



Dual Pro Charger®



CHARGING SYSTEMS INTERNATIONAL



INSTALLATION AND OPERATING INSTRUCTIONS FOR THE FOLLOWING XTREME BATTERY CHARGERS:



Model Name	No. of Banks	Amps Per Bank	Battery System
Dual Pro SE Xtreme	2	10, 10	12V, 24V
Dual Pro Xtreme	2	15, 15	12V, 24V
Three Bank SE Xtreme	3	10, 10, 10	12V, 24V
Three Bank Pro Xtreme	3	15, 15, 6	12V, 24V

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MODELS	MAX AMPS/BANK	NO. OF BANKS	BATTERY SYSTEM
DUAL PRO SE XTREME	10,10	2	12,24
DUAL PRO XTREME	15,15	2	12,24
THREE BANK SE XTREME	10,10,10	3	12,24
THREE BANK PRO XTREME	15,15,6	3	12,24

IMPORTANT NOTICE

Please save and read all safety, operating and installation instructions before installing or applying AC power to your Charging Systems International on-board battery charging system.

Please contact Charging Systems International with any product, installation, or service questions at 1-800-742-2740.

Introduction

Charging Systems International has been manufacturing waterproof, on-board battery charging systems for the marine industry since 1989. Our systems are designed and built tough to withstand intense vibration, extreme temperature variations and, if needed, be submerged without damaging the unit. Our systems use temperature compensation in order to fully charge a battery in hot or cold environments and are controlled by microprocessors in order to assure precise control over each totally independent charging bank. All of our chargers have true reverse polarity protection and shut off completely after each charge cycle.

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS-This manual contains important safety and operating instructions for battery charger models: Dual Pro Xtreme, Dual Pro SE Xtreme, Three Bank Pro Xtreme and Three Bank SE Xtreme.

DO NOT INSTALL IN 36 VOLT SYSTEM

Use of attachments not recommended or sold by Charging Systems International may result in a risk of fire, electrical shock, or injury to persons.

To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.

When using an extension cord, make sure:

1. That pins on plug of extension cord are the same number, size, and shape as those of plug and charger;

2. That extension cord is properly wired and in good electrical condition;
3. That wire size is large enough for ac ampere rating of charger.

Do not operate charger with damaged cord or plug-replace the cord or plug immediately.

Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; contact Charging Systems International.

Do not disassemble charger; contact the factory when service or repair is required. Incorrect reassembly may result in risk of electrical shock or fire.

To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning.

WARNING-RISK OF EXPLOSIVE GASES.

1. **WORKING IN THE VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS.** Batteries generate explosive gases during normal battery operation. For this reason, it is of utmost importance that each time before using your charger, you read this manual and follow the instructions exactly.
2. To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary marking on these products and on engine.

PERSONAL PRECAUTIONS

Someone should be within range of your voice or close enough to come to your aid when you work near a lead-acid battery.

Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.

Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.

If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.

NEVER smoke or allow a spark or flame in vicinity of battery or engine.

Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.

Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn.

Use charger for charging a LEAD-ACID (lead acid, sealed lead acid, gel cell and AGM) battery only. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.

CAUTION: DO NOT ATTEMPT TO INSTALL THE XTREME IN A BATTERY CONFIGURATION THAT UTILIZES A SERIES CONNECTION FROM THE CRANKING BATTERY TO ONE OF THE TROLLING MOTOR BATTERIES. SEVERE SPARKING AND/OR DAMAGE TO THE PROXTRA CIRCUITRY MAY OCCUR AND THE WARRANTY WILL BE VOIDED.

PREPARING TO CHARGE

If it is necessary to remove the battery to charge, always remove grounded terminal from battery first. Make sure all accessories are off, so as not to cause an arc.

Be sure area around battery is well ventilated while batteries are being charged. Gas fumes can be forcefully blown away by using a piece of cardboard or other nonmetallic material, as a fan.

Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.

Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.

