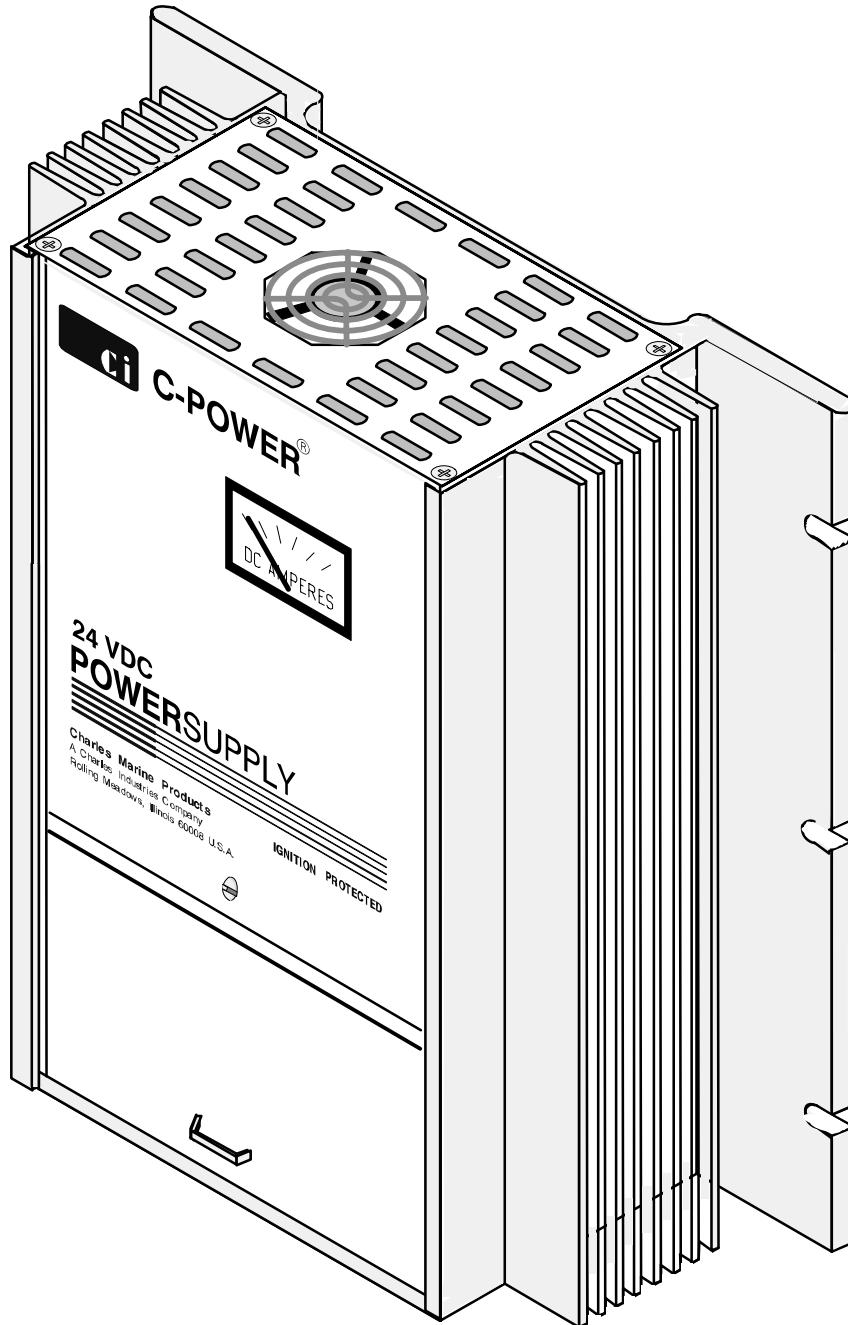


C-POWER[®]
MARINE ELECTRONIC POWER SUPPLY

**INSTALLATION INSTRUCTIONS
& OWNER'S MANUAL
12 VDC & 24 VDC
15- & 30-Amp**



Contents

INTRODUCING... C-POWER	3
Manual Purpose	3
IMPORTANT SAFETY INSTRUCTIONS	3
Environmental Precaution	3
C-Power Application Precaution	3
Damaged C-Power Precaution	3
Disassembly Precaution	3
Maintenance/Cleaning Precaution	3
Grounding Precautions	3
INSTALLING THE C-POWER	4
Choosing Mounting Hardware	4
Mounting the C-Power	4
Mounting the Optional Splash Guard	4
Choosing Electrical Wiring Hardware	4
Choosing Wire Gauge	5
Making AC Connections on Terminal Block 1 (TB1)	6
Making DC Connections on Terminal Block 2 (TB2)	6
Closing the Access Door	6
Changing Internal Fuses	6
MAINTAINING THE C-POWER	7
TROUBLESHOOTING THE C-POWER	7
WARRANTY & CUSTOMER SERVICE	7
Warranty	7
Service Center and Repair Correspondence	7
SPECIFICATIONS	8

INTRODUCING... C-POWER®

Thank you for purchasing the C-POWER® Marine Electronic Power Supply.

