VDC Alt. Module & Charger System

#### ***WARNINGS***

**THE 12VDC ALT. MODULE SHOULD BE USED ON 12VDC BATTERY SYSTEMS ONLY. THE 12VDC ALT. MODULE IS RATED FOR 60AMPS TOTAL FROM THE ALTERNATOR SYSTEM**

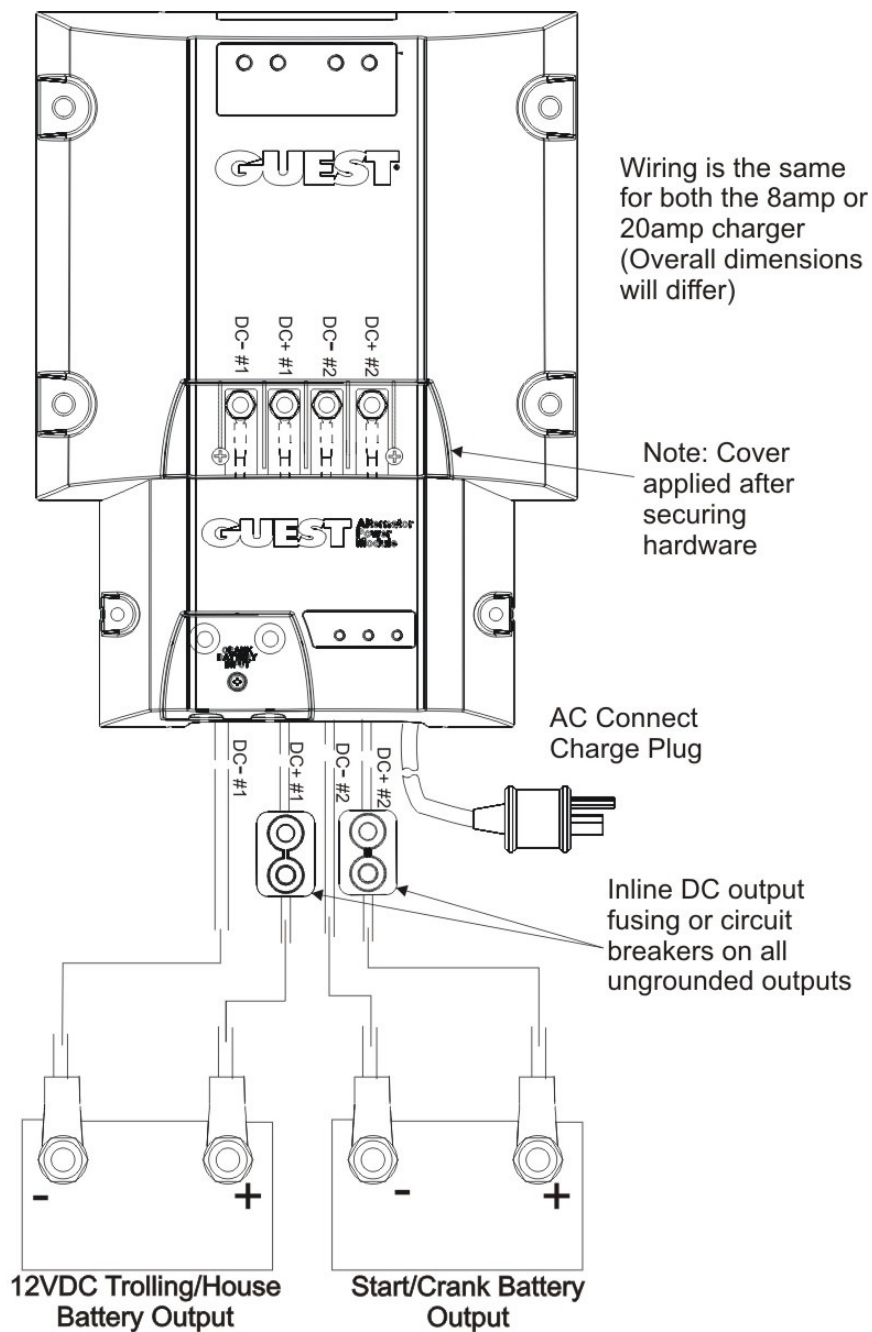
**ALL AC POWER TO THE BOAT AND BATTERY CHARGER SHOULD BE OFF BEFORE CONNECTING THE DC OUTPUT CABLES. FAILURE TO COMPLY COULD RESULT IN PRODUCT DAMAGE**

**DISCONNECT ALL BATTERIES FROM BATTERY CABLE ASSEMBLIES BEFORE MAKING DC CONNECTIONS TO THE CHARGE PRO PLUS CHARGING PACKAGE. RECONNECT BATTERIES AFTER MAKING BATTERY CABLE CONNECTIONS AT THE CHARGE PRO PLUS. MONITOR THE CHARGE PRO PLUS WHILE MAKING BATTERY CONNECTIONS ONE BATTERY AT A TIME. THE CHARGE PRO PLUS WILL INDICATE A REVERSE POLARITY BATTERY CONDITION IF YOU MAKE A MISTAKE WIRING THE BATTERIES.**

