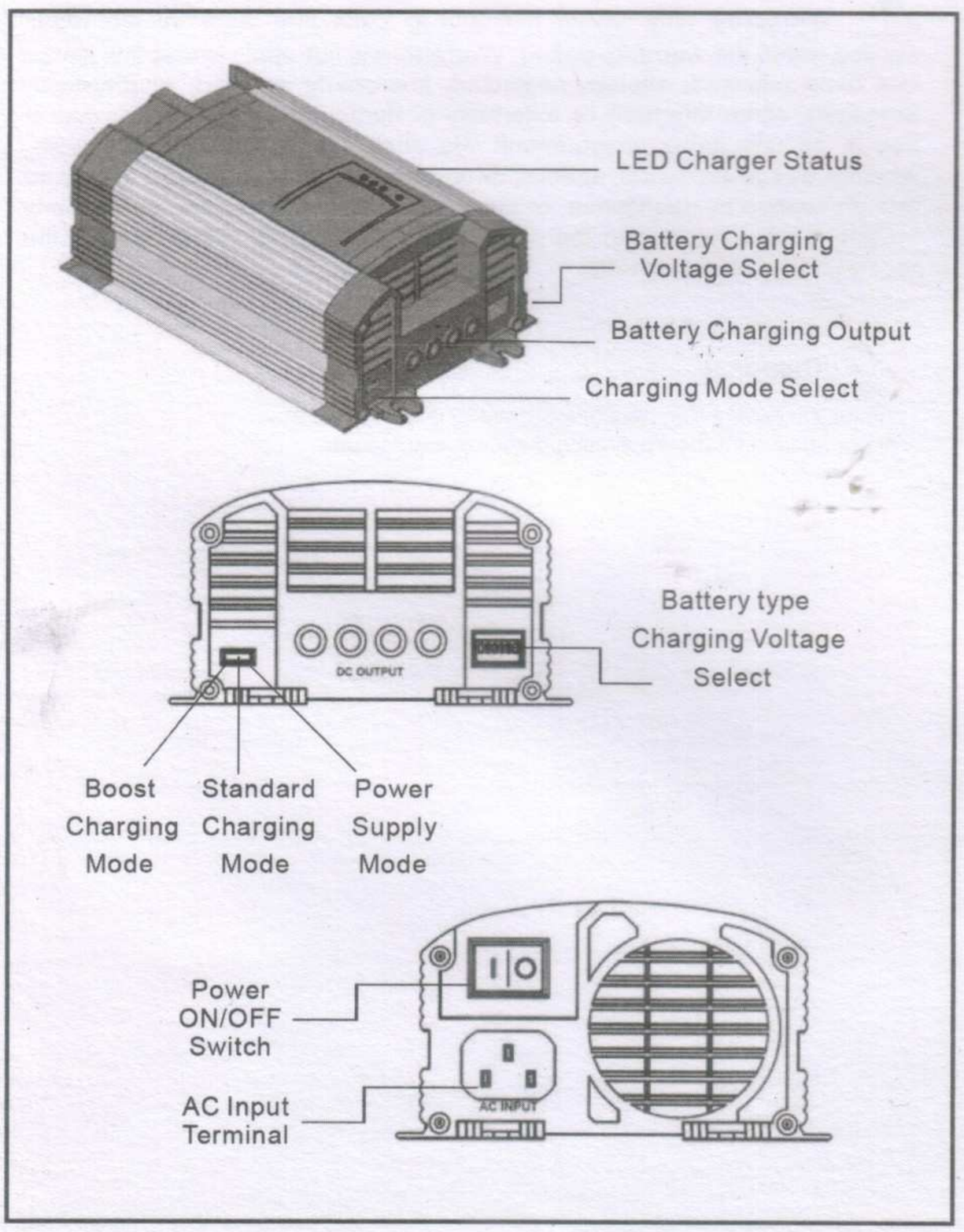
POWERTECH

Switch Mode
Multi-stage
Smart Battery Charger

MB-3710
MB-3715

INSTRUCTION MANUAL

Please read this instruction manual carefully before operating the device.



Important Information!

Thank you for purchasing the four-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.

Introduction

This compact smart four-stage battery charger uses the latest switch-mode technology and is designed particularly to charge lead-acid batteries in dual battery system to their best level. The four-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 equipped with a selector which allows you to set the charger for charging SLA / GEL / AGM / WET / Calcium lead-acid batteries. The smart battery charger can be used as a constant power supply to run accessories that require a 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.