This manual covers the following models, listed by model number:

Table 1. 12 VDC & 24 VDC 15- & 30-Amp C-Power Model Numbers

Model Number	Input Voltage	Frequency	Output Voltage
93-PS2415	120VAC*	60 Hz*	25.5 VDC
9C-PS2415	220VAC**	50/60 Hz**	25.5 VDC
93-PS2430	120VAC*	60 Hz*	25.5 VDC
9C-PS2430	220VAC**	50/60 Hz**	25.5 VDC
93-PS1230	120VAC*	60 Hz*	13.65 VDC
9C-PS1230	220VAC**	50/60 Hz**	13.65 VDC

* Will accept variances in input voltage from 90 to 135 VAC and variances in frequency from 45 to 65 Hz with no degradation of output.
 ** Will accept variances in input voltage from 180 to 270 VAC and variances in frequency from 45 to 65 Hz with no degradation of output.

Manual Purpose

With your personal safety in mind, this manual lists important safety precautions first, then covers installation, operation, maintenance, troubleshooting and warranty and customer service information.

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS. This manual contains important safety and operating instructions for the C-Power. Read the entire manual before usage.

Environmental Precaution

Do not expose the C-Power to rain, snow, or excessive moisture.

C-Power Application Precaution

These units are intended for hard-wired applications. Use of attachments not recommended or sold by Charles Marine Products may result in risk of fire, electrical shock or personal injury.

Damaged C-Power Precaution

Do not operate the C-Power if it has received a sharp blow, been dropped, or otherwise damaged. See the section in this manual on *Warranty & Customer Service*.

Disassembly Precaution

Do not disassemble the C-Power. See the sections in this manual on *Maintaining the C-Power*, *Troubleshooting the C-Power* and *Warranty & Customer Service*.

Maintenance/Cleaning Precaution

To reduce risk of electrical shock, disconnect the C-Power from AC power and load before attempting any maintenance or cleaning.

Grounding Precautions

When the C-Power is permanently mounted inside the boat, it must have a grounding conductor.

1. The C-Power should be connected to a metal, grounded, permanent wiring system. An equipment-grounding conductor should be run with circuit wiring and connected through the C-Power housing grommets to the equipment grounding (GRN) terminal on the C-Power.
2. Connections to the C-Power should comply with all local codes and ordinances.

INSTALLING THE C-POWER

Choosing Mounting Hardware

As with any marine equipment, secure mounting is of utmost importance. The bolts or screws used to secure the C-Power must be 1/4-inch in diameter, backed with a flat washer, and kept vibration-free with a split-ring lock washer. If using bolts, they must be long enough to be secured on both sides of the bulkhead. If using screws, they should be at least 1 inch long. All hardware should be corrosion-resistant.

Mounting the C-Power

All corrosion-resistant mounting hardware should be readily available. Follow the steps below to mount the C-Power to the bulkhead.

Step	Action
1.	Hold the C-Power vertically flush on the bulkhead.
2.	Mark the mounting holes.
3.	Remove the C-Power.
4.	Drill the mounting holes.
5.	Insert one side of the mounting hardware half-way into the drilled mounting holes.
6.	Align the mounting slots on the C-Power with the secured hardware and slide the C-Power's mounting flange under the washers.
7.	Insert the mounting hardware for the other side.
8.	Secure all mounting hardware.

Mounting the Optional Splash Guard

If ordered, position and install the optional splash guard (Figure 1) over the C-Power so that the back flange bottom rests on top of the C-Power. This insures proper vertical spacing for ventilation. For optimum splash protection, be sure to center the splash guard horizontally over the C-Power. Secure with 1/4 inch diameter screws, approximately 1/2 inch long.



Do not operate this unit without the green wire connected to the C-Power and to suitable ground at shore connection.

Note: Read this manual and all precautions before installing or making connections!

Choosing Electrical Wiring Hardware

The C-Power is intended for hard-wiring in a permanent application. Conduit or other appropriate marine electrical installation hardware should be used.