**12VDC Alternator module (12VDC Systems ONLY) connections to both the 36082 and 36202 Battery Charger**

## Diagram 4

12VDC Alt. Module attached to either 36082 (8 amps total, 4/4 Amps) or 36202 (20 amps total, 10/10 Amps) Battery Charger and connected to a Start/crank battery and a 12VDC Trolling/House battery



**NOTE:** Review your application due to the DC negative battery connections between start/crank battery and 12VDC trolling/house battery inside the 12VDC Alternator module for compatibility issues

Check polarity of the battery posts. The POSITIVE (POS., P, +) battery post usually has a larger diameter than the NEGATIVE (NEG., N, -) post. Connections to the battery should be made with industry standard color-coding. Connections to the positive terminal should be made with RED wire, connections to the negative terminal should be made with BLACK or YELLOW wire.

Reference Diagram 4 above:

- 1.) Connect one of the supplied red battery cables with circuit breaker to the trolling battery positive post. Connect the cable so that the circuit breaker end of the cable is to the battery post, circuit breaker should be within 1 foot of the battery.
- 2.) Connect other end of positive cable to DC+ #1 on the battery charger.
- 3.) Connect one of the supplied black battery cables to the trolling battery negative post.
- 4.) Connect other end of black battery cable to DC- #1.
- 5.) CHECK 12 VDC ALTERNATOR MODULE LEDS FOR AN ILLUMINATED RED LED. IF THERE IS A RED LED YOU CONNECTED THE BATTERY IN REVERSE. GO BACK AND CHECK CONNECTIONS AND CORRECT WIRING.
- 6.) Repeat steps 1 through 5 for the cranking battery connection to DC+ and DC- #2.

## **Making DC Connections for the 24VDC Alt. Module & Charger System**

***NOTE: For use on 24VDC battery systems ONLY. The 24VDC Alt. Module are rated for 60amps total.***

### **WARNINGS**

**THIS 24VDC ALT. MODULE SHOULD BE USED TO CHARGE ONLY 24VDC TROLLING/HOUSE BATTERY SYSTEMS. THE DC NEGATIVE GROUNDING SYSTEMS FOR THE 24VDC BATTERY SYSTEM (24VDC TROLLING/HOUSE SYSTEM) SHOULD BE ISOLATED FROM THE START/CRANK BATTERY (NO DC NEGATIVE CONNECTIONS BETWEEN THE 24VDC SYSTEM AND START/CRANK BATTERY). MAKING THIS DC NEGATIVE CONNECTION BETWEEN BATTERY SYSTEMS MAY CAUSE PREMATURE PRODUCT FAILURE, PROPERTY DAMAGE AND PERSONAL INJURY.**

## **WARNINGS**

**ALL AC POWER TO THE BOAT AND BATTERY CHARGER SHOULD BE OFF BEFORE CONNECTING THE DC OUTPUT CABLES. FAILURE TO COMPLY COULD RESULT IN PRODUCT DAMAGE**

## **WARNINGS**

**DISCONNECT ALL BATTERIES FROM BATTERY CABLE ASSEMBLIES BEFORE MAKING DC CONNECTIONS TO THE CHARGE PRO PLUS CHARGING PACKAGE. RECONNECT BATTERIES AFTER MAKING BATTERY CABLE CONNECTIONS AT THE CHARGE PRO PLUS. MONITOR THE CHARGE PRO PLUS WHILE MAKING BATTERY CONNECTIONS ONE BATTERY AT A TIME. THE CHARGE PRO PLUS WILL INDICATE A REVERSE POLARITY BATTERY CONDITION IF YOU MAKE A MISTAKE WIRING THE BATTERIES.**

