

SWITCH MODE SMART BATTERY CHARGER

USER MANUAL

Important Information!

Thank you for purchasing the multi-stage Smart Battery Charger. Please read this instruction manual carefully before operating the device. Keep this manual in a safe place for future reference. This instruction manual is part of the product. It must be handed over along with the device if it is passed on to a third party.

SWITCH MODE SMART BATTERY CHARGER

Introduction

This compact smart multi-stage battery charger uses the latest switch-mode technology and is designed particularly to charge lead-acid batteries and LiFePO4 batteries to their best level. The multi-stage charging algorithm delivers a much faster, efficiency and full charge without the issue of voltage drops. Thanks to the boost-charging feature, this helps activate the battery status and wake up a weak or flat battery to a suitable recharging level. This also improves the charge delivered to your battery, increasing battery life and saving on premature battery failure.

This smart battery charger is equipped with a selector which allows you to set the charger for charging SLA/GEL/AGM/Flooded/Calcium lead-acid batteries and LiFePO4 batteries. The smart battery charger can be used as a constant power supply to run accessories that require stable and clean DC voltage. For safety reasons, the input and output of the charger are completely isolated and the batteries are protected for overcharged. The cooling fan is thermal controlled. It will switch on and off automatically to control the internal temperature of the unit.

Warning!

Risk of electric shock! Do not open the device if it has been connected to the AC power source. This device has been CE tested and conforms to the applicable directives and standards.

Instruction and normal responses

Operation as Charger under standard charging mode

Select the switch to position Sand select dip switch No. 1-5 to get the optimum charge to suit your battery specification. Connect the AC input cable to the utility. Connect the battery to the DC output. Turn On the Power switch, the "POWER ON" LED lights up. This indicates the device is ready for charging. The "BULK" LED lights up. This means the battery charger is beginning at the first stage of charging

The 1st stage is to ensure battery is always charged at the maximum charging condition. This is to boost up the charging cycle and particularly wake up a weak battery to absorb energy.

At the 2nd stage the charger will switch to "ABSORPTION" mode, The charger is delivering constant voltage to the battery with reduced current.

At the 3rd stage the battery has been charged to about 90% of its rated capacity. The "ABSORPTION" LED goes out and the "FLOAT" LED lights up. The charging current IS decreased and the charging voltage is held at a constant level. Battery is now under "FLOAT" constant charging.

Operation as Charger under LiFePO4 Charging Mode

Select the switch to position Land set dipswitch to charge LiFePO4 battery.

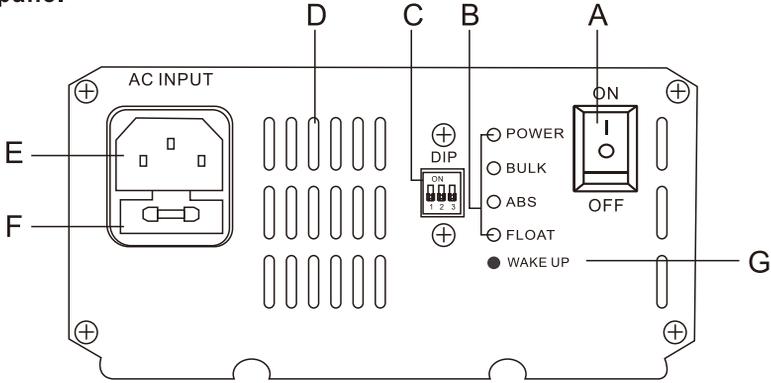
Operation as Power Supply

Select the switch to position P, the device now operates as a power supply unit. The Bulk and Absorption LED goes out. Select dip switch No. 6 for constant Voltage.

