

# 3 Stage Lead-Acid Battery Charger with 2 Stage Charger / Power Supply Mode

## SBC - 2130(30A) / 2140(40A) / 2150(50A) 12VDC Series

### Description

This series of switching mode 3 stage (IUoU) chargers is designed for wet, sealed (RVLA), calcium-calcium, gel in both SLI (car) and deep cycle type of lead acid batteries.

The 4 selections of absorption charge voltages and 3 float charge voltage allow a total of 12 combinations of charging profile to cover various type of lead acid batteries.

Each charger comes with a remote temperature sensor so that the charger can operate accurately over a wide range of ambient temperature preventing over or under charging the battery.

It also has an automatic soft- start bulk charge with low constant current for deeply discharged battery of less than 10.5V open circuit voltage. This is to protect the battery from high initial current surge and the battery charger as well. The maximum charge time is limited to 11 hours to avoid over charging .

The unique selectable Power Supply/Charger Mode provides a nominal 12VDC source (per chosen float voltage) for external load and at the same time not to over charge the battery but keeping the battery fully charged. It is ideal for caravan& other battery back up applications.

With the optional remote control panel, status of the charging( Bulk, Absorb, Float ) can be monitored, output on /off and terminals can be selected remotely as well.

The streamline, low profile anodized aluminum casing, efficient switching mode circuit design and variable speed fan make it a super quiet and cool running charger and power supply.

In addition to the standard short circuit, over temperature, reverse polarity protections, it has an OVP (output over- voltage protection) to ensure complete protection of your battery and connected load.

### Zero Voltage Switching

Traditional high frequency SMPS, which rely on generating an AC waveform in the range of 100 kHz to 200 kHz to drive the main power transformer, have used power transistors to "hard-switch" the unregulated input voltage. During the switching interval, there is a finite period as the transistor begins to conduct current while the voltage begins to drop. This simultaneous presence of voltage across the transistor and current through it means that power is being dissipated within the device. In our high current battery chargers, we use the Zero Voltage Switching (ZVS) technology for power conversion.

ZVS uses circuit resonance to make the transistors switch at a voltage level close to zero, this cuts down radio frequency noise and the stress in the components. The voltage across all the transistors will drop to zero before the circuit turns on and current starts to flow. So the power dissipated by the power transistors during the switching period is greatly reduced by 90%, which leads to 2% improvement in the power supply overall efficiency.

Reducing the power lowers the transistor junction temperature, increases thermal operating margins and, hence, provides a longer life for the power supply. Not only does a ZVS power supply generate significantly less electrical noise, it achieves greater efficiency, and higher immunity to the effects of other equipment operating nearby.

This power supply is therefore specifically suitable for in-vehicle, communication, and in applications where low Radio Frequency Interference is a must.



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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### Features

- \*\* 3 Stage (IUoU) Switching Mode Lead Acid Battery Charger
- \*\* 4 Selectable Bulk Absorption Charge Settings  
For Gel, AGM, Wet and Ca-Ca lead acid battery.
- \*\* 3 Selectable and independent Float Voltage Settings  
A total of 12 combinations of adaptive 3 Stage Charging profiles for all types of VRLA (sealed) and Wet lead acid, SLI(car) and Deep Cycled lead acid battery.
- \*\* Battery can be connected to charger indefinitely.
- \*\* Automatic Soft Start Bulk Charge for deeply exhausted battery  
To ensure safe and gentle charging of heavily depleted deep cycle battery and car battery.
- \*\* Supplied with remote temperature sensor  
To prevents over-charging or under-charging battery at high/low ambient temperature
- \*\* Dual LED indicators for Bulk, Absorption, Float, Fault and Power-On .
- \*\* Optional Remote Control Panel with charging status LED & output on/off control
- \*\* Dual Banks for simultaneous charging of two batteries.  
Two positive charging outputs.
- \*\* Power On Off Switch  
This is handy especially in the Charger/Power Supply Mode.
- \*\* Charger/Power Supply Mode  
When switched to the Charger/Power Supply Mode, it can be used as constant voltage power supply (according to the selected Float voltage: 13.2/13.5/13.8V) or as a charger/power supply when connected to a battery and external load in parallel .
- \*\* Silent fan cool operation  
The variable speed (zero to full speed) thermostatic control fan is on at 45°C then full speed at 50°C and off at 40°C to ensure silent operation .
- \*\* Protections to the charger  
Short Circuit, Over Load, Over Temperature, Reversed Polarity(fused) and 11 hour maximum charging time.
- \*\* Protection to the battery and load  
The OVP protects the load and battery from excessive over- voltage at the charger output.
- \*\* Wide Input Tolerance for fluctuating mains voltage  
It can operate even from 90V to 264V.