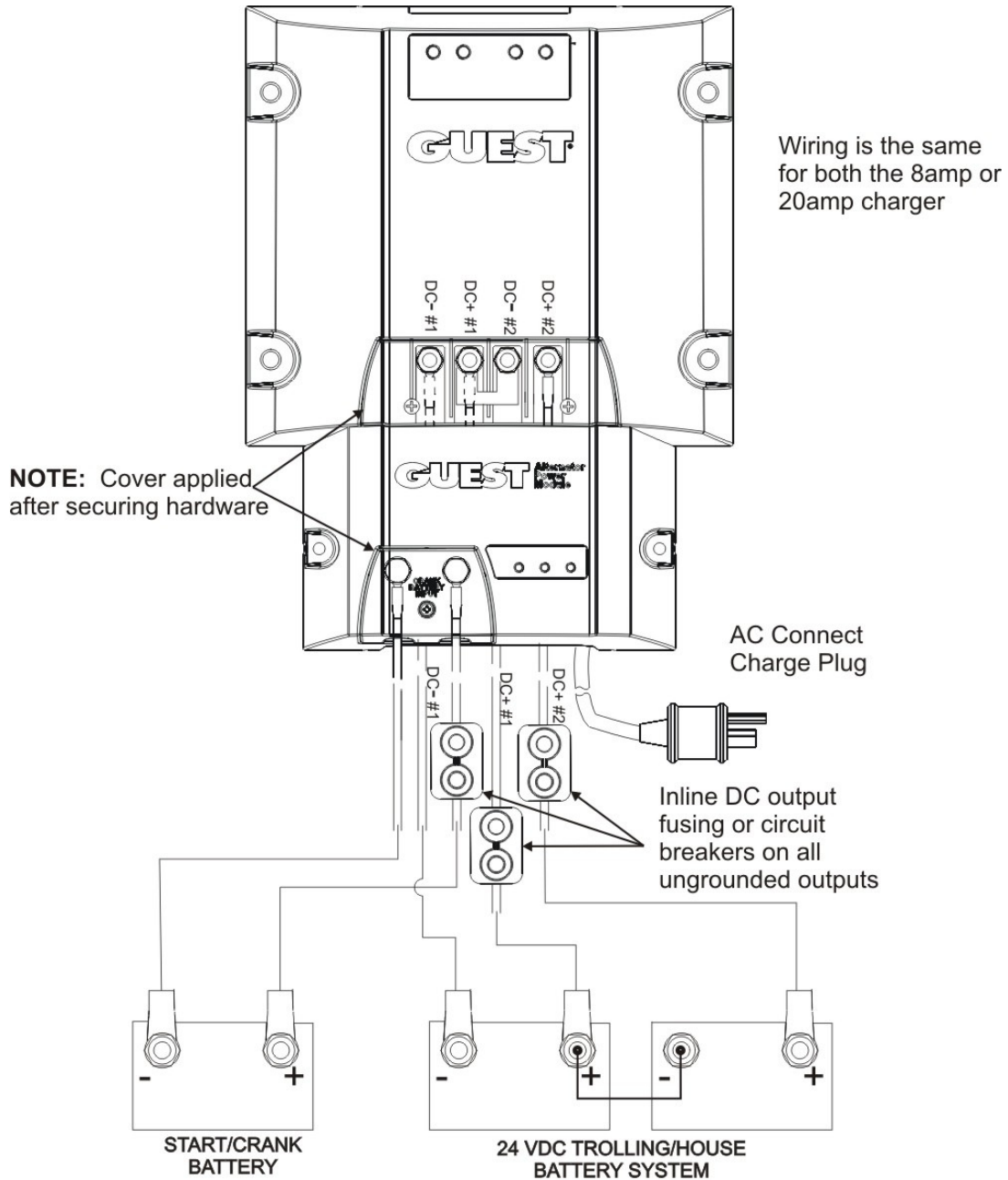
**FOR FURTHER INFORMATION REGARDING AC AND DC WIRING STANDARDS PLEASE SEE ABYC (AMERICAN BOAT AND YACHT COUNCIL) STANDARDS AND TECHNICAL INFORMATION REPORTS FOR SMALL CRAFT, SECTION E-11.**

Output Cable Fusing: An inline fuse **MUST** be installed in series with each ungrounded DC output cable to the battery. The inline fuse **MUST** be installed a maximum of 7" from the battery post per ABYC standard E-11. Rate your fuse or circuit breaker according to your alternator current rating. The cable sets contain manual reset circuit breakers.

# 36024 (24VDC Alt. Module) Connections to both the 36082S and 36202S Battery Charger

## Diagram 5

36024 (24VDC Alt. Module) attached to either 36082S (8 amps total, 4/4 Amps) or 36202S (20 amps total, 10/10 Amps) Battery Charger and connected to a Start/crank battery and a 24VDC Trolling/House battery System



Check polarity of the battery posts. The POSITIVE (POS., P, +) battery post usually has a larger diameter than the NEGATIVE (NEG., N, -) post. Connections to the battery should be made with industry standard color-coding. Connections to the positive terminal should be made with RED wire, connections to the negative terminal should be made with BLACK or YELLOW wire.

