



Optimized Power Performance

Manages voltage and amperage to protect battery

Overview

The PS150 and CH150 are smart charge controllers that manage amperage and voltage for safe, optimized battery charging from a solar-panel or ac power source. The PS150 includes a 12 Vdc,

7 Ah valve-regulated lead-acid (VRLA) battery, while the CH150 is for use with a separate larger battery such as our BP12, BP24, or a user-supplied battery.

Benefits and Features

- › Protects against high-amperage and high-voltage damage to power supply
- › Battery reversal protection
- › Allows simultaneous connection of two charging sources (e.g., solar panels, ac wall charger)
- › ETL listed Class 2 power supply

Technical Description

The PS150 and CH150 are micro-controller-based smart chargers with temperature compensation that optimize battery charging and increase the battery's life. Two input terminals enable simultaneous connection of two charging sources. They also incorporate a maximum power point tracking algorithm for solar inputs that maximize available solar charging resources.

The PS150 and CH150 have several safety features intended to protect the charging source, battery, charger, and load

devices. Both the SOLAR - G and CHARGE - CHARGE input terminals incorporate hardware current limits and polarity-reversal protection. A 5 A fuse protects the CHARGE - CHARGE inputs in the event of a catastrophic AC/AC or AC/DC charging source failure. A 4.65 A solid-state circuit breaker protects the 12 V output terminals of the charger in the event of an output load fault. The PS150 and CH150 also have battery-reversal protection, and include ESD and surge protection on all of its inputs and outputs.

Specifications

- › CE Compliant
- › Operational Temperature Range*: -40° to +60°C
- › Dimensions:

	Height	Length	Width
PS150	10.6 cm (4.2 in)	19 cm (7.5 in)	7.6 cm (3 in)
CH150	10 cm (3.9 in)	7.5 cm (3 in)	3.7 cm (1.5 in)

Battery Charging

- › FLOAT Charging: $V_{\text{batt}}(T) = 13.65 - (24 \text{ mV}) \times (T - 25) + (0.24 \text{ mV}) \times (T - 25)^2$
- › Accuracy: $\pm 1\%$ accuracy on charging voltage over -40° to +60°C

CHARGE – CHARGE Terminals (AC or DC Source)

- › AC: 18 to 24 VRMS internally limited to 1.2 ARMS
- › DC: 16 to 40 VDC internally limited to 1.2 A DC

*Applies to charger only. See battery specifications which may be more limited.
VRLA battery manufacturers state that "heat kills batteries" and recommend operating batteries $\leq 50^\circ\text{C}$.

SOLAR Terminals (Solar Panel or Other DC Source)

- › Input Voltage Range: 15 to 40 Vdc
- › Maximum Charging Current: 4.0 Adc typical; 3.1 Adc to 4.8 Adc depending on individual charger

Quiescent Current

- › No Charge Source Present: 160 μA at 13.7 Vdc
- › No Battery Connected: 930 μA at 30 V input voltage (ac or dc)

Power Out (+12 terminals)

- › Voltage: Unregulated 12 V from battery
- › 4.65 A solid state circuit breaker
- › ETL Listed Class 2 power supply

Ordering information

Power Supplies

- CH150** 12 V Charging Regulator.
PS150 12 V Power Supply with Charging Regulator and 7 Ah Sealed Rechargeable Battery.

12 Vdc Battery Packs for CH150

- BP12*** 12 V Sealed Rechargeable Battery with Mounts, 12 Ahr
BP17 12 V Sealed Rechargeable Battery with Mounts, 17 Ahr
BP24 12 V Sealed Rechargeable Battery with Mounts, 24 Ahr

*To special order only

Adapters

Only one adapter can be used at a time.

- A100** Null Modem Adapter for powering peripherals and external devices at non-datalogger sites such as repeater stations.
A105 12 V Terminal Expansion Adapter that increases the number of 12 V and ground terminals available on the PS100 or CH150.

Wall Chargers

- 004214** 100 to 240 VAC, to 24 VDC 1.67A "plug top" adaptor supplied with UK and Euro plugs.
004218/004219 230 V to 18 V wall-mountable AC-AC Adaptor (25 VA) for high-current applications. Please specify UK or Euro plug.

Unregulated Solar Panels

Regulated solar panels such as the SP10R are not recommended.

- SP10** 10 W Solar Panel with 5 m cable
SP30 30 W Solar Panel with 5 m cable

Spare battery, with leads, for PS150

- 006646** PS100, PS150, PS200 battery assembly

