

**PS12LA, PS512M, CH12R, CH512R  
POWER SUPPLIES AND CHARGING REGULATORS  
INSTRUCTION MANUAL**

**06/00**

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# Warranty and Assistance

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The **PS12LA, PS512M, CH12R, CH512R POWER SUPPLIES AND CHARGING REGULATORS** are warranted by CAMPBELL SCIENTIFIC, INC. to be free from defects in materials and workmanship under normal use and service for twelve (12) months from date of shipment unless specified otherwise. Batteries have no warranty. CAMPBELL SCIENTIFIC, INC.'s obligation under this warranty is limited to repairing or replacing (at CAMPBELL SCIENTIFIC, INC.'s option) defective products. The customer shall assume all costs of removing, reinstalling, and shipping defective products to CAMPBELL SCIENTIFIC, INC. CAMPBELL SCIENTIFIC, INC. will return such products by surface carrier prepaid. This warranty shall not apply to any CAMPBELL SCIENTIFIC, INC. products which have been subjected to modification, misuse, neglect, accidents of nature, or shipping damage. This warranty is in lieu of all other warranties, expressed or implied, including warranties of merchantability or fitness for a particular purpose. CAMPBELL SCIENTIFIC, INC. is not liable for special, indirect, incidental, or consequential damages.

Products may not be returned without prior authorization. To obtain a Returned Materials Authorization (RMA), contact CAMPBELL SCIENTIFIC, INC., phone (435) 753-2342. After an applications engineer determines the nature of the problem, an RMA number will be issued. Please write this number clearly on the outside of the shipping container. CAMPBELL SCIENTIFIC's shipping address is:

**CAMPBELL SCIENTIFIC, INC.**

RMA# \_\_\_\_\_  
815 West 1800 North  
Logan, Utah 84321-1784

CAMPBELL SCIENTIFIC, INC. does not accept collect calls.

Non-warranty products returned for repair should be accompanied by a purchase order to cover the repair.



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# ***PS12LA, PS512M, CH12R, CH512R*** ***Power Supplies and Charging Regulators***

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## **1. General Description**

The PS12LA and PS512M are 12 volt power supplies that include the charging regulator and a 7 amp hour battery. The CH12R and CH512R are charging regulators that are used with a Campbell Scientific battery pack such as the BP12 or BP24 or with a user-supplied battery. Charging power is typically supplied by a CSI Model 9591 AC Transformer or by an MSX10 or MSX20 solar panel.

The PS512M and CH512R also have two 9-pin connectors that provide a null modem for use in a site, without a datalogger, that connects and powers two Campbell Scientific peripherals that would normally be connected to a datalogger. These peripherals are typically modems linking different communications technologies; e.g., telephone to radio.

## **2. Specifications**

### **PS12LA, PS512M, CH12R, CH512R**

**Input Voltage (CHG terminals)** 15 to 28 VDC or 18 VAC RMS

#### **Battery Connections**

Charging Output Voltage: Temperature compensated float charge for 12 V Battery

Temperature Compensation Range: -40 to +60°C

Charging Current Limit: 1.2 Amps typical

#### **Power Out (+12 terminals)**

Voltage: Unregulated 12 V from Battery

Current Limited w / 3 A Thermal Fuse: > 3 A @ < 20°C

3 A @ 20°C

2.1A @ 50°C

1.8 A @ 60°C

#### **Battery Packs**

Operating Temperature Range: -40 to +60°C

Capacity:

PS12LA 7 Amp hours

BP12 12 Amp hours

BP24 24 Amp hours

#### **AC Transformer: CSI Model No. 9591**

Input Voltage: 120 VAC

Output Voltage: 18 VAC RMS

Output Current (max): 1.2 Amps RMS

Protection (automatic reset): 85°C thermal reset breaker

UL Approval: UL-1950

### 3. Wiring

An internal or external battery is connected to the charger by means of the INT (Internal) or EXT (External) connectors, as shown in Figure 1. An “external battery” cable comes with the charger that allows connecting another battery to the charger to provide power if the main battery is removed. The red lead connects to the positive battery terminal and the black lead connects to the negative terminal.