Reference Diagram 5 above:

- 1.) Connect one of the supplied red battery cables with circuit breaker to trolling battery #1 positive post. Connect the cable so that the circuit breaker end of the cable is to the battery post, circuit breaker should be within 1 foot of the battery.
- 2.) Connect other end of positive cable to DC+ #1 on the battery charger.
- 3.) Connect one of the supplied black battery cables to trolling battery #1 negative post.
- 4.) Connect other end of black battery cable to DC- #1.
- 5.) CHECK 12 VDC ALTERNATOR MODULE LEDS FOR AN ILLUMINATED RED LED. IF THERE IS A RED LED YOU CONNECTED THE BATTERY IN REVERSE. GO BACK AND CHECK CONNECTIONS AND CORRECT WIRING.
- 6.) Connect one of the supplied red battery cables with circuit breaker to trolling battery #2 positive post. Connect the cable so that the circuit breaker end of the cable is to the battery post, circuit breaker should be within 1 foot of the battery.
- 7.) Connect a jumper cable from the positive post of trolling battery #1 to the negative post of trolling battery #2.
- 8.) Connect the supplied U shaped copper buss bar jumper between DC+ #1 and DC- #2 on the battery charger. The U shaped jumper is designed to fit between these 2 terminals and complete the 24 VDC connections back to the battery charger.
- 9.) CHECK 12 VDC ALTERNATOR MODULE LEDS FOR AN ILLUMINATED RED LED. IF THERE IS A RED LED YOU CONNECTED THE BATTERY IN REVERSE. GO BACK AND CHECK CONNECTIONS AND CORRECT WIRING.
- 10.) Repeat steps 1 through 5 for the cranking battery connection to the cranking battery input studs + and -.

## AC Connection and Grounding Precautions

### **DANGER**

**DO NOT OPERATE THIS CHARGER WITH A TWO BLADED ADAPTER PLUG OR EXTENSION CORD. DOING SO CAN RESULT IN SERIOUS PERSONAL INJURY. AFTER SECURING THE BATTERY CONNECTIONS, PLUG THE AC LINE CORD INTO AN AVAILABLE AC OUTLET THAT IS PROTECTED BY A GROUND FAULT CIRCUIT INTERRUPTER (GFCI) BREAKER.**

### **CAUTION**

**TO REDUCE THE RISK OF SHOCK, CONNECT ONLY TO A PROPERLY GROUNDED OUTLET**

**NOTE:** AC Line Cord color-coding is EU style. Line = Brown, Neutral = Blue, Ground = Green

### **Making AC Connection**

Your charging system is equipped with an AC Connect Charge Plug (optional accessory sleeve sold separately). Connect the AC plug into an AC receptacle, which is protected by a Ground Fault Circuit Interrupter (GFCI) breaker.

## **4. REVIEW OF THE CHARGER**







The Guest model 36082-12 and 36082-24 contain a 2-bank, 12VDC, 4/4-amp charger. The Guest model 36202-12 and 36202-24 contain a 2-bank, 12VDC, 10/10-amp charger. Both models are designed to both recharge your batteries, and extend your battery's life in applications where it is stored for long periods of time. They are "3-stage" electronic, completely automatic, lightweight, silent, battery chargers and each output produces 12 Volts DC at either a full 8 or 20 Amps (model specific), while using much less AC current than other charger types. Unlike automotive "trickle" chargers, both charger models will not boil off the electrolytes in properly installed and maintained batteries. The red and green LED's, mounted on the charger face, let you know the unit is *recharging* and *maintaining* your batteries. This sophisticated device is ideal for recharging and maintaining the 12VDC batteries in your boat. The addition of a 12VDC Alternator module or 24VDC Alternator module provides the capability to convert alternator current that was previously wasted, and direct the charge into the trolling or house battery while "On The Go". This charger is set up to accept either module, depending on your system.

# 5. OPERATING THE CHARGERS

**TABLE 1**

## 8 Amps total, 4/4 Amp output







The LED Function Chart describes the charging process for an 8 Amp total output.

Display	Operating condition
Red  Green 	<p>When the red LED is on, it indicates that your batteries are discharged and is recharging them at the "Charging" rate (stage 1). This charging rate is 8 Amps.</p> <p>While the red LED is on, the voltage measured (with the charger on) will be approximately 11.5 to 13 Volts.</p> <p>If the red LED stays on for more than 24 hours, refer to Problem 1 in the troubleshooting section in this manual.</p>
Red  Green 	<p>When both the green and the red LED's are on, it is charging at the "Finishing" rate. (stage 2). During this second charging stage, the charger holds the battery voltage at approximately 14.6 VDC, and then gradually reduces the amount of current (Amps) it delivers to the battery. By doing this, the battery is able to "absorb" the last 10% of charge as quickly as possible without becoming overheated.</p> <p>If both lights stay on longer than 24 hours, refer to Problem 2 in the troubleshooting section in this manual.</p>
Red  Green 	<p>When the battery approaches full charge, the charger switches into its third charging stage, gradually reducing the current feed to the batteries to as low as 0.1 Amps. At the same time, it reduces its output voltage to a "Float" or "Ready" charging rate of 13.3 VDC, indicated by the green LED light. This low "Float" or "Maintenance" voltage gently "tops off" your batteries, keeping them fully charged and ready until needed. The green LED indicates that your batteries are now fully charged and ready for use.</p> <p>If the green LED stays on when your battery is known to be low, refer to Problem 3 in the troubleshooting section in this manual.</p>

## TABLE 2

### 20 Amps total, 10/10 Amp output

The LED Function Chart describes the charging process for any individual 10 Amp output.

