

Smart Battery Charger



user manual

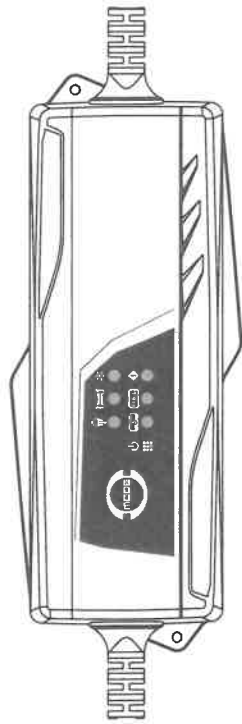
Charger	3.8 A	12V
Ladegerät	3.8 A	12V
Chargeur	3.8 A	12V
Caricatore	3.8 A	12V
Cargador	3.8 A	12V

Article No. BLEM1238B

3.8A

Charger 3.8 A 12V

Indication:



Summary

BEFORE USING YOUR CHARGER, PLEASE READ ALL INSTRUCTIONS CAREFULLY.

This charger is designed for charging various SLA batteries widely used in auto, motorcycle and other vehicle types with capacity ranges from 12V/1.2Ah to 12V/120Ah. It also may be used with some WET, GEL and AGM etc. batteries. (Please refer to your battery user manual for correct application and charging methods.) The specialized design of this device and its 7 stage charging permit the battery to be recharged to almost 100% capacity and make it possible for long time connection of the battery to the charger when not in use. Two charging modes are available for charging different batteries under different circumstances. Compared to a normal battery charger, this device contains a special function of rescuing a deeply discharged battery, with which, the seemingly "dead" battery may be charged up again. Full protection against wrong connection, reverse polarity and short circuit ensure the charging operation is much safer. By the electronic switch embedded in it, the charger won't act immediately when a battery is connected to it until a charging mode is selected. Through this, the spark, often appearing in the connecting course, is avoided as a result. Furthermore, this device is controlled by a MCU, which makes it more smart and reliable. This device has a water resist and dust rating of IP65.

Indication	State		Remark
	Standby Mode	Standby	
LED ON (Red)			
LED ON (Red)	Fail	Reverse polarity	
LED ON (Red)	Mode1	Mode1 (14.4V/0.8A)	
LED ON (Red)	Mode2	Mode2 (14.4V/3.8A)	
LED ON (Red)	Mode3	Mode3 (14.7V/3.8A)	
LED ON (Red)	On charging.	On charging	
LED ON (Green)	Fully charged	Fully charged, on maintenance.	

Specification:

Input Voltage	220-240V AC 50/60Hz.
Input Current	0.6A RMS. Max
Power Consumption	60W
Cut off Voltage	14.4±0.25 or 14.7±0.25 VDC
Charging Current	3.8A±10% or 0.8A±10%
Back Drain Current	<5mA (No AC input)
Ripple	150mV Max.
Battery Type	12V Lead acid battery: 1.2Ah---120Ah.
Dust and water resist grade (IP Rating)	IP65
Audible Noise	<50dB (Test from 500mm distance)
Operating Temperature	0--+40°C
Inside Fuse	1.6A/250V

Remark: The charger will shift current to 3.0A at 13.6±0.25VDC if charging time is less than 15 minutes.

Memory function - Battery charger will remember the last mode setting when removed from power and come up in the last mode selected when powered up the next time.

1. RESET

When connected to the power supply, the device will reset itself automatically and stay in standby state if there is no further action executed by the user.

2. MODE1 (14.4V/0.8A)

This mode is fit for charging those small batteries with a capacity of less than 14Ah. Before charging the battery, connect the output terminals of the charger to the battery with the correct polarity and then press the MODE button to select the correct mode. After executing this operation the corresponding LED will light up. In the coming defined interval, if no further operation is conducted, the electronic switch will turn on automatically together with LED and then start the charging course with 0.8A±10% current. If everything is ok, LED will be on during the whole charging course till the battery is charged up to 14.4V±0.25V. When the battery is fully charged, the LED will turn on instead of LED and now a trickle current is available to maintenance the battery.

3. MODE2 (14.4V/3.8A)

This mode is mainly applied for charging those batteries with larger capacity of more than 14Ah in normal condition. Before charging the battery, connect the output terminals with the correct polarity first and then select the desired mode. In the coming defined interval, if no further action is conducted by the user, then the electronic switch will turn on together with LED to start the charging course with 3.8A±10% current. Similar with mode1, LED will be on for the whole charging course if everything is ok. When the battery is charged up to 14.4V±0.25V, it changes to trickle charging mode to maintenance the battery and now LED is shut off and LED is on.

4. MODE3 (14.7V/3.8A)

This mode is established for charging those batteries with larger capacity of more than 14Ah in cold condition or charging some AGM batteries with capacity of more than 14Ah. Before charging the battery, connect the output terminals with the correct polarity to the battery and then press the MODE button to select mode3. Once the desired mode is selected, the corresponding LED turns on immediately and then turns on the electronic switch after a defined delay to start the charging course if no further action executed by the user. In this mode, the charging current is the same as mode2. If everything is ok, LED will turn on together with the electronic switch and keeps in this state till the battery is charged up to 14.7V±0.25V. When this point is arrived, the charger changes to trickle mode to maintenance the battery. Now LED is shut off and LED turns on to indicate the current state.