Specification

Model	MB-3710
Input Voltage	220-240VAC ~50Hz
Bulk / Absorption Charging	14.2V / 14.6 V / 14.8VDC (selectable)
Float Charging	13.2V / 13.5V / 13.8 VDC (selectable)
Max. DC output current	15A
Suggest battery capacity	10-150AH
Output ripple	< 50mA at full load
Efficiency up to	88%
Load regulation	1.5% at output current: no load to full load
LED Display	Green-Charger On, Green-Float , Yellow-Absorption, Red-Bulk
Isolated DC output	2
Ventilation	Cooling Fan, thermal controlled
Operating temperature	0 - 40°C
Dimensions (mm)	180x145x80
Weight (kg)	1.1

MODEL	MB-3715
Input Voltage	220-240VAC ~50Hz
Bulk / Absorption Charging	14.2V / 14.6 V / 14.8VDC (selectable)
Float Charging	13.2V / 13.5V / 13.8 VDC (selectable)
Max. DC output current	40A
Suggest battery capacity	30-400AH
Output ripple	< 50mA at full load
Efficiency up to	88%
Load regulation	1.5% at output current: no load to full load
LED Display	Green-Charger On, Green-Float , Yellow-Absorption, Red-Bulk
Isolated DC output	2
Ventilation	Cooling Fan, thermal controlled
Operating temperature	0 - 40°C
Dimensions (mm)	280x145x80
Weight (kg)	1.7

Specifications subject to change without notice.

Battery Type and Charging Voltage Dipswitch Setting

Dip-SW No.	Bulk / Absorption Charging			Float Charging			Power Supply Mode		
1	ON	OFF	OFF						
2	*	ON	OFF						
3	*	*	ON						
4				ON	OFF	OFF	ON	OFF	OFF
5				OFF	ON	OFF	OFF	ON	OFF
6				OFF	OFF	ON	OFF	OFF	ON
12V Output	14.8	14.6	14.2	13.8	13.5	13.2	13.8	13.5	13.2

Note: Dipswitch No. 1, 2 and 3 are switched off automatically (regardless it is on/off) when device is selected under Power Supply mode.

Battery Type	Dip Switch Setting	Float Charging 12V	Bulk / Absorption Charging 12V
SLA / GEL	SW 3, 6 ON, SW 1,2,4,5 Off	13.2 V	14.2 V
AGM	SW 2, 5 ON, SW 1,3,4,6 Off	13.5 V	14.6 V
Flooded / Calcium	SW 1, 4 ON, SW 2,3,5,6 Off	13.8 V	14.8 V

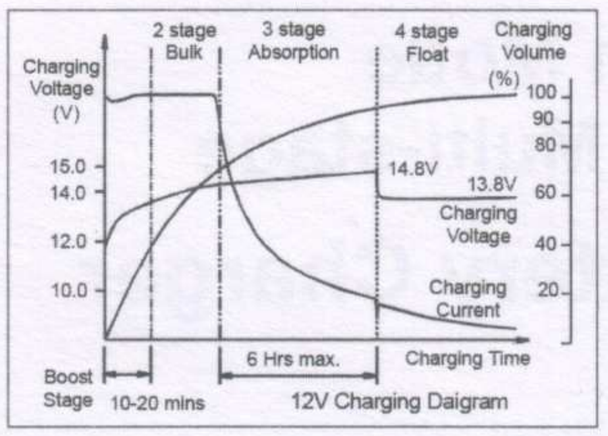
Caution!

1) The device is for indoor use, do not use the device near flammable materials or in any location that may accumulate flammable fumes or gasses.
2) Appliance shall only be used with rated voltage and frequency
3) Hot surface when operating, especially at full load condition.
4) Make sure the polarity is correct
5) Do not locate the device on the top of the battery. Especially Flooded, Wet type battery. It may generate gas vapor while charging.
6) Do not charge non-rechargeable batteries.
7) Use the appliance only in the described manner.
8) Do not expose the device to a heat source, such as direct sunlight or heating.
9) Store the device in a dry and cool place
10) Do not open, no user serviceable parts inside.

Instruction and normal responses

Operation as Charger under standard charging mode

Adjust the battery type charging voltage select dipswitch No. 1,2 and 3 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 1st 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.

After 10-20 mins, the charger will switch to 2nd stage, the "BULK" LED remains ON, the battery is charged at the maximum current to the battery.

At the 3rd stage, the charger will switch to "ABSORPTION" mode, the red LED goes out and the yellow LED lights up. The charger is delivering constant voltage to the battery with reduced current.

At the 4th 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. The "FLOAT" charging voltage can be set by the dipswitch No. 4, 5 and 6.

Operation as Charger under Boost Charging Mode

The device can be set by the charging mode select for Boost charging. It is help to wake up a low voltage battery to a suitable recharging level. At boost charging mode, the charger is delivering maximum voltage to boost up the battery and it will switch to "standard charging mode" automatically after 10-15 mins.

Operation as Power Supply

Set the charging mode select to Power Supply Mode, the device now operates as a power supply unit. The Bulk and Absorption LED goes out. Switch No. 1,2 and 3 are now disabled. The Power Supply output voltage can be adjusted by the dipswitch No. 4,5 and 6.

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 to 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 installed, or physically damaged, either internally or externally or damaged from improper 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 other 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.

Safety operation!

A. If cables have to be fed through walls with sharp edges, always use tubes or ducts to prevent damage.
B. Do not pull on the cable, fasten the device and cable securely. Lay the cable so that it cannot be tripped over.
C. Ensure the device is standing firmly that it cannot tip over or fall down.
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. Operate the device only if you are certain that the housing and the connection cables are undamaged.
H. Do not reverse the polarity of the connection to the battery.
I. Disconnect the supply before making or breaking the connections to the battery.
J. WARNING! Risk of Electric Shock! Do not open the device if connected to AC power.