Display	Operating condition
Red  Green 	<p>When the red LED is on, it indicates that your batteries are discharged and is recharging them at the "Charging" rate (stage 1). This charging rate is 10 Amps.</p> <p>While the red LED is on, the voltage measured (with the charger on) will be 11.5 to 13 Volts.</p> <p>If the red LED stays on for more than 24 hours, refer to Problem 1 in the troubleshooting section (Section 4.) in this manual.</p>
Red  Green 	<p>When both the green and the red LED's are on, it is charging at the "Finishing" rate. (stage 2). During this second charging stage, the charger holds the battery voltage at approximately 14.4 VDC, and then gradually reduces the amount of current (Amps) it delivers to the battery. By doing this, the battery is able to "absorb" the last 10% of charge as quickly as possible without becoming overheated.</p> <p>If both lights stay on longer than 24 hours, refer to Problem 2 in the troubleshooting section (Section 4) in this manual.</p>
Red  Green 	<p>When the battery approaches full charge, the charger switches into its third charging stage, gradually reducing the current fed to the batteries to as low as 0.1 Amps. At the same time, it reduces its output voltage to a "Float" or "Ready" charging rate of 13.3 VDC, indicated by the green LED light. This low "Float" or "Maintenance" voltage gently "tops off" your batteries, keeping them fully charged and ready until needed. The green LED indicates that your batteries are now fully charged and ready for use.</p> <p>If the green LED stays on when your battery is known to be low, refer to Problem 3 in the troubleshooting section (Section 4) in this manual.</p>

## 6. TROUBLESHOOTING THE CHARGERS

**TABLE 3**

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
1. Red LED stays on for more than 24 Hrs.	<ol style="list-style-type: none"> <li>1. One or more defective or damaged cells.</li> <li>2. Charger has reduced its output voltage below the normal level due to a DC overload or a DC short.</li> <li>3. On-board DC systems are drawing more current than the charger can replace.</li> </ol>	<ol style="list-style-type: none"> <li>1. Load test the batteries and replace if necessary.</li> <li>2. Remove the source of the overload or short. Disconnect the charger's black (NEGATIVE) ring terminal from the battery. Reapply AC power and the green LED only should now light.</li> <li>3. Turn off all DC equipment while charging.</li> </ol>
2. The red and green LED's stay on for more than 24 Hrs.	<ol style="list-style-type: none"> <li>1. On-board DC systems are drawing between 1.5 – 3.5A.</li> <li>2. One or more defective or damaged cells.</li> <li>3. Extremely low AC voltage at the battery charger.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn off all DC equipment while charging.</li> <li>2. Load test the batteries and replace if necessary.</li> <li>3. Apply a higher AC voltage source or reduce the length of the extension cord.</li> <li>4. Check battery manufacturer's specs on battery charging.</li> </ol>
3. Green LED stays on when the battery is known to be low.	<ol style="list-style-type: none"> <li>1. Open circuit breaker or DC output fuse.</li> <li>2. Faulty or contaminated terminal connections.</li> <li>3. One or more defective or damaged cells.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check connections to the battery, reset circuit breaker if equipped/replace fuse.</li> <li>2. Clean and tighten or repair all terminal connections.</li> <li>3. Load test the batteries and replace if necessary.</li> </ol>
4. Neither of the LED's turn on when the AC power is applied.	<ol style="list-style-type: none"> <li>1. No AC power available at the charger</li> <li>2. Charger failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect AC power or reset the AC breaker on the main panel</li> <li>2. Contact Marinco's Tech. Support Dept.</li> </ol>

## 7. INTRODUCING THE 12VDC ALTERNATOR MODULE

The 12VDC Alternator Module used on models 36082-12 and 36202-12 are used in 12VDC Trolling/House applications ONLY. The 12VDC Alt. Module allows two batteries to be charged at the same time. When the engine is started or being charged and the start/crank battery reaches 13.7VDC, the 12VDC Alt. Module engages allowing two battery banks (start/crank and trolling/house) to be charged simultaneously. When the start/crank battery voltage drops below 12.7VDC (the engine is stopped), the 12VDC Alt. Module disengages, separating the batteries. This system eliminates the possibility of draining the start/crank battery. The 12VDC Alt. Module is rated for a total of 60amps from the alternator. The alternator current will vary based on discharge of the 2 batteries in the system, temperature and size of the alternator. There are 2 red and 1 green LED located on the module's face. Refer to Table 4 (LED Functional Chart). The red LED's identify reverse polarity of each output and the green led indicates engagement of the 12VDC Alt. Module. This sophisticated device is ideal for recharging and maintaining the 12VDC batteries in your boat.

