Motobatt MBRC35 3500mA Smart Charger User manual

About Motobatt MBRC35 3500mA Smart Charger.

The Motobatt MBRC35 3500mA Smart Charger represents one of the most simple and easy to use charger technologies in the market. Select your method of charge by simply toggling to the correct voltage and chemistry, select and the clear indicator lights give real time charging status. This is one of the safest and most effective chargers you will use. MBRC35 3500mA Smart Charger is designed to charge all types of 6 V and 12 lead-acid batteries, including wet (Flooded), Gel, MF (maintenance-free), EFB (Enhanced Flooded Battery), AGM (Absorbed Glass Mat) and lithium batteries. It is suitable for charging batteries up to 60 ampere and supports all battery sizes.

IMPORTANT NOTE:

Please read and understand the following product information carefully before using the charger! Failure to follow instructions may lead to electric shock, explosion or fire, or even serious personal injury. damage to equipment or property.

Check battery manufacturer specifications before using this charger

Explosive gas may escape from the battery when charged. Provide ventilation to prevent flames and sparks. Do not expose the charger to sunlight and high temperature.

Battery acid is corrosive. If the acid is in contact with the skin or eyes, rinse immediately with water.

Do not charge frozen or damaged batteries. Do not attempt to charge non-chargable batteries.

Do not place the charger on the battery when charging.

Be particularly careful to reduce the risk of falling metal tools onto the battery. It may cause or short circuit.

When using lead-acid batteries, remove personal metal items such as rings, bracelets, necklaces, watches, etc.

Do not smoke or produce sparks or flames when charging.

To reduce the risk of electric shock, unplug the charger from the AC socket

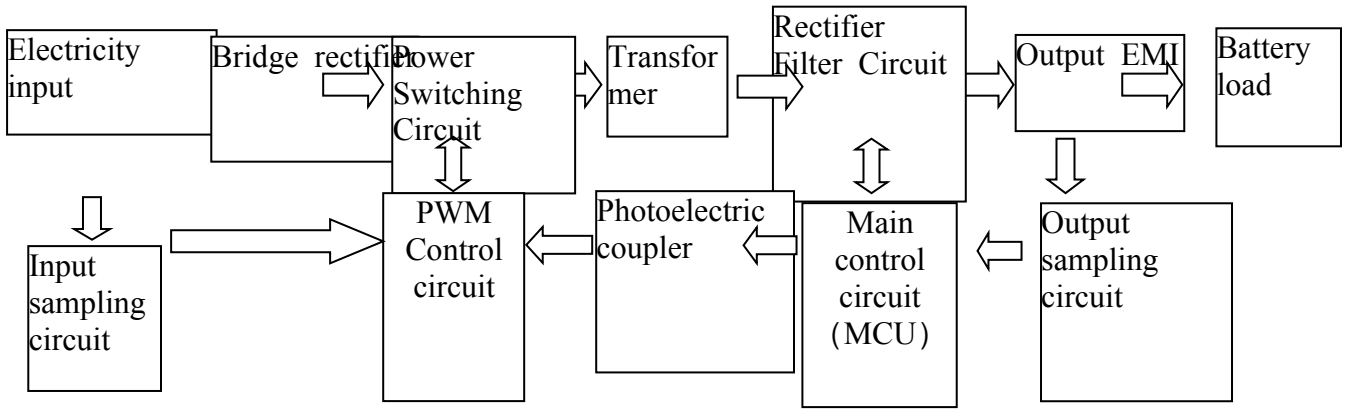
before performing any maintenance or cleaning.

Charger is not be used by children or anyone who does not comply with the instructions in this manual unless they are supervised by adults to ensure proper use of the charger.

What's in the box?

1. **MBRC35 3500mA Smart Charger Smart Battery Charger**
2. **Battery Alligator clamp cable**
3. **Maintenance Ring terminal lead with 10A fuse**
4. **BONUS 5 Ft Extension Lead**

Charger circuit principle block diagram:



Getting Started:

Before using the charger, please read carefully if there are any battery manufacturer's special precautions and that the recommended battery charging algorithms match.

Before charging, make sure to refer to the battery manual to determine the voltage and chemical properties of the battery and ensure you only use the correct one specified.

Mounting:

MBRC35 3500mA Smart Charger is smart multifunctional charger, please pay attention to the distance between charger and battery. Consider the length of the DC cable of the charger, with the length of the battery clamp connection or terminal connection. The further the charger is from the battery (longer lead) the more the voltage drop will be so place the charger as close to the battery as possible for maximum efficiency.

Charging mode.