SWITCH MODE SMART BATTERY CHARGER

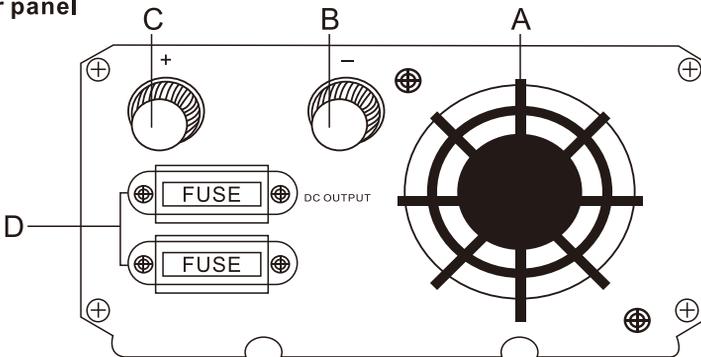
Part Description

Front panel



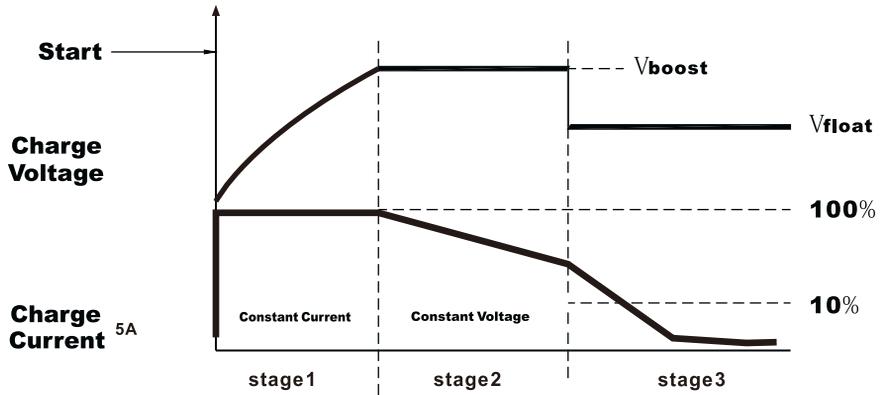
A	Main Switch
B	Power and charge stage indicator LED
C	dip switch change to the correct battery type
D	Ventilation Slots DAC Power Input Socket
E	AC Power Input Socket
F	AC Fuse
G	Wake up the battery

Rear panel



A	Cooling Fan
B	DC Output Negative Terminal (Black)
C	DC Output Positive Terminal (Red)
D	DC Output Protection Fuses

• Charging Curve



Three-stage Charging

Stage	Description
Stage 1: Bulk charge (Constant current)	Current is supplied to the battery at a constant rate while voltage gradually rises.
Stage 2: Absorption Charge (Constant voltage)	Voltage remains constant and current reduces as the battery becomes charged. This ensures complete charging.
Stage 3: Float Charge	After the battery reach full charge, charging voltage is reduced to a lower level to prevent gassing and to a lower level to prevent gassing and to prolong life. This stage is often referred to as a maintenance. Rather than charging a battery, it keeps an already-charged battery from discharging while providing load current.

Operating Instructions

Step I. Connecting the charger to the battery

1. Set the ON/OFF switch to OFF position.
2. AC power cord must be unplugged.
3. Connect the black cable to the black post marked (+) on the Battery Side of the charger.
Connect the other end to the negative terminal on the battery post
4. Connect the red cable to the red post marked (+) on the Battery Side of the charger.
Connect the other end to the positive terminal on the battery post.