### Personal Safety Precautions

Follow the same rules located in Section 1 "Introducing the Charger"

### Preparing to Charge Precautions

Follow the same rules located in Section 1 "Introducing the Charger"

### **WARNINGS**

**THIS 12VDC ALTERNATOR MODULE SHOULD BE USED TO CHARGE ONLY 12VDC BATTERY SYSTEMS. THE DC NEGATIVES OF BOTH THE 12VDC START/CRANK BATTERY AND 12VDC TROLLING/HOUSE BATTERY ARE CONNECTED TOGETHER INSIDE THE 12VDC ALTERNATOR MODULE. REVIEW YOUR SYSTEM REQUIREMENTS FOR COMBATIBILITY WITH THE VSR MODULE DUE TO THE DC NEGATIVES BEING CONNECTED TOGETHER. USE ON SYSTEMS OTHER THAN 12VDC MAY CAUSE PROPERTY DAMAGE AND PERSONAL INJURY.**

**THE 12VDC ALTERNATOR MODULE IS RATED FOR A MAXIMUM ALTERNATOR RATING OF 60AMPS. FAILURE TO USE THIS PRODUCT ON AN ALTERNATOR RATED AT 60AMPS OR BELOW COULD CAUSE PREMATURE PRODUCT FAILURE, PROPERTY DAMAGE OR PERSONAL INJURY.**

## WARNINGS

**THIS 12VDC ALTERNATOR MODULE SHOULD BE USED TO CHARGE ONLY LEAD ACID, GEL CELL, OR AGM BATTERIES. USE ON OTHER BATTERY TYPES MAY EXPLODE AND CAUSE PERSONAL INJURY.**



**RISK OF EXPLOSIVE GASES! WORKING IN THE VICINITY OF LEAD ACID BATTERIES IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL OPERATION. THEREFORE IT IS OF THE UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR CHARGER YOU FOLLOW THE INSTRUCTIONS EXACTLY.**

## 8. OPERATING THE 12VDC ALTERNATOR MODULE

TABLE 4

### 60A Max. Output Rating

The LED Function Chart describes the operation of the 12VDC Alternator module.

Display	Operating condition
	<p>When the green LED in the Engaged location is lit, the 12VDC Alt. Module is engaged and is charging your 12VDC Trolling/House Battery. This will occur when the engine is running or when the charger is operational. B1 and B2 locations will have no LED's lit at this time. B1, B2, and Engaged LED's will be off when the module is not engaged and polarity on the batteries is correct.</p>
	<p>When the red LED is lit in locations B1 and B2, this indicates a reverse polarity on the batteries. The 12VDC Alt. Module will remain disengaged until the polarity on the batteries is corrected. Each red LED represents an output to your batteries. B1=Trolling/House Battery and B2=Start/Crank Battery. B1, B2, and Engaged LED's will be off when the module is not engaged and polarity on the batteries is correct.</p>

## 9. TROUBLESHOOTING THE 12VDC ALT. MODULE

**TABLE 5**

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
1. Either one or both Red LED's are on.	1. One or both DC outputs are connected to the batteries in reverse polarity	1. Review your DC output connections per Section 8
2. Green LED is off when engine is running.	<ol style="list-style-type: none"> <li>1. Engine RPM's very low so alternator not producing much current</li> <li>2. Fuse or circuit breakers are open</li> <li>3. Batteries are below 8VDC</li> <li>4. 12VDC module failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Review LED when Engine RPM is at a constant running speed</li> <li>2. Replace or reset fuse or circuit breaker. Shorted relay that opens fuse or circuit breaker, contact Marinco's Tech. Support Dept.</li> <li>3. Load test your batteries</li> <li>4. Contact Marinco's Tech. Support Dept.</li> </ol>
3. Green LED stays on after engine is turned off.	<ol style="list-style-type: none"> <li>1. System battery voltage has not dropped below 12.7VDC</li> <li>2. Charger is operational and the start/crank output is above 13.7VDC</li> </ol>	<ol style="list-style-type: none"> <li>1. Wait a few minutes for the battery to self discharge</li> <li>2. Correct operation of the system</li> </ol>
4. Chattering sound from 12VDC Alt. Module	1. Charging system is too small for the batteries and not allowing the 12VDC Alt. Module to work properly	1. Trolling battery may be too larger for your boats Alternator size. Refer to Table 6 "Alternator vs. Battery Capacity"