MBRC35 3500mA Smart Charger has Eight modes: Standby ,12V Lead acid battery, 12V AGM battery/winter mode, 12V Lead acid battery low current mode, 12V AGM battery/winter low current mode, 6V Lead acid battery, 12V Lithium battery and battery repair mode. ***To change the charging mode you must Restart the charger and Reconnect the battery***. Change battery type by toggling the MODE key to the correct setting. Before selecting, understand the difference of each battery recharging mode. ***Do not operate the charger before confirming that the battery charging mode is appropriate.***

The following is a brief description:

Mode	Explanation
Standby	In standby mode, the charger does not charge or power the battery. The energy saving function is activated in this mode to obtain standby power from the power outlet. Automatic cycle 2 times after the power LED will light up.
12V NORM	For 12 Volt lead acid batteries, the white LED will light up when selected
12V COLD/AGM	Used to charge 12 Volt AGM battery or 12 battery/winter mode. After selection, the white LED will light up
12V NORM SMALL	For charging at small current 2A for a 12 Volt lead acid battery. After selection, the white LED will light up
12V COLD/AGM SMALL	Used to charge 12 Volt AGM battery with a small current of 2A. Or charge the 12 Volt battery winter mode, the white LED
6V NORM	For 6 Volt Lead acid batteries, the white LED will light up when selected
12V Lithium	For a 12 Volt Lithium battery, the white LED will light up when selected

REPAIR	For battery repair mode, when the battery cannot be charged normally.

Use 6 V NORM and 12V Lithium and REPAIR (Toggle to switch after 3 seconds of pressing the mode button, respectively). Reconnect to the battery.

Determine the correct polarity of the battery terminal on the battery before connecting the battery. Battery positive terminals are usually marked with these letters or symbols (POS, P +), respectively. Battery negative electrodes are usually marked with these letters or symbols (NEG, N -) in place.

1) Plug the AC power plug of the battery charger into the appropriate power outlet. Select battery mode you require by toggling to the appropriate logo. Once illuminated proceed to 2.

2) Connect the Positive (red) battery clip or wiring terminal to the battery Positive (POS,P,+) battery terminal.

3) Connect the Negative (black) battery clip or terminal to the negative (NEG, N,-.) Battery terminals.

4) Disconnecting the battery charge, disconnect the power plug and then remove the Negative and Positive electrodes of the battery connection.

Begin charging.

1) Confirm the voltage and chemical properties of the battery.

2) AC power plug has been plugged into the power outlet.

3) Charger will start in standby mode with power LED indication, in which case the charger does not provide any power. Press the MODE button to switch to charging mode suitable for battery voltage and chemical properties.

4) Charger is correctly connected to the battery Positive and Negative terminal with good connection by Alligator clamps or Maintenance ring terminals.

5) Mode LED will light up the selected charging mode, and the charging LED display will light up the flicker (depending on the health of the battery), 25, 50, 75, 100% indicating that the charging process has begun and the current state

of charge.

Understanding Charge LED.

The charger has (1) charging LED. The charging LED indicates the charging status of the connected battery (SOC). Please refer to the following instructions:

LED	Explanation
Pulsing Red LED	1. When the DC output is connected in reverse, the charging red LED flashes once and goes off once. 2. When the AC output is short-circuited, the charging red LED flashes twice and goes out once. When the charging is in the overheat protection state, the charging red LED flashes three times and goes out once.
Red LED is always on	The battery is damaged (when the charger is connected.)
Red LED is always on	No AC input. DC output from charger connected to battery
Power LED is always on	After the maintenance indicator cycles twice, the power indicator is always on.
Charging percentage LED	During charging, 25% or 50% or 75% of the charging LED will flicker slowly. This represents the charging status and displays the current battery capacity. 100% charging LED will flicker slowly when the battery is almost fulling charged and topping off. 100% charging LED will become stable and cease to flash when the battery is full. The charger can be connected to the battery indefinitely

Problem diagnosis:

Use "Problem Diagnostics" when displaying errors, which will display a series of flicker indicators to help you identify any problem.

And RED LED error flicker. The number of flashes indicates the

corresponding fault. (See list for details)

Error	List of issues
Single flash	When the DC output is connected in reverse, the charging red LED light flashes once.
Double flash	When the AC output is short-circuited, the charging red LED lamp flashes twice.
Three Flash	When the charge is in the overheat protection state, the charge red LED light flashes three times.
Red lights always on Solid Red	The charger has been connected to an uncorrected battery or the battery has been damaged. Inspect the batteries by professionals

Battery charging time.

Battery charging time is expected as below. The size (Ah) of the battery and its discharge depth (DOD) greatly affect its charging time. The charging time is based on the average discharge depth of the charged battery for reference only. actual data may vary depending on battery conditions.
Battery charging time for normal discharge based on 50% DOD.

Battery Size（Ah）	**About charging time (hours)**	
	6V	**12V**
8	2.5	2.5
12	3.5	3.5
18	5.2	5.2
24	7	7
30	8.6	8.6
40	11.5	11.5
50	14.2	14.2
60	17.0	17.0

Technical specifications:

AC input	220V~240V	110V-120VAC 60Hz
AC working voltage：	220V~240V AC 50Hz	110V-120VAC 60Hz

Efficiency:	85%
Power:	70W max
Charging	Various
Charging	3500mA(6V) 3500mA(12V)
Low-voltage detection:	2V(6V) 2V(12V)
No-load current:	≦10mA
Ambient temperature:	0°C to+40°C
Type of	8 segment, smart charger
Type of battery:	6V & 12V
Battery type Chemistries:	Wet, Gel, MF, CA, EFB.AGM, Lithium
Battery capacity	All battery sizes are supported , less than 60AH
Shell protection:	IP64
Cooling:	Natural cooling
Dimension(L x	153*72*43mm
N.W:	0.31kg

Environmental characteristics：

Operating temperature range：0'C 至+ 40'C

Working humidity range：0~70%RH Max