Study all battery manufacturers' specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.

Extension cords should be industrial grade/heavy duty U.L. approved and grounded. Check extension cord before use for damage, bent prongs and cuts. Replace if damaged.

Always make your extension cord connection on the charger side first. After connecting the extension cord to the charger, then proceed to plug the extension cord to a nearby 120VAC GFCI protected (Ground Fault Circuit Interrupt) outlet.

Always remove the extension cord from the 120VAC outlet first when charging is completed followed by unplugging the charger.

PRODUCT SUMMARY

General Operation:

Use the following guidelines in this manual to install your fully automatic Charging Systems International battery charging system.

Assure that your charger and batteries are properly vented. Connect your extension cord with no AC Power present to the battery charger and proceed to plug your extension cord in at a nearby 120VAC GFCI protected (Ground Fault Circuit Interrupt) outlet.

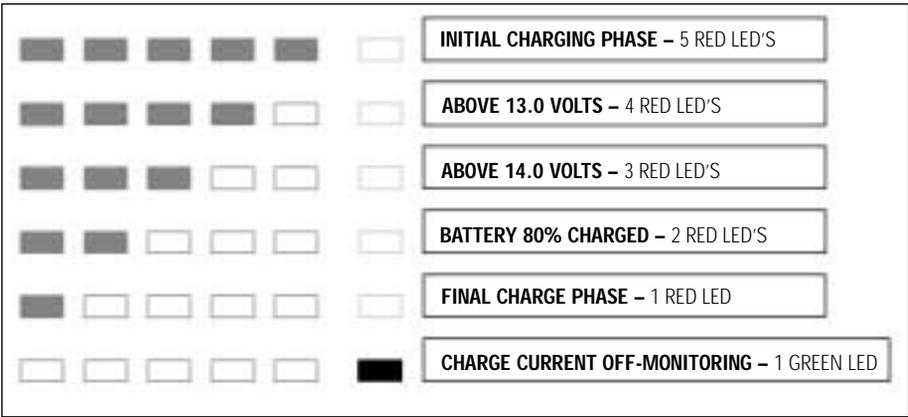
Once you plug in your Charging Systems International battery charging system, your batteries will be simultaneously and independently charged to 100%. Unlike systems that utilize one large charger to attempt to charge multiple batteries, your system utilizes a totally independent battery charger for each battery. Each charging bank will turn itself completely off once the battery is charged and then monitor and maintain the battery indefinitely.

We recommend that you leave your system plugged in to reduce sulfate build-up and to allow your Charging Systems International charging system to keep your batteries fully maintained and ready to perform at their best. Your Xtreme Series system also utilizes specially designed circuitry to enable independent charging current to flow to additional batteries. This system is enabled and operates automatically whenever the engine starting battery is being charged and maintained by the engine driven charging system.

Independent Charging Bank Indications

When your battery charging system is activated, each bank provides charging information utilizing five red LED indicators and one green LED indicator. These indications occur only when the charger is being powered by AC.

The five red LEDs enable you to track the progress of the charge cycle on each battery as the voltage rises. Indications are as follows:



"Charging on the run" indications

During periods in which the engine starting battery is being charged and maintained by the engine driven charging system, amber and red LED indicators are provided which display the state of the integrated "ProXtra" circuitry that controls the flow of current to additional batteries.

Indications are as follows:

CHARGING CRANKING BATTERY-This amber LED is illuminated whenever the voltage of the engine starting battery is in excess of 13.0 Volts.

CHARGING ADDITIONAL BATTERIES-This red LED is illuminated during periods when the "ProXtra" circuitry is allowing charging current to flow to additional batteries.

INSTALLATION INSTRUCTIONS

All Charging Systems International battery charging systems are designed to be permanently mounted and have no mounting restrictions.

Do not make any electrical connections to the power supply (AC) or to a battery (DC) until the mounting process has been completed.