**TABLE 6**

### **Alternator vs. Battery Capacity**

<b>Alternator Size</b>	<b>Trolling Battery Size</b>
10 Amps	60Ahr GRP 22 or smaller
16 Amps	85Ahr GRP 24 or smaller
25-35 Amps	85-100Ahr GRP 27 or smaller
50-60 Amps	100-130Ahr GRP 31 or smaller

## **10. INTRODUCING THE 24VDC ALTERNATOR MODULE**

The 24VDC Alternator Module used on models 36082-24 and 36202-24 are used in 24VDC Trolling/House battery applications ONLY. The 24VDC Alt. Module will alternately charge each of the 12VDC batteries in the 24VDC trolling/house system based on 1-minute intervals. The 24VDC Alt. Module, when engaged will parallel one of the trolling batteries with the start/crank battery. When the engine is started and the start/crank battery reaches 13.7VDC, the 24VDC Alt. Module engages starting the trolling/house battery charging process. When the start/crank battery voltage drops below 12.7VDC (the engine is stopped), the 24VDC Alt. Module disengages, separating the batteries. This system eliminates the possibility of draining the start/crank battery. Do to the charger outputs (2 bank charger) being installed on each of the 12VDC series batteries (24VDC trolling/house battery system), an added feature has been added to direct charge into the start/crank battery during charger operation. This occurs when the start/crank battery is less than 12.7VDC and either or both trolling/house battery outputs are greater than 13.7VDC. The 24VDC Alt. Module will parallel the start/crank battery to either trolling/house bank for a 1-minute interval. This operation will last for 100 relay operations and switch off. It can restart based on start/crank battery voltage below 12.7VDC and either or both trolling/house battery outputs are greater than 13.7VDC. The 24VDC Alt. Module is rated for a total of 60amps from the alternator. The alternator current will vary based on discharge of the 3 batteries in the system, temperature and size of the alternator. There are 3 red and 2 green LED's located on the enclosure face. Refer to Table 7 (LED Functional Chart). The red LED's identify reverse polarity of each output and the green LED's indicate engagement and to which the 24VDC Alt. Module is charging output. This sophisticated device is ideal for recharging and maintaining the 24VDC batteries in your boat.

### **Personal Safety Precautions**

Follow the same rules located in Section 1 "Introducing the Charger"

### **Preparing to Charge Precautions**

Follow the same rules located in Section 1 "Introducing the Charger"

## **WARNINGS**

**THIS 24VDC ALTERNATOR MODULE SHOULD BE USED TO CHARGE ONLY 24VDC TROLLING/HOUSE BATTERY SYSTEMS. THE DC NEGATIVE GROUNDING SYSTEMS FOR THE 24VDC BATTERY SYSTEM (24VDC TROLLING/HOUSE SYSTEM) SHOULD BE ISOLATED FROM THE START/CRANK BATTERY (NO DC NEGATIVE CONNECTIONS BETWEEN THE 24VDC SYSTEM AND START/CRANK BATTERY). MAKING THIS DC NEGATIVE CONNECTION BETWEEN BATTERY SYSTEMS MAY CAUSE PREMATURE PRODUCT FAILURE, PROPERTY DAMAGE AND PERSONAL INJURY.**

**THE 24VDC ALTERNATOR MODULE IS RATED FOR A MAXIMUM ALTERNATOR RATING OF 60AMPS. FAILURE TO USE THIS PRODUCT ON AN ALTERNATOR RATED AT 60AMPS OR BELOW COULD CAUSE PREMATURE PRODUCT FAILURE, PROPERTY DAMAGE OR PERSONAL INJURY.**

**THIS 24VDC ALTERNATOR MODULE SHOULD BE USED TO CHARGE ONLY LEAD ACID, GEL CELL, OR AGM BATTERIES. USE ON OTHER BATTERY TYPES MAY EXPLODE AND CAUSE PERSONAL INJURY.**

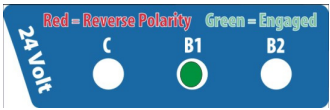
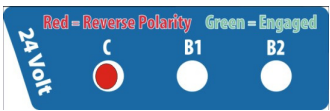
**RISK OF EXPLOSIVE GASES! WORKING IN THE VICINITY OF LEAD ACID BATTERIES IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL OPERATION. THEREFORE IT IS OF THE UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR CHARGER YOU FOLLOW THE INSTRUCTIONS EXACTLY.**

# 11. OPERATING THE 24VDC ALTERNATOR MODULE

**TABLE 7**

## 60A Max. Output Rating

The LED Function Chart describes the operation of the 24VDC Alt. Module.

