

**CHICAGO POWER
ELECTRIC® SYSTEMS**

CHARGE REGULATOR

Model 96728

SET-UP & OPERATING INSTRUCTIONS



Visit our website at: <http://www.harborfreight.com>



**Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.**

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For technical questions or replacement parts, please call 1-800-444-3353.

Revised Manual 09j

SAVE THIS MANUAL

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

IMPORTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

 **DANGER**

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING**

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION**

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION


CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.

GENERAL SAFETY RULES



WARNING! Read all instructions

Failure to follow all instructions listed below may result in serious injury.

1. **Work area safety**
 - a. Keep work area clean and well lit. *Cluttered or dark areas invite accidents.*
 - b. Keep children and bystanders away when assembling this product.
Distractions can cause you to lose control.
2. **Personal safety**
 - a.  Use safety equipment. Wear ANSI-approved eye protection when assembling this product.
3. **Tool use and care**
 - a. Do not force this product. Use the correct product for your application. *The correct product will do the job better and safer at the rate for which it was designed.*
 - b. Maintain this product. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect this product's operation. If damaged, have the product repaired before use. *Many accidents are caused by poorly maintained products.*
 - c. Use this product in accordance with these instructions and in the manner intended for this particular type of product. *Use of this product for operations different from those intended could result in a hazardous situation.*
4. **Service**
 - a. Have this product serviced by a qualified repair person using only identical replacement parts. *This will ensure that the safety of the product is maintained.*

SPECIFIC SAFETY RULES

1. Use only with 12 volt DC electrical systems and solar panels.
2. Avoid contact with Battery Acid. If splashed, immediately wash affected area with clean water and baking soda for at least 15 minutes. If irritation persists get medical help immediately.
3. Do not allow the Black and Red battery cables or terminals to touch. Failure to adhere to these directions could result in severe personal injury or property damage. If this happens, sparks will occur that can melt metal objects, and create the potential for fire.

4. Read all instructions and warnings on any 12 volt DC battery before connecting the Charge Regulator to a battery.
5. Do not expose the Charge Regulator to rain or wet conditions.
6. Always unplug the Charge Regulator from its power source before performing any inspection, maintenance, or cleaning procedures.
7. Use caution not to short circuit and/or reverse the polarity of the load, solar panel, or battery.
8. Keep the Charge Regulator in a cool, ventilated location.
9. Repairs should be carried out only by a qualified technician.
10. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.



SAVE THESE INSTRUCTIONS.

SPECIFICATIONS

| | |
|----------------------------------|--|
| Electrical Requirements | Power Input: Solar Panel / 22 VDC, 7 AMP, 100 Watt Maximum Power Output: 12 VDC Battery |
| Automatic Over-Charge Protection | 14V (+0.5V) |
| Automatic Discharge Protection | 10.5V (+0.5V) |
| Operating Temperature | 14° Fahrenheit to 108° Fahrenheit |
| LED Indicators | Green = High Voltage / Yellow = Charging / Red = Low Voltage |
| Connectors | 2-Way Plug (+/-) = Solar 2-Way Plug (+/-) = Battery 3" Pigtail = Load |

UNPACKING

When unpacking, check to make sure that the item is intact and undamaged. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

OPERATING INSTRUCTIONS



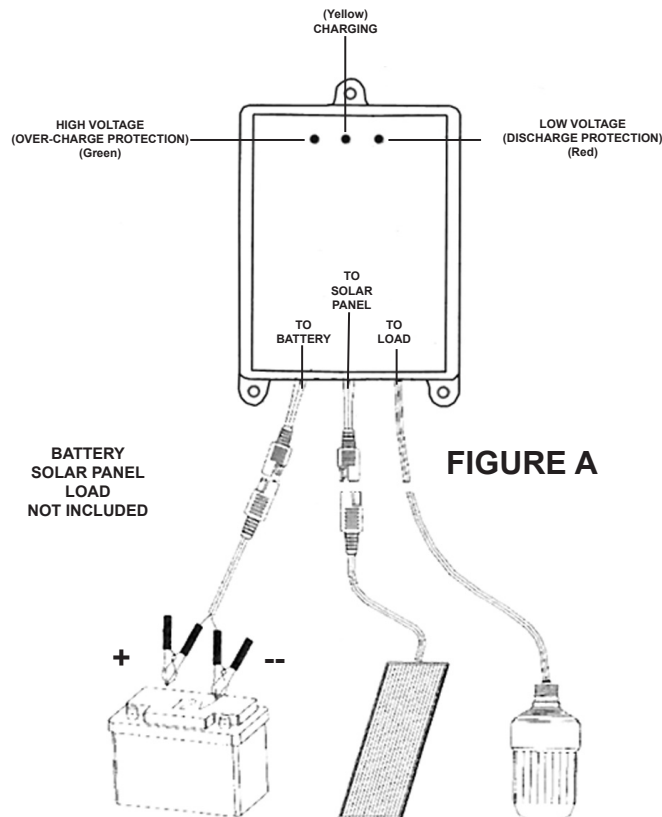
Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Product Overview

The Charge Regulator is designed to control the charging from a solar panel (not included) into a 12 volt DC battery (not included). The charged battery then powers a 12 volt DC tool, appliance, etc.

General Operating Instructions

1. Connect a 12 volt DC battery, solar panel, and a 12 volt DC tool, appliance, etc. as shown in the illustration below. **IMPORTANT:** Always connect the battery first. (See Figure A.)



2. When a solar panel is connected to the Charge Regulator, the **YELLOW** (charging) LED light will illuminate to show that the 12 volt DC battery is receiving charge from the solar panel. **(See Figure A.)**
3. The Charge Regulator provides the following protections for the entire system:
 - **Over-Charge Protection:** When activated, the **GREEN** (over-charging) LED light will illuminate. The Charge Regulator will automatically shut off power input from the solar panel to the battery to prevent damage to the battery. In this case, immediately disconnect the solar panel from the Charge Regulator. **(See Figure A.)**
 - **Discharge Protection:** When activated, the **RED** (discharge protection) LED will illuminate. The Charge Regulator will automatically shut off power output to prevent damage to the battery. In this case, discontinue using any application. **(See Figure A.)**

INSPECTION, MAINTENANCE, CLEANING

1. **BEFORE EACH USE:** Inspect the general condition of the Charge Regulator. Check for broken parts, damaged wiring, and any other condition that may affect its safe operation. **Do not use damaged tools.**
2. **AFTER EACH USE:** Disconnect the Charge Regulator from the battery and solar panels. Always disconnect the battery first (negative terminal first).
3. **WHEN CLEANING:** Use a clean, damp cloth and mild detergent. Do not use solvents. Do not immerse the Charge Regulator in liquid.
4. **WHEN STORING:** Keep the Charge Regulator in a clean, dry, safe location out of reach of children and other unauthorized people.
5. **CAUTION!** All maintenance, service, and repairs not mentioned in this manual must only be performed by a qualified service technician.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

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

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Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: There are no replacement parts for this product.

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