**WARNING**

**Reversal of polarity of external battery will damage the PS12LA or PS512M.**

It is possible to leave two batteries connected. The battery connections are diode isolated (Figure 3-2); however, if one of the batteries fail, it could draw all the charging current and the other battery will be discharged.

**CAUTION**

A battery **must** be attached for the charger to function correctly as a power supply.

The leads from the transformer or solar panel are connected to the CHG terminals. Polarity does not matter; either lead can be connected to either terminal.

The wires that connect power to the datalogger and/or peripherals are connected to the +12 and ground (⊖) terminals.

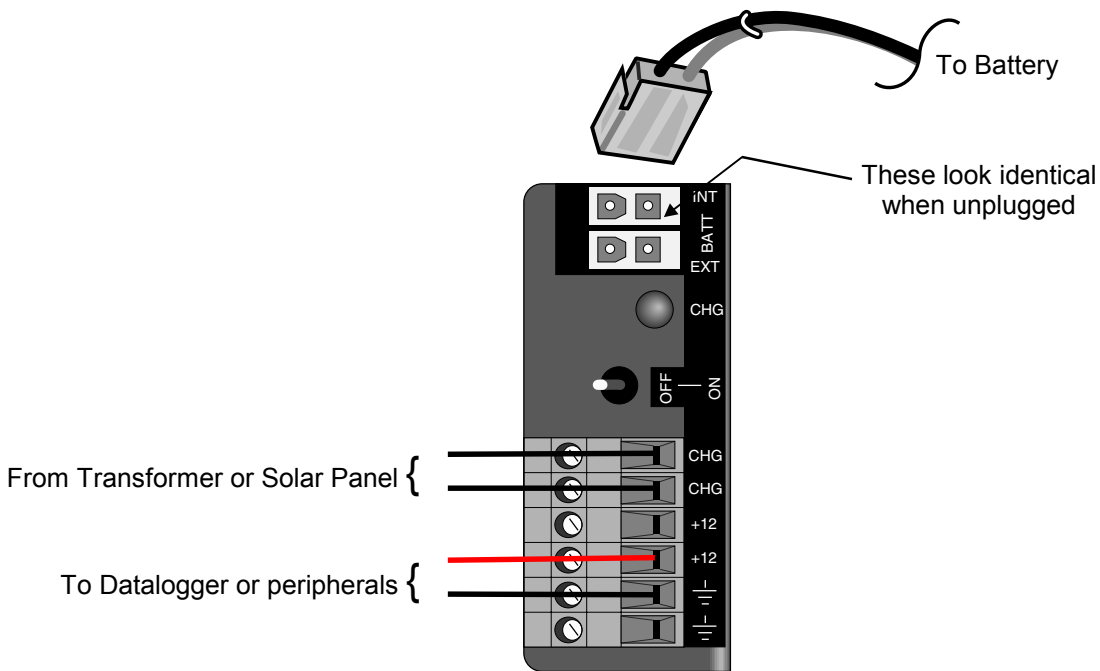


FIGURE 1. Wiring to Charger

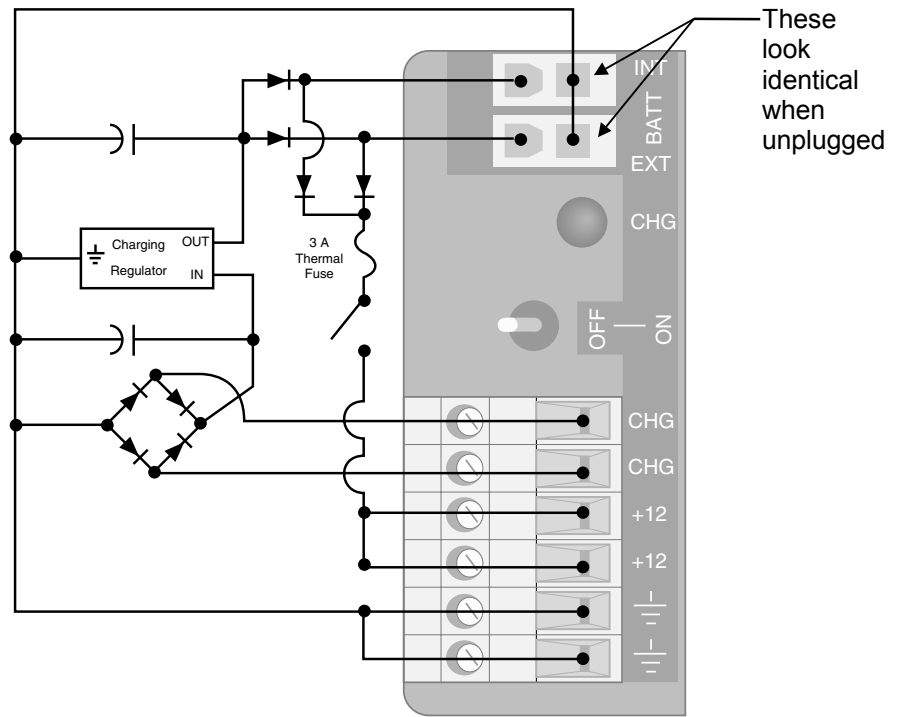


FIGURE 2. Simplified Charging Circuit Schematic

## 4. Null Modem on PS512M and CH512R

The PS512M and CH12R have two 9-pin CS I/O ports on them with a null modem between them. The ports are used to connect two 9-pin devices that would normally be connected to the CS I/O port on a Campbell datalogger. The charger supplies 12 volts and 5 volts to the appropriate pins on the connector for powering the connected devices.

**CAUTION**

This cannot be used as a null modem between two RS-232 devices.

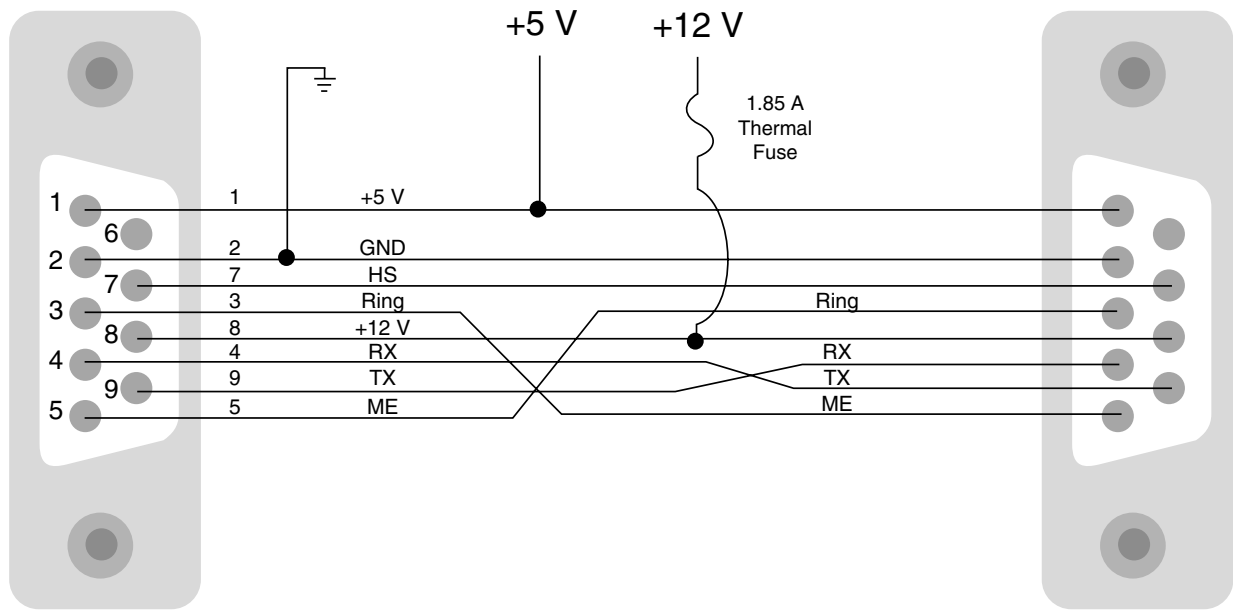


FIGURE 3. Null Modem Connections