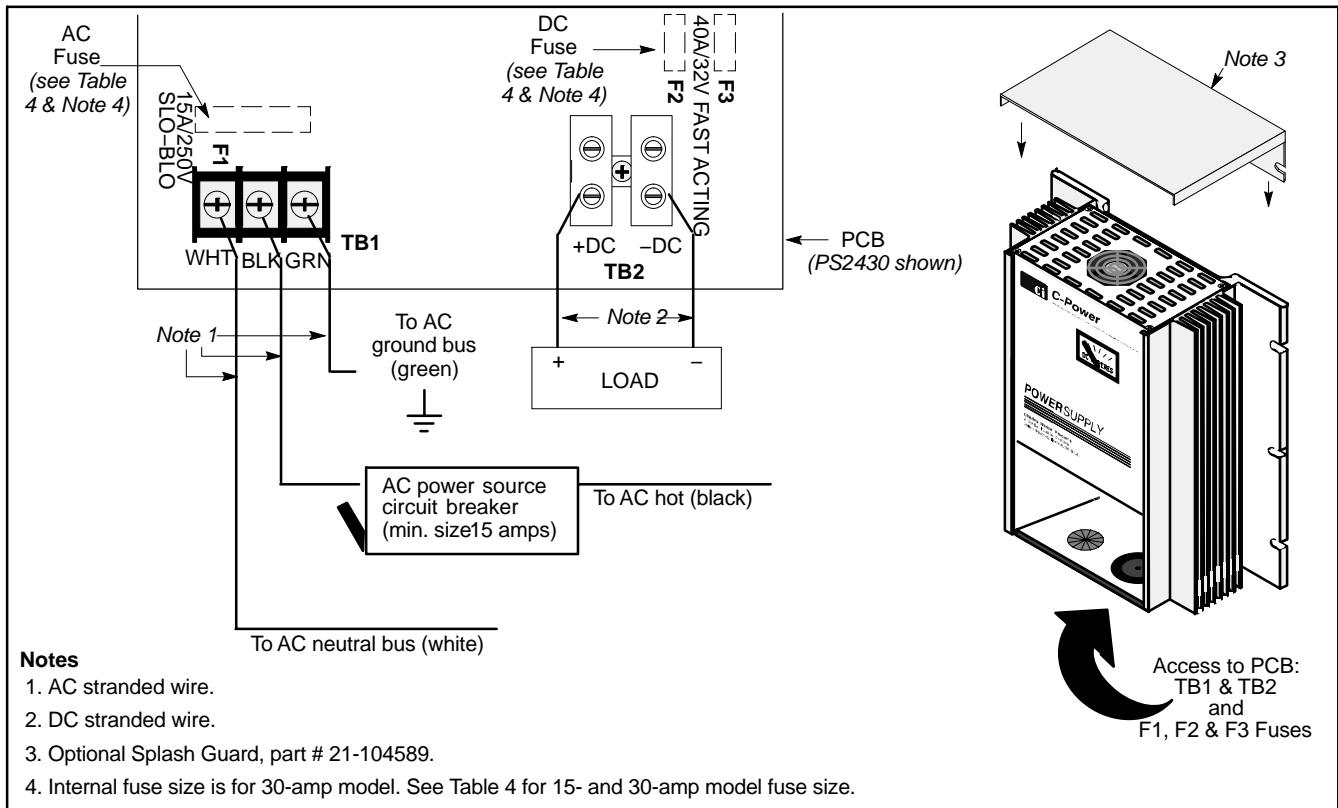


Figure 1. C-Power 15- & 30-Amp Block Diagram

Choosing Wire Gauge

Use Table 2 and Table 3 to determine the appropriate wire gauges. Avoid unnecessarily long runs of either AC or DC power lines.



Before working on electrical equipment, first determine there is no live power! Double check power connections.

Table 2. Minimum Wire Size to Input of C-Power

120 VAC SHORE POWER INPUT TO C-POWER				
Model Number	AC Amp Max	25' Length	50' Length	100' Length
PS2415	10	16 AWG	14 AWG	10 AWG
PS2430	12	14 AWG	12 AWG	10 AWG
PS1230	10	16 AWG	14 AWG	10 AWG
220 VAC SHORE POWER INPUT TO C-POWER				
PS2415	5	18 AWG	16 AWG	14 AWG
PS2430	6	16 AWG	14 AWG	12 AWG
PS1230	5	18 AWG	16 AWG	14 AWG

Table 3. Minimum Wire Size from Output of C-Power

Model Number	DC Amp Max	15' Length	25' Length
PS2415	15	12 AWG	12 AWG
PS2430	30	10 AWG	10 AWG
PS1230	30	10 AWG	10 AWG

WARNING

External connections to the C-Power shall comply with the U.S. Coast Guard Electrical Regulations (33CFR183 subpart I).

Making AC Connections on Terminal Block 1 (TB1)

After determining the wire lengths and gauges, make the AC wiring connections to TB1. (Refer to the Block Diagram in Figure 1.) To make connections to the terminal blocks:

Step	Action
1.	Remove the small screw in the center of the unit that secures the sliding door to the top cover
2.	Gently slide the door up until it stops
3.	Bring the AC input wire in through the left side access hole on the bottom of the C-Power
4.	Connect the WHT terminal to the white (neutral) input
5.	Connect the BLK terminal to the black (hot) AC input
6.	Connect the GRN terminal to the green (ground) input.