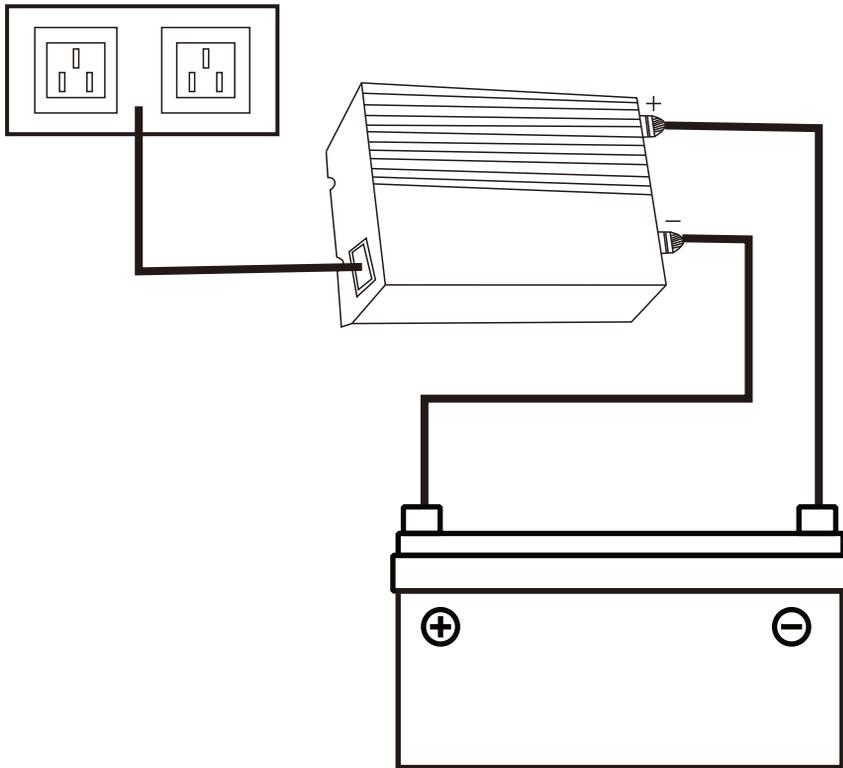
Step2. Turning the charger on

5. Connect the AC power cord to Battery and AC outlet.
6. Turn the ON /OFF switch to ON position.

Step3. Turning the charger off

7. Unplug the AC power cord from the outlet.
8. Set the ON/OFF switch to OFF position.
9. Remove charger clip connected away from battery

Regular connect for charger to battery



SWITCH MODE SMART BATTERY CHARGER

• Charging Setting

12V Charger Setting				
Setting	Dip switch	Bulk/Absorption	Float	Battery Type
L	 SW 0	14.6V		LiFePO4
S	 SW 1	14.8V	13.8V	Flooded
	 SW 2	15.0V	13.8V	Calcium
	 SW 3	14.6V	13.6V	AGM
	 SW 4	14.4V	13.4V	SLA
	 SW 5	14.2V	13.2V	GEL
Power Supply Mode, Constant Voltage Setting				
P	 SW 6	13.8V		
	 SW 7	12.0V		
24V Charger Setting				
Setting	Dip switch	Bulk/Absorption	Float	Battery Type
L	 SW 0	29.2V		LiFePO4
S	 SW 1	29.6V	27.6V	Flooded
	 SW 2	30.0V	27.6V	Calcium
	 SW 3	29.2V	27.2V	AGM
	 SW 4	28.8V	26.8V	SLA
	 SW 5	28.4V	26.4V	GEL
Power Supply Mode, Constant Voltage Setting				
P	 SW 6	26.7V		
	 SW 7	24.7V		

SWITCH MODE SMART BATTERY CHARGER

36 V Charger Setting				
Setting	Dip switch	Bulk/Absorption	Float	Battery Type
L	 SW 0	43.8V		LiFePO4
S	 SW 1	44.4V	41.4V	Flooded
	 SW 2	45V	41.4V	Calcium
	 SW 3	43.8V	40.8V	AGM
	 SW 4	43.2V	40.2V	SLA
	 SW 5	42.6V	39.6V	GEL
Power Supply Mode, Constant Voltage Setting				
P	 SW 6	41.4V		
	 SW 7	36V		

48V Charger Setting				
Setting	Dip switch	Bulk/Absorption	Float	Battery Type
L	 SW 0	58.4V		LiFePO4
S	 SW 1	59.2V	55.2V	Flooded
	 SW 2	60.0V	55.2V	Calcium
	 SW 3	58.4V	54.4V	AGM
	 SW 4	57.6V	53.6V	SLA
	 SW 5	56.8V	52.8V	GEL
Power Supply Mode, Constant Voltage Setting				
P	 SW 6	55.2V		
	 SW 7	48.0V		

SWITCH MODE SMART BATTERY CHARGER

Safety Operation

- A. The device is for indoor use, do not use the device near flammable materials.
- B. Appliance shall only be used with rated voltage and frequency.
- C. If cables have to be fed through walls with sharp edges, always use tubes or ducts to prevent damage.
- D. Children should be supervised to ensure that they do not play with the device
- E. Do not allow water to drip or splash on the device.
- F. Make sure the air inlets and outlets of the device are not covered.
- G. Do not reverse the polarity of the connection to the battery.
- H. Do not charge non-rechargeable batteries.
- I. Disconnect the supply before making or breaking the connections to the battery.

