

# INSTRUCTION MANUAL



## **PS100 and CH100 Power Supply and Charging Regulators, A100 Null Modem Adapter, and A105 Additional 12 V Terminals Adapter**

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# ***PLEASE READ FIRST***

## **About this manual**

Please note that this manual was originally produced by Campbell Scientific Inc. (CSI) primarily for the US market. Some spellings, weights and measures may reflect this origin.

Some useful conversion factors:

**Area:** 1 in<sup>2</sup> (square inch) = 645 mm<sup>2</sup>

**Length:** 1 in. (inch) = 25.4 mm  
1 ft (foot) = 304.8 mm  
1 yard = 0.914 m  
1 mile = 1.609 km

**Mass:** 1 oz. (ounce) = 28.35 g  
1 lb (pound weight) = 0.454 kg

**Pressure:** 1 psi (lb/in<sup>2</sup>) = 68.95 mb

**Volume:** 1 US gallon = 3.785 litres

In addition, part ordering numbers may vary. For example, the CABLE5CBL is a CSI part number and known as a FIN5COND at Campbell Scientific Canada (CSC). CSC Technical Support will be pleased to assist with any questions.

# PS100 Table of Contents

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# ***PS100 and CH100 Power Supply and Charging Regulators, A100 Null Modem Adapter, and A105 Additional 12 V Terminals Adapter***

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## **1. General Description**

The PS100 is a 12-volt power supply that includes a charging regulator and a 7 amp hour battery. The CH100 is a charging regulator that is 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 an AC transformer or an unregulated solar panel.

The PS100 and CH100 each have one adapter connector that will allow connecting one of the following adapters.

The A100 Null Modem Adapter has two 9-pin connectors that provide a null modem for use in a site, without a datalogger. The A100 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.

The A105 Additional 12 V Terminals Adapter may be used to provide additional 12 V and ground terminals where the power supply is used to power several devices.

**NOTE**

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To prevent people from getting burned, an ABS plastic cover [CSI #18688] sits on the heatsink of a PS100 or CH100. The cover is fastened to the heatsink via a #4-40 x .250 Pan Phillips screw [#395]. The cover must be removed to attach an A100 or A105 adapter. Some early models of the PS100 and CH100 did not include the cover and do not have a place to attach it.

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## **2. Specifications**

<b>Input Voltage (CHG terminals)</b>	15 to 28 VDC or 18 VAC RMS
<b>Battery Connections</b>	
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:	
PS100	7 Amp hours
BP12	12 Amp hours
BP24	24 Amp hours

**WARNING**

**These batteries are designed to be float charged. Permanent damage occurs and battery life is shortened if the battery is allowed to discharge below 10.5 volts.**

**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

**AC Transformer: CSI Model No. 14014**

Input Voltage:	90 - 264 VAC; 47 - 63 Hz
Output Voltage:	18 VDC
Output Current (max):	1.3 Amps
UL Approved, File No.:	E137895

**PS100**

Physical Specifications:	10.5 cm tall, 19 cm long, 7 cm wide
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**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 is available for the charger. This cable connects another battery with 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 PS100 or CH100.**

It is possible to leave two batteries connected. The battery connections are diode isolated (Figure 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 ( $\oplus$ ) terminals.