Making DC Connections on Terminal Block 2 (TB2)

After the appropriate wire lengths and gauges have been determined, make the DC connections to TB2. (Route the DC wire through the right-side access hole on the bottom of the C-Power.) TB2 has one positive (+) terminal and one negative (-) terminal.

Closing the Access Door

Before closing the access door, make sure that all electrical connections have been made properly. Also check that all wiring is properly dressed with no exposed, bare wires. Pull down the C-Power access door and secure it to the top cover with the small screw provided.

Changing Internal Fuses

Irregular conditions may cause one or more of the internal fuses to blow. ALWAYS determine there is no live power before replacing a fuse. To access the fuses, remove the small screw in the center of the unit that secures the sliding door to the top cover. Slide the access door up until it stops. The AC fuse (F1) is located just above the AC terminal block (TB1). The DC fuses (F2 & F3) are located above the DC terminal block (TB2). When replacing fuses, use only fuses of the exact type and rating (See Table 4). Before reapplying power, pull down the access door to close it. Once down, secure the access door to the top cover with the small screw provided.

Table 4. Internal Fuse Replacement Sizes

Model Number	AC Input (F1)	DC Output (F2)	DC Output (F3)
PS2415	12-Amp/250 Volt SLO-BLO	30-Amp/32 Volt FAST ACTING	
PS1230	12-Amp/250 Volt SLO-BLO	30-Amp/32 Volt FAST ACTING	30-Amp/32 Volt FAST ACTING
PS2430	15-Amp/250 Volt SLO-BLO	40-Amp/32 Volt FAST ACTING	40-Amp/32 Volt FAST ACTING

MAINTAINING THE C-POWER

There are no adjustment or maintenance requirements for the C-Power other than cleaning the outside cabinet with a dry cloth. Periodically have all connections checked by a qualified service person, especially if the boat is operated in heavy, pounding seas.

TROUBLESHOOTING THE C-POWER

If there is a problem with the C-Power, first check all connections and retest. If all connections are good, see if the problem is covered in Table 5. If the problem is not covered in Table 5, or if the C-Power still malfunctions after performing the solution given, contact Charles Marine Products for technical assistance.

Table 5. Troubleshooting Suggestions

#	Problem	Solution
1.	The ammeter deflects in a counterclockwise direction.	Disconnect the unit immediately. Examine wiring instructions again to assure proper connections. A movement in a counterclockwise direction or a full-scale movement indicates excessive current. A wiring error is suspected. A voltmeter can monitor the voltage when the C-Power is turned on.
2.	Internal red LED on.	The unit is at half-power because the ambient air is too hot. The unit may be at half-power because the fan is not working. Full power will be restored when the temperature returns to normal.

WARRANTY & CUSTOMER SERVICE

Warranty

The CHARLES Marine & Industrial Group warrants the unit will be free from defects in materials and workmanship that cause mechanical failure for one (1) year, as set forth in the Limited Warranty. Notice of any alleged defect in material or workmanship must be provided within thirty (30) days of discovering the problem, and within the warranty period. Follow the procedure outlined below to obtain warranty service.

Service Center and Repair Correspondence

Note: Do not attempt to service the unit. Contact the Service Center.

To contact the Service Center via telephone directly:

800-830-6523 (Toll Free)

217-932-2317 (Voice)

217-932-2473 (FAX)

Call to obtain a Returned Materials Authorization (RMA) number prior to returning any unit to Charles Industries.

Return the unit for repairs to the Service & Repair Center address below:

Charles Industries, Ltd.
Marine & Industrial Group
503 NE 15th Street
Casey, IL 62420-2054
USA

Correspondence can be sent to Corporate Headquarters via the address below:

Note: Do not return the unit to this address.

Charles Industries, Ltd.
Marine & Industrial Group

5600 Apollo Drive
 Rolling Meadows, IL 60008-4049
 USA
 847-806-6300
 www.charlesindustries.com

SPECIFICATIONS

The specifications for the C-Power are listed in Table 6 and Table 7.

Table 6. C-Power PS2415 & PS1230 Model Specifications

Feature	U.S.	Metric
Weight	9 pounds	4.1 kilograms
Height	13.25 inches	33.7 centimeters
Width	9.5 inches	24.1 centimeters
Depth	3.7 inches	9.4 centimeters
AC Input*	120 VAC nom 220 VAC nom	
*See the label on the side of the charger for the operating voltage.		

Table 7. C-Power PS2430 Model Specifications

Feature	U.S.	Metric
Weight	10 pounds	4.5 kilograms
Height	15.25 inches	38.7 centimeters
Width	9.5 inches	24.1 centimeters
Depth	3.7 inches	9.4 centimeters
AC Input*	120 VAC nom 220 VAC nom	
*See the label on the side of the charger for the operating voltage.		