### Specifications

	SBC - 2130	SBC - 2140	SBC - 2150
AC Input Voltage 100-240V, 50Hz/60Hz~	Yes	Yes	Yes
AC Input Current at full load at 100/230Vac	5.9/2.6A	7.5/3.2A	9.4/4.0A
Output (Charge) Voltage Selections :			
Absorption Voltage for GEL battery (14.0V to 14.2V)	Yes	Yes	Yes
Absorption Voltage for AGM battery (14.2V to 14.4V)	Yes	Yes	Yes
Absorption Voltage for WET battery (14.3V to 14.5V)	Yes	Yes	Yes
Absorption Voltage for Calcium-Calcium battery (15.4V to 15.6V)	Yes	Yes	Yes
Float Voltage 1 (13.2V)	Yes	Yes	Yes
Float Voltage 2 (13.5V)	Yes	Yes	Yes
Float Voltage 3 (13.8V)	Yes	Yes	Yes
Maximum Output Charging Current (Continuous)	30A	40A	50A
Soft Start Bulk Charge :			
Battery Voltage to Trigger (cut-in) Soft Start Bulk Charge Mode	< 10.5V	< 10.5V	< 10.5V
Soft Start Bulk Charge Current Level (Current Limit)	10A	10A	10A
Line Regulation (90V to 260V) for Charging Current	<0.3%	<0.3%	<0.3%
Ripple and Noise (Peak to Peak)	< 150mV	< 150mV	< 150mV
Efficiency at Maximum Power (100/230V)	> 83/87%	> 83/87%	> 83/87%
Selectable Charger / Power Supply Mode (13.2 / 13.5 / 13.8V)	Yes	Yes	Yes
Dual Banks (Outputs) Simultaneously Charging two Batteries (The two batteries must be of same chemistry, construction & type.)	Yes	Yes	Yes
Protection :			
Overload Protection	Yes	Yes	Yes
Short Circuit Protection	Yes	Yes	Yes
Reverse Polarity Protection (Fused)	Yes	Yes	Yes
Over Temperature Protection	Yes	Yes	Yes
OVP (Output Over Voltage Protected)	Yes	Yes	Yes
Thermostatically Controlled Variable Speed Fan (0 to full speed)	Yes	Yes	Yes
CE Approvals and Standard (EN 55014, EN 60335, EN 50366)	Yes	Yes	Yes
Charge Cycle, Protection Indication :			
Separate LED for Bulk, Absorption, Float and Fault Mode	Yes	Yes	Yes
Power ON-OFF LED Indicator	Yes	Yes	Yes
Power ON-OFF Switch	Yes	Yes	Yes
Remote Control & Temperature Sensor Socket	Yes	Yes	Yes
Anodized Aluminum Casing with Mounting Flange	Yes	Yes	Yes
Size in mm (Width x Height x Depth)	220x80x200mm	220x80x250mm	220x80x261mm
Weight in Kg	2.4kg	2.8kg	3.2kg
Included Accessories (Cable, Spare Fuse, Remote Temperature Sensor)	Yes	Yes	Yes
Optional Accessories (Remote Control Panel)	Not Included	Not Included	Not Included
Recommended Battery Capacity Range	100AH to 300AH	120AH to 400AH	150AH to 500AH

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