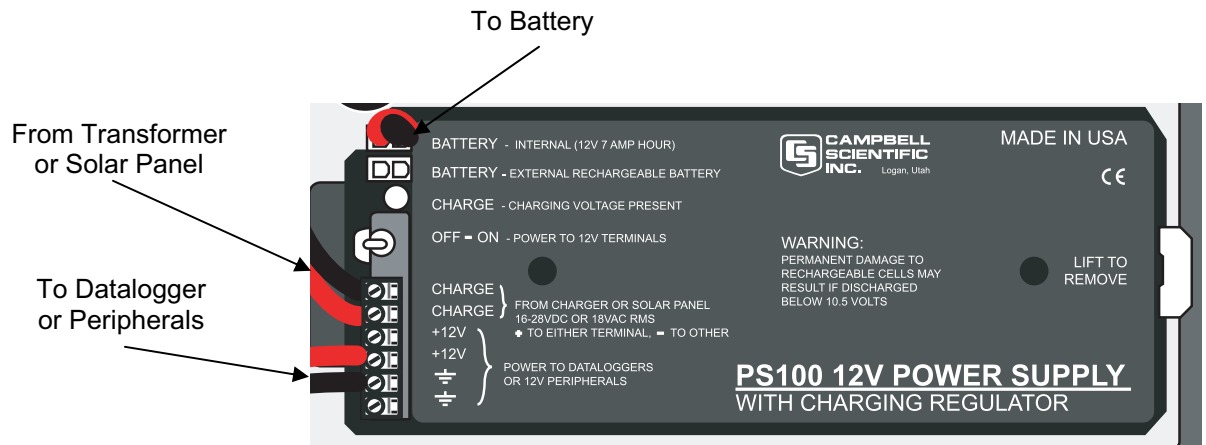


FIGURE 1. Wiring to Charger



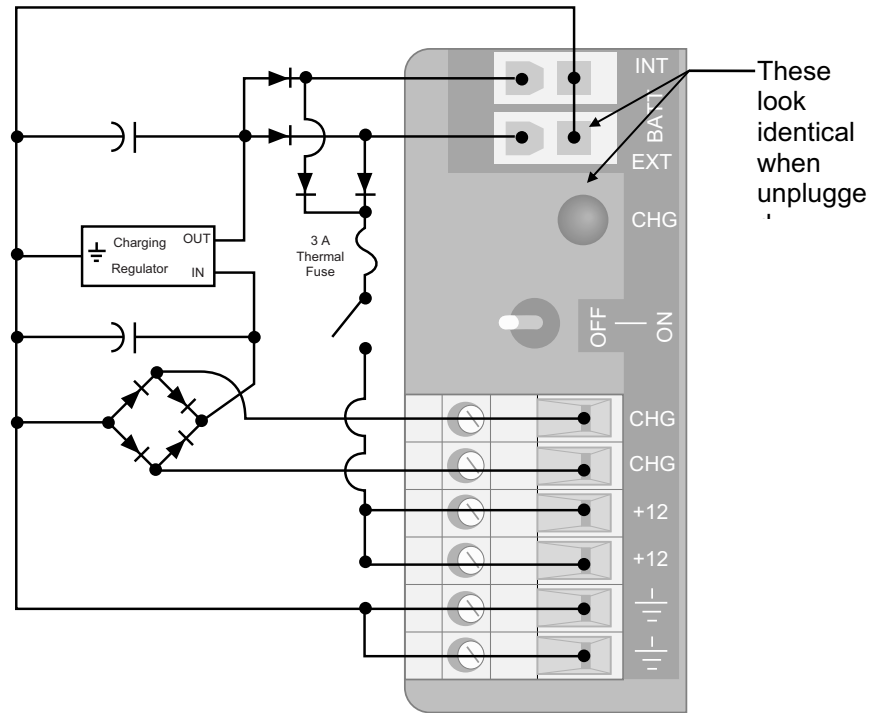


FIGURE 2. Simplified Charging Circuit Schematic

## 4. A100 Null Modem Adapter

The A100 has two 9-pin CS I/O ports 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.

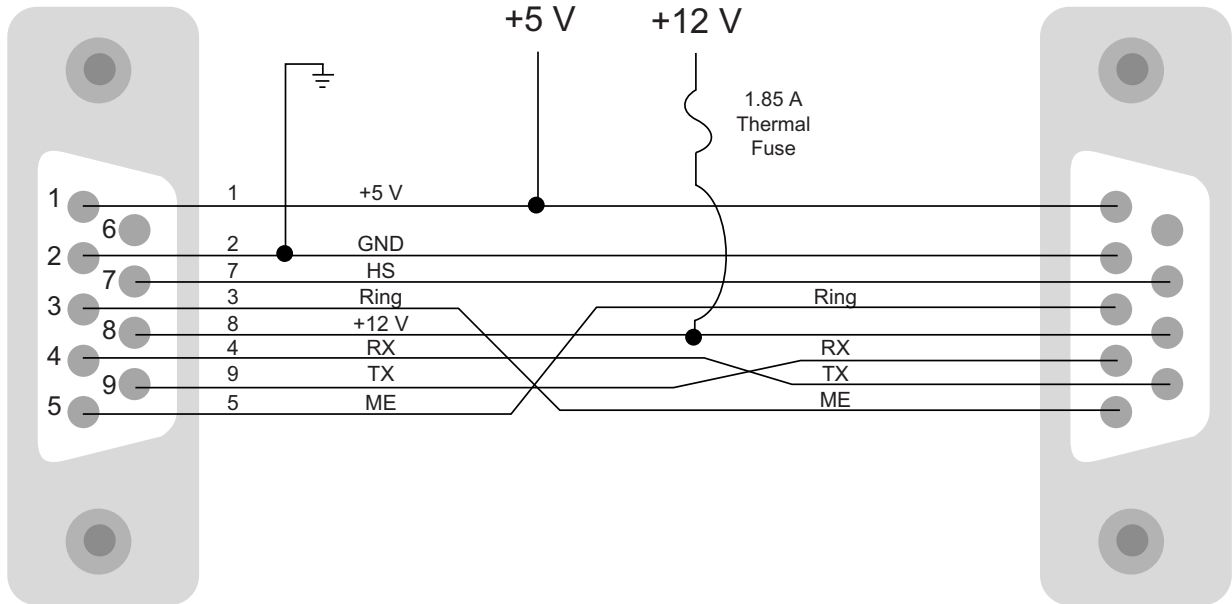


FIGURE 3. Null Modem Connections

## 5. A105 12V Terminal Expansion Adapter

The A105 adapter adds four 12-V terminals and four ground terminals to a CH100 or PS100 (see Figure 4). The extra terminals make it easier to wire multiple continuously powered 12-Vdc devices to the power supply.



FIGURE 4. A105 Adapter





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