Check for fit and appropriate thickness of mounting area. It is recommended that you choose a flat surface. If a compartment wall is chosen, make certain its strength is adequate.

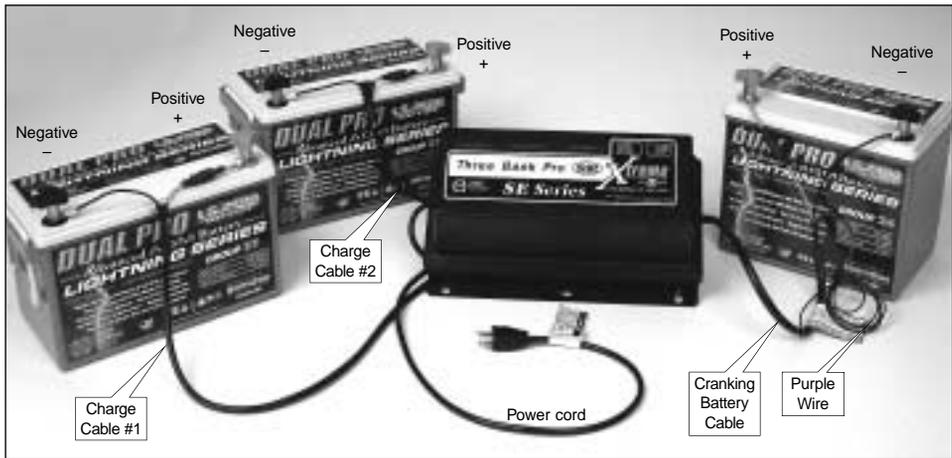
Use the mounting flanges of the charger to mark locations for starter holes. Drill a 1/16" inch hole at each marked location. Then, utilize all stainless steel screws which have been provided and install the charger securely being cautious not to over tighten the screws. Silicon sealer should be used to secure and waterproof the screw holes.

IMPORTANT NOTICE
 The mounting bracket of the system contains keyholes that are designed so that some screws can be started before putting the charger into place.



Before making any connections, prepare batteries as follows:

- (a) With caps securely in place, thoroughly clean the case and posts with a solution of baking soda and water. Be careful not to allow any soda to get inside the case.
- (b) All posts, terminal and connections should be cleaned to a shiny bright finish, using a wire brush or sand paper. This should be done periodically to assure maximum conductivity.



Charge Cables #1 and #2

Each charge cable assembly is equipped with a temperature sensor located at the junction of each set of ring terminals. Attempts to lengthen or shorten the cables could partially disable the charger. Therefore, we recommend that you do not make any adjustments without first consulting the factory.

Route your cables from the charger to your batteries, being cautious to avoid sharp objects and use the supplied wire ties to hold them neatly in place. Securely connect the red (+) charger ring terminals to the positive battery posts and the black (-) charger ring terminals to the negative posts. If the unit is equipped with a standard AC plug on the power cord, a plug receptacle is also provided to hold the power cord plug when it is not being used. Locate a convenient site for the receptacle and attach it using the four smaller stainless steel screws.

Cranking Battery Cable

The cable assembly designated for the engine starting battery is unique in that in addition to the Red (+) and Black (-) wires, there is a purple wire which must be attached to a 12 volt source that is switched on and off by the engine ignition key switch. Use the supplied quick connector to attach the purple wire to any key activated 12 volt source. It is important to note that the "charge on the run" circuitry will not operate unless the purple wire is connected to a 12 volt source.

TROUBLE SHOOTING

PROBLEM: No LED indicators illuminate in any of the charger banks.

Solution Sequence:

Check the AC power supply from its source through all connecting points up to the charger by using a meter or test light to confirm that current is being delivered to the charger.

PROBLEM: One red LED flashing.

Solution Sequence:

With the AC power supply cord unplugged, check the ring terminals for correct polarity (Red to positive or +) and (Black to negative or -). Also check for corrosion free secure connections to the batteries. Call the factory for further assistance.