Caution! Hot surface when operating at full load condition.

Trouble shooting

Status	Possible cause	Suggest remedy
No DC output or charger can't startup	No AC input.	Check the AC power source .
	Overheats shutdown..	Allow the device t cool down.
	Bad contact of battery terminal.	Check the connection between charger and battery.
Output short circuit.		
Battery charging not stable	AC Input voltage is not stable.	Check input AC voltage if it is within the input voltage range.
	Dip switch setting do not match battery type.	Select suitable charging voltage.
Charger cannot switch to "FLOAT"	Battery cable connected to the battery is too thin.	Change cable of proper size.
	Battery in poor condition.	Replace new battery.

Warranty

Only covers the cost of parts and labor for the repair service within the warranty period
 Warranty will not apply where the device has been misused, altered, neglected, improperly installer or physically damaged, either internally or externally or damaged from proper use or use in an unsuitable environment. We shall not be liable for damages, whether direct, incidental, special, or consequential. or economic loss even though caused by negligence, or another fault.
 If the device requires warranty service, please return it to the place of purchase along with a copy of the receipt with purchasing date

Disposal

When the device has become unusable, dispose of it in accordance with the applicable disposal regulations

SWITCH MODE SMART BATTERY CHARGER

Specifications

12V BATTERY MODE

Model	BC1210	BC1215	BC1220	BC1225	BC1230	BC1240	BC1250	BC1260	BC1270	BC1280	BC12100
Input Voltage	90-130VAC-60Hz / 200-260 VAC-50Hz										
Bulk/Absorption Charging	14.2-15.0V DC										
Float Charging	13.2-13.8V DC										
LiFePO4 Charging	14.6V DC										
DC output current	10A	15A	20A	25A	30A	40A	50A	60A	70A	80A	100A
Efficiency	Max.88%										
Operating temperature	0-40°C										
Ventilation	Cooling fan, thermal control										

24V BATTERY MODE

Model	BC2405	BC2410	BC2415	BC2420	BC2425	BC2430	BC2440	BC2450
Input Voltage	90-130VAC-60Hz / 200-260 VAC-50Hz							
Bulk/Absorption Charging	28.4-30.0V DC							
Float Charging	26.4-27.6V DC							
LiFePO4 Charging	29.2V DC							
DC output current	5A	10A	15A	20A	25A	30A	40A	50A
Efficiency	Max.88%							
Operating temperature	0-40°C							
Ventilation	Cooling fan, thermal control							

SWITCH MODE SMART BATTERY CHARGER

36V BATTERY MODE

Model	BC3605	BC3610	BC3615	BC3620	BC3625	BC3630
Input Voltage	90-130VAC-60Hz / 200-260 VAC-50Hz					
Bulk/Absorption Charging	42.6-45.0V DC					
Float Charging	39.6-41.4V DC					
LiFePO4 Charging	43.8V DC					
DC output current	5A	10A	15A	20A	25A	30A
Efficiency	Max.88%					
Operating temperature	0-40°C					
Ventilation	Cooling fan, thermal control					

48V BATTERY MODE

Model	BC4805	BC4810	BC4815	BC4820	BC4825
Input Voltage	90-130VAC-60Hz / 200-260 VAC-50Hz				
Bulk/Absorption Charging	56.8-60.0V DC				
Float Charging	52.8-55.2V DC				
LiFePO4 Charging	58.4V DC				
DC output current	5A	10A	15A	20A	25A
Efficiency	Max.88%				
Operating temperature	0-40°C				
Ventilation	Cooling fan, thermal control				