

PROGRAMMABLE PWM PV CHARGE CONTROLLER

SBC-7000 Series

Description

The SBC-7000 Series PV charge controller is designed for use with all types of photovoltaic panels and different types of batteries, such as wet or sealed lead acid, lead calcium, lead antimony battery.

The MCU (Microprocessor controller) is programmed with 3 stage charging algorithms and with 0~100% PWM (Pulse Width Modulation) duty cycles to provide the fastest, optimal charging current and voltages from PV panels according to the actual state of charge and type of battery.

The 3 stage (Bulk, Absorption, Float) and *Equalization* charging cycles ensure complete charging cycles and maintenance of lead acid battery automatically.

Bulk and Float threshold charge voltage levels are user adjustable to meet specific battery manufacturer's recommendation.

*Equalization Charging is only for Wet type lead acid Battery, automatically cycles once a month for 2 hours.

Equalization Charging can be de-activated or re-activated manually.

Hence, maximum PV charging efficiency and longer the service life span of the battery are ensured.

Ampere Hour logging read outs in three sets, today and last two days are shown on the LCD. This is useful to check the condition of PV data for efficiency and actual capacity of your system.

Electronic Blocking of back current to PV and overcharging battery protection are standard.

Features

- User adjustable charging voltages.
- Suitable for all types of lead acid batteries.
- Microprocessor control PWM with 3 stage charging algorithms.
- Bulk, Absorption, Float stage, PV charging current, Battery voltage on LCD display.
- Ampere Hour logging read outs of 3 days.
- 5 state LED indications of battery levels with reference to PV voltage.
- Electronic Overcharge Protection & blocking current from battery to PV panel.
- Over Temperature Protection of controller's electronic circuit.
- 10 selectable Night Light programs.
- User defined battery low voltage disconnect and reconnect for load terminal.
- Optional remote temperature sensor for battery to provide precise right charging.
- Optional emote signal/control terminal for synchronization of unit's load terminal.

DC Output (for small DC load)

The DC output protects the battery from over- discharge with adjustable Low Voltage Disconnect (LVD), it also reconnects the load when battery voltage returns to Low Voltage Reconnect voltage (LVR), Both the LVD and LVR are user defined, allowing flexibility for wide range of battery and load conditions.

When unit is set to Night Light Mode, there are 10 selectable on-off programs each with different power-on durations and off settings catered for various on and off lighting needs. The unit makes use of the PV voltage at sun set and sun rise to activate of the selected lighting programs.

Optional Accessories

1. Optional Remote Control/Signal Terminal (factory installed)
It has RJ-45 socket which can:
 - A. provide a close circuit and open circuit conditions.
 - B. provide high/ low (12V,0V/0.1A) signal.
Both A and B remotely controls the On/ Off operation of equipment such as inverter connected to the battery bank according to the Night Light Mode setting and LVD/ LVR protection as well.
 - C. makes extended connection of the battery status LED (Red and Green) for remote monitoring of the battery conditions.
2. Remote temperature sensor (1.8m wire length) to adjust charging voltages according to the temperature at the battery banks.

General Specifications

Electronic Blocking	Yes (To protect against reverse polarity connection of PV panel and to block current from battery to PV panel when voltage of battery is higher than PV panel)
Protections	Battery Reverse Polarity Protection, Over Charge/ Discharge Protection, Over Temperature Protection
Battery Status LED Indication	5 State LED Indications
Charging Status LCD Indication	3 State LCD Indications
Recommended Wire Size	#12AWG (for SBC-7108, 7112, 7208, 7212) #10AWG (for SBC-7120, 7130, 7220, 7230)
Approvals	CE EN 55014 (for SBC-7108, 7112, 7120) CE EN 55014, 60335, 62233 (for SBC-7130, 7208, 7212, 7220, 7230)
Dimension (WxHxD)	150x85x45 mm 5.9x3.3x1.8 inch
Weight	470 g 16.5 oz (for SBC-7108, 7112, 7120, 7208, 7212, 7220) 480 g 17.0 oz (for SBC-7130, 7230)
Operating Ambient Temperature	-10°C to 50°C

* All values are based on the Standard ambient Temperature 25°C and Pressure 0.1Mpa.

* SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

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Specifications

Models	SBC-7108	SBC-7112	SBC-7120	SBC-7130
Battery Voltage	12VDC			
Maximum PV Panel Open Circuit Voltage	26VDC			
Continuous Load/ Charge Current	≤8A	≤12A	≤20A	≤30A
Maximum Charge Current (5 minutes)	≤10A	≤15A	≤25A	≤35A
Maximum Load Current (5 minutes)	≤10A	≤20A	≤25A	≤35A
Operating Current (no load and no PV)	≤30mA			
Voltage Across Terminal (PV to Battery)	≤0.6V	≤0.6V	≤0.8V	≤1.2V
Voltage Across Terminal (Battery to PV)	≤0.3V	≤0.3V	≤0.5V	≤0.8V
Fuse	15A	20A	30A	40A
Battery Charging Float Voltage Setting (12-15VDC)	Factory Preset 13.4VDC			
Battery Charging Bulk Voltage Setting (12-16VDC)	Factory Preset 14.3VDC			
DC Load Control Mode (for DC load terminal)				
Low Voltage Disconnect (LVD) 9-15VDC	Factory Preset 11.5VDC			
Low Voltage Reconnect (LVR) 10-16VDC	Factory Preset 12.5VDC			

Models	SBC-7208	SBC-7212	SBC-7220	SBC-7230
Battery Voltage	24VDC			
Maximum PV Panel Open Circuit Voltage	52VDC			
Continuous Load/ Charge Current	≤8A	≤12A	≤20A	≤30A
Maximum Charge Current (5 minutes)	≤10A	≤15A	≤25A	≤35A
Maximum Load Current (5 minutes)	≤10A	≤20A	≤25A	≤35A
Operating Current (no load and no PV)	≤15mA			
Voltage Across Terminal (PV to Battery)	≤0.8V	≤0.6V	≤0.8V	≤1.2V
Voltage Across Terminal (Battery to PV)	≤0.5V	≤0.3V	≤0.5V	≤0.8V
Fuse	15A	20A	30A	40A
Battery Charging Float Voltage Setting (18-30VDC)	Factory Preset 27.0VDC			
Battery Charging Bulk Voltage Setting (24-32VDC)	Factory Preset 28.6VDC			
DC Load Control Mode (for DC load terminal)				
Low Voltage Disconnect (LVD) 18-30VDC	Factory Preset 23.0VDC			
Low Voltage Reconnect (LVR) 20-32VDC	Factory Preset 25.0VDC			

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