Display	Operating condition
 <p>The image shows a blue LED display panel with three LEDs labeled C, B1, and B2. Above the LEDs, it says 'Red - Reverse Polarity' and 'Green - Engaged'. The C LED is off (white), the B1 LED is lit green, and the B2 LED is off (white). The text '24 Volt' is written vertically on the left side of the panel.</p>	<p>When either B1 or B2 LED is green, the 24VDC Alt. Module is engaged identifying which battery is being charged in the 24VDC battery system. Location C (start/crank battery) will be off when either B1 or B2 location is green. B1=Trolling/House Battery Output #1 and B2=Trolling/House Battery Output #2 in the 24VDC system. C, B1, and B2 LED's will be off when the module is not engaged and polarity on the batteries is correct.</p>
 <p>The image shows a blue LED display panel with three LEDs labeled C, B1, and B2. Above the LEDs, it says 'Red - Reverse Polarity' and 'Green - Engaged'. The C LED is lit red, the B1 LED is off (white), and the B2 LED is off (white). The text '24 Volt' is written vertically on the left side of the panel.</p>	<p>When either or all of the three locations (C, B1, B2) are lit with a red LED's, this indicates a reverse polarity on the batteries. The 24VDC Alt. Module will remain disengaged until the polarity on the batteries is corrected. Each red LED represents an output to your batteries. C, B1 and B2 LED's will be off when the module is not engaged and polarity on the batteries is correct.</p>

## 12. TROUBLESHOOTING THE 24VDC ALT. MODULE

**TABLE 8**

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
1. Any of the three Red LED's are on.	1. One or more of the DC outputs are connected to the batteries in reverse polarity. Each red led represents a battery bank	1. Review your DC output connections per Section 16
2. Green LED is off when engine is running.	<ol style="list-style-type: none"> <li>1. Engine RPM's very low so alternator not producing much current</li> <li>2. Fuse or circuit breakers are open</li> <li>3. Batteries are below 8VDC</li> <li>4. 24VDC module failure</li> <li>5. Red LED's on, reverse polarity connection</li> </ol>	<ol style="list-style-type: none"> <li>1. Review LED when Engine RPM is at a constant running speed</li> <li>2. Replace or reset fuse or circuit breaker. Shorted relay that opens fuse or circuit breaker, contact Marinco's Tech. Support Dept.</li> <li>3. Load test your batteries</li> <li>4. Contact Marinco's Tech. Support Dept.</li> <li>5. Review DC output connections</li> </ol>
3. Green LED stays on after engine is turned off.	<ol style="list-style-type: none"> <li>1. Start/Crank battery voltage has not dropped below 12.7VDC</li> <li>2. Charger is operational</li> </ol>	<ol style="list-style-type: none"> <li>1. Wait a few minutes for the battery to self discharge</li> <li>2. Correct operation</li> </ol>
4. Chattering sound from 24VDC Alt. module	1. Charging system is too small for the batteries and not allowing the 24VDC Alt. Module to work properly	1. Trolling battery may be too larger for your boats Alternator size. Refer to Table 5 "Alternator vs. Battery Capacity"

## 13. MAINTAINING THE CHARGER, 12VDC & 24VDC MODULES

Periodically clean both battery terminals with baking soda and tighten all connections. No other maintenance on the charger, 12VDC & 24VDC Alt. Module is required.

## 14. CHARGER SPECIFICATIONS

Model	Output Volts	Output Amps	Banks	DC Cable Size	Size (inches) L x W x H	Input Volts	Input Amps Max
36082-12 36082-24	12/24	8 A total, 4/4 A	2	N/A	6.3 x 6.8 x 2.9	115VAC 50/60Hz	2 Amps
36202-12 36202-24	12/24	20 A total 10/10 A	2	N/A	8.0 x 8.9 x 2.9	115VAC 50/60Hz	5 Amps

## 15. 12VDC ALT. MODULE SPECIFICATIONS

Model	Output Volts	Output Alternator Amps	Banks	DC Cable Size	Size (inches) L x W x H	Engages	Disengages
36082-12 36202-12	12	60A max.	2	#10AWG included	4.1 x 6.8 x 2.9	13.7VDC	12.7VDC

## 16. 24VDC ALT. MODULE SPECIFICATIONS

Model	Output Volts	Output Alternator Amps	Banks	DC Cable Size	Size (inches) L x W x H	Engages	Disengages
36082-24 36202-24	24V System	60A max.	3	#10AWG included	4.1 x 6.8 x 2.9	13.7VDC	12.7VDC

## FCC Class A EMC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning this equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

### LIMITED WARRANTY

For two (2) years from the date of original purchase, The Guest Co. will, at its discretion, repair or replace for the original consumer, free of charge, any parts found defective in material or workmanship. All transportation charges under this warranty must be borne by the customer.

Proof of purchase is required: A computerized register receipt is required. Hand-written receipts are not accepted for warranty proof of purchase. In the absence of a receipt, warranty period will be calculated from date of manufacture printed or stamped on the product.

There is no other expressed warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to two years from the date of purchase. This is the exclusive remedy and consequential damages are excluded where permitted by law.

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