



ETL-Listed Charging Regulator

Overview

The CH150 is a charging regulator for an external rechargeable 12 V VRLA (valve-regulated lead-acid) battery, such as the BP12 or BP24 offered by Campbell Scientific. Charging power for the CH150 is typically supplied by an unregulated solar panel, AC/AC transformer, or AC/DC converter. The CH150 provides

charging with temperature compensation for optimal charging and battery life. A maximum power point tracking algorithm is incorporated for solar inputs to maximize available solar charging resources.

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 panel, ac wall charger)
- › ETL listed Class 2 power supply

Detailed Description

The CH150 is a micro-controller-based smart charger with temperature compensation that optimizes battery charging and increases 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 maximizes available solar charging resources.

The CH150 has several safety features intended to protect the charging source, battery, charger, and load devices. Battery-reversal protection is included, as well as ESD and surge protection on all of the CH150 inputs and outputs.

The CH150 replaced the CH100.

Specifications

Operational Temperature -40° to +60°C (VRLA battery manufacturers state that "heat kills batteries" and recommend operating batteries at ≤ 50°C.)

Dimensions 7.5 x 3.7 x 10.0 cm (3 x 1.5 x 3.9 in.)

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 0.85 Adc)

SOLAR Terminals (Solar Panel or Other DC Source)

-NOTE- Battery voltages below 8.7 V may result in < 3.0 A current limit because of fold-back current limit.

Input Voltage Range 15 to 40 Vdc

Maximum Charging Current 4.0 Adc typical (3.2 to 4.9 Adc depending upon individual charger)

Quiescent Current

No Charge Source Present	160 μ A at 13.7 Vdc
No Battery Connected	930 μ A at 30 volt input voltage (ac or dc)

Battery Charging

-NOTE- The "T" represents temperature in degrees Celsius.

FLOAT Charging $V_{batt}(T) = 13.65 \text{ V} - (24 \text{ mV}) \times (T - 25) + (0.24 \text{ mV}) \times (T - 25)^2$

Accuracy $\pm 1\%$ (on charging voltage over -40° to $+60^\circ\text{C}$)

Power Out (+12 Terminals)

Voltage Unregulated 12 V from battery (4.65 A solid-state circuit breaker)

Standards ETL Listed Class 2 power supply

For comprehensive details, visit: www.campbellsci.com.au/ch150



Campbell Scientific Australia | 411 Bayswater Road | Garbutt, QLD 4814 | +61 (0)7 4401 7700 | www.campbellsci.com.au
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