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WHEN MEASUREMENTS MATTER

CH200 and PS200

Smart Charging Regulator and Power Supply

Optimized Power Performance

Manages voltage and amperage to protect battery

Overview

The PS200 and CH200 are charge regulators that manage amperage and voltage for safe, optimized battery charging from a solar-panel or ac power source. They also measure various input, output, and status parameters to allow close monitoring of the battery during charging and use. The PS200 includes a 12 Vdc valve-regulated lead-acid (VRLA) battery, while the CH200 is for use with a user-supplied battery (typically the BP12 or BP24).

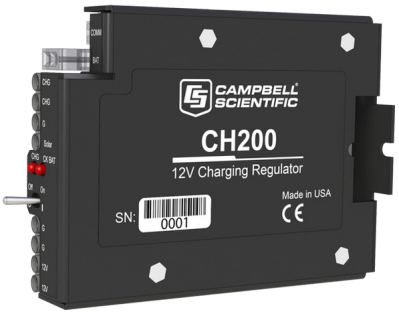
Benefits and Features

- Protects against high-amperage and high-voltage damage to power supply
- Ability to monitor both load and battery current
- Real-time measurements of charge input voltage, battery voltage, on-board temperature, battery current, and load current
- Battery reversal protection
- Two-step constant voltage charging and temperature compensation optimize battery charging and increase the battery's life
- Allows simultaneous connection of two charging sources (e.g., solar panel, ac wall charger)

Technical Description

The PS200 and CH200 are micro-controller-based smart chargers with two-step constant voltage charging and 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. RS-232 and SDI-12 terminals allow the PS200 and CH200 to convey charging parameters to a datalogger.

The PS200 and CH200 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 fail-safe, self-resettable thermal fuse protects the CHARGE – CHARGE inputs in the event of a catastrophic AC/AC or AC/DC charging source failure. Another self-resettable thermal fuse protects the 12 V output terminals of the charger in the event of an output load fault. The PS200 and CH200 also have battery-reversal protection, and include ESD and surge protection on all of its inputs and outputs.



Ordering Information

POWER SUPPLIES

CH200	12V Charging Regulator
PS200	12V Power Supply with Charging Regulator and 7Ahr Sealed Rechargeable Battery in carrier

CABLES (interface and external battery)

#20769	Datalogger SDI-12 Interface Cable, 60 cm
#25356	Datalogger RS-232 Pigtail Interface Cable, 60 cm
#20770	Computer 9-pin RS-232 Interface Cable, 1.8 m
006772	External Battery Cable (3 m)

ADAPTERS

A100	Null Modem Adapter
A105	12V Terminal Expansion Adapter

MAINS AC CHARGERS

AC-ADAPT	230V to 18V AC desktop adaptor
AC-ADAPT2	230V to 18V AC Wall-mountable adaptor

Please specify UK or Euro plug

SOLAR PANELS

SP5	5 W Solar Panel with 5 m cable
SP30	30 W Solar Panel with 5 m cable

BATTERY PACKS

BP12	12V Sealed Rechargeable Battery w/Mounts, 12 Ahr
BP17	12V Sealed Rechargeable Battery w/Mounts, 17 Ahr
BP24	12V Sealed Rechargeable Battery w/Mounts, 24 Ahr

Dimensions

BP12*	19.1 cm x 10.3 cm x 9.7 cm (with battery)
BP17	17 cm x 18.7 cm x 92 cm (with battery) 12.8 cm x 18.7 cm x 9.2 cm (without battery)
BP24	17 cm x 18.3 cm x 13.8 cm (with battery) 11.6 cm x 18.3 cm x 13.8 cm (without battery)

*Available as special order

Weights (with battery)

BP12	4.4 kg (9.8 lbs)
BP17	6.7 kg (14.7 lbs)
BP24	10.2 kg (22.4 lbs)

Specifications

CHARGE - CHARGE Terminals (AC or DC Source)

AC:	18 to 24V RMS with 1.2A RMS maximum
DC:	16 to 40V DC with 1.1A DC maximum

SOLAR - Terminals (Solar Panel or Other DC Source)[1]

Input Voltage Range:	15 to 40 V DC
Input Current Limit:	2.8A DC minimum 3.6A DC typical

Maximum Charging Current: 4.0 Adc typical;
3.2 Adc to 4.9 Adc depending on individual charger

Operational Temperature[2]: -40° to +60°C

Quiescent Current

No Charge Source Present:	300 µA maximum
No Battery Connected:	2 mA maximum

Dimensions

PS200:	10.6 x 19 x 7.6 cm (4.2 x 7.5 x 3 in.)
CH200:	10 x 7.5 x 3.7 cm (3.9 x 3 x 1.5 in.)

BATTERY CHARGING[3]

CYCLE Charging: Vbatt(T) = 14.70V – (24 mV) x (T – 25°C)

FLOAT Charging: Vbatt(T) = 13.65V – (18 mV) x (T – 25°C)

Accuracy: ±1% Accuracy on charging voltage over –40° to +60°C

POWER OUT (+12 terminals)

Voltage: Unregulated 12V from battery

4 A Self-Resettable Thermal Fuse Hold Current Limits

<20°C:	> 4 A
20°C:	4.0 A
50°C:	3.1 A
60°C:	2.7 A

MEASUREMENTS

Average Battery Voltage: ±(1% of reading +15 mV) over –40° to +60°C range

Average Battery/Load Current

Regulator Input Voltage[4]: ±(2% of reading +2 mA) over –40° to +60°C range

Solar[5]: ±(1% of reading - 0.25V) / -(1% of reading +1V) over –40° to +60°C range

Continuous[6]: ±(1% of reading - 0.5V) / -(1% of reading +2V) over –40° to +60°C range

Charger Temperature: ± 2°C

[1]Battery voltages below 8.7V may result in <3.0A current limit because of fold-back current limit.
[2]VRLA battery manufacturers state that "heat kills batteries" and recommend operating batteries ≤50°C.
[3] Two-step temperature compensated constant-voltage charging for valve-regulated lead-acid batteries. Cycle and float charging voltage parameters are programmable with the default values listed.
[4] Impulse type changes in current may have an average current error of ±(10% of reading + 2 mA).
[5]1.0V negative off set is worst-case due to reversal protection diode on input. Typical diode drop is 0.35V.
[6]2.0V negative off set is worst-case due to two series diodes in AC full-bridge. Typical diode drops are 0.35V each for 0.7V total.

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