PROBLEM: The LED indications change rapidly back and forth from red to green or the green LED will not illuminate after excessive charging time (16 hours or more).

Solution Sequence:

Disconnect AC power to the charging system. On multi bank chargers, take the charge cable assembly from the affected bank off of the battery it is attached to and attach it to another battery in the boat. Take the original charge cable assembly from this battery and attach it to the battery from which you removed the first cable. Plug the charger in and observe the LED indications. If the rapid LED sequence (red to green repeatedly) occurs on a different bank of the charger, this confirms that there is a battery problem.

On single bank systems, simply try the charger on another battery. If the charger now operates normally (steady red LEDs or changes to green and holds), this signifies that there is a possible problem with the original battery.

If the same bank continues to malfunction, please call the factory.

PROBLEM: A green LED was illuminated before disconnecting the power from the charger, but upon reconnection, red LEDs appear and remain on.

This is normal operating procedure for the system and simply indicates that a re-analysis of the battery status has been initiated and after a series of steps, the green LED will illuminate.

PROBLEM: The indicator lights from the ProXtrall "charge on the run" system are not illuminating while the main boat engine is running.

Solution Sequence:

Check that each charge cable ring terminal is attached securely and with proper polarity.

Check that the purple 12 volt sense wire from the cranking battery cable assembly is installed properly.

Check engine RPMs. The system may not operate with the engine at idle. Assure that the system has been tested at higher engine RPMs.

For further troubleshooting, please contact the factory at 1-800-742-2740.

PROBLEM: One or both indicator lights on the ProXtrall "charge on the run" system remain on after the main engine is shut down.

Solution Sequence:

It is normal for the "charging additional batteries" and "charging cranking battery" lights to remain on for a brief period of time following main engine shutdown. As the battery voltages decrease, the lights will extinguish.

If one or both lights remain on indefinitely, please contact the factory at 1-800-742-2740.

POST INSTALLATION TESTING

After completing the total installation process for your Xtreme system, it is possible to test the ProXtrall section of the system for proper operation without having to operate the main engine.

Attach a battery charger designed for a 12 volt system to the cranking battery.

Turn the ignition key switch to the ON position.

Turn the charger on and observe the indicator lights on the ProXtrall section of the Xtreme. When the voltage of the cranking battery reaches a factory predetermined level, the "charging cranking battery" light will illuminate. As the voltage of the cranking battery continues to rise, the "charging additional batteries" light will illuminate.

Once both indicator lights have illuminated, unplug the charger attached to the cranking battery. As the battery voltage drops to a factory predetermined level, both indicator lights should extinguish.

If unable to accomplish the previous steps for any reason, please call Charging Systems International at 1-800-742-2740 for further assistance.

For general product information and frequently asked questions, visit us on the web at www.dualpro.com.

WARRANTY INFORMATION:

Please call Charging Systems International at 1-800-742-2740 for full warranty information and/or service.

LIMITED WARRANTY

Charging Systems International makes this Limited Warranty only to the original retail purchaser.

Charging Systems International warrants this battery charger for three years from the date of retail purchase against defective materials and/or workmanship. If such should occur, this unit will either be repaired or replaced at the discretion of the manufacturer. It is the responsibility of the original purchaser to return the charger along with proof of purchase, transportation and/or any mailing or handling charges prepaid to the manufacturer or its authorized representative.

This limited warranty is void if the product is misused, improperly maintained, handled carelessly or incorrectly operated. This warranty is also void if the charger is disassembled or repair is attempted by anyone other than an authorized representative.

Charging Systems International makes no other warranty other than this limited warranty and expressly excludes any implied warranty including any warranty for any incidental or consequential damages.

This is the only expressed limited three year warranty authorized by Charging Systems International and does not assume nor authorize anyone to assume or make any other obligation towards the product other than this three year Limited Warranty. Some states do not allow limitation of incidental or consequential damages, so the above limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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