5. Rescue Dead Battery

When being connected to a battery and starting the charging course, the charger detects the voltage of the battery automatically and then changes to pulse charging mode if the voltage is within the range of from 8V ±0.5V to 10.5V±0.5V. This pulse charging course won't stop until the battery voltage rises to 10.5V±0.5V. Once this point is arrived, the charger changes to the normal charging mode selected by the user at the beginning and now the battery can be charged up fast and safely. Through this method, most of the deeply discharged "dead" batteries can be rescued.

6. Abnormality Protection

Whenever appears one of the following abnormal occasions, such as short circuit, battery voltage below 8V $\pm 0.5V$, open circuit or reverse connection of the output terminals, the charger will turn off the electronic switch and resets the system immediately to avoid damage. If there is no further order received, the system remains in the standby state. Additionally, if reverse connection happens, another LED  will be on to indicate the mistake.

7. Temperature Protection

During the charging course, if the charger is too hot for some reason, it will reduce the output power automatically to protect itself from damage.

8. Shift Between the Three Modes

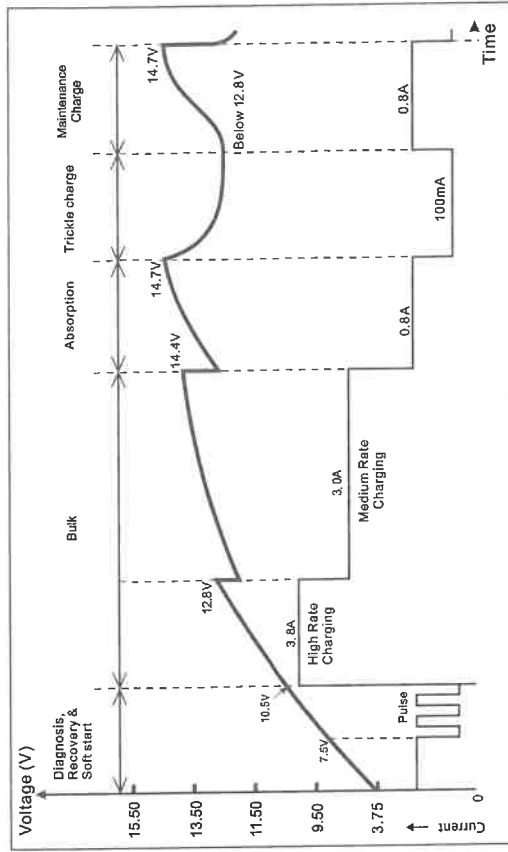
User can select the desirable mode just by pressing down the selection button. Here, it is assumed that every time it starts from the standby state for simple description. Once user presses down the selection button, the charging mode will shift in order like this:

Standby $\rightarrow$ Mode1  $\rightarrow$ Mode2  $\rightarrow$ Mode3  and then start the next cycle. Every time when the user presses down the button, it will shift to the next mode and then execute it. However, if a battery is not disconnected from the charger when fully charged, it will remain in the trickle charging mode even if the user shifts the charging mode, which is useful for protecting the full charged battery from damage.

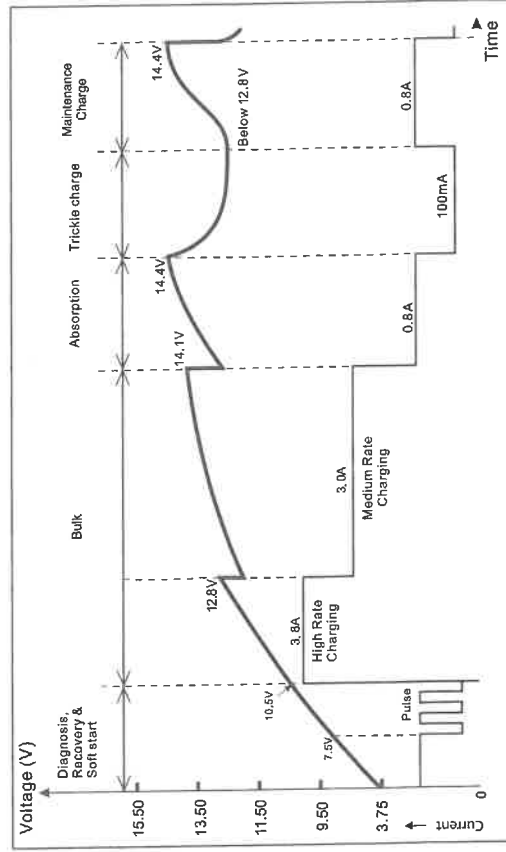
9. Bulk Charging Time

Battery Size (Ah)	Charge (hours)
1.2	12V 1.0 (MODE1)
2.2	2.5 (MODE1)
7.2	7.5 (MODE1)
14	14 (MODE1)
25	5.5
30	6.5
40	8.5
50	10.5
60	12
120	25

Cold mode charge curve:



Normal mode charge curve:



Please read these instructions carefully before using the smart charger.

1. This charger is designed for charging various SLA batteries widely used in auto, motorcycle and other vehicle types with capacity ranges from 12V/1.2Ah --120Ah. It also may be used with some WET, GEL and AGM etc. batteries. (Please refer to your battery user manual for correct application and charging methods.) This device has a water resist and dust rating of IP65.
2. Make sure you have a 12V or 6V Lead-Acid battery and read battery user manual carefully.
3. Clean your battery terminals. Take care to keep corrosion from coming in contact with your eyes.
4. Be sure area around battery is well ventilated during charging process. When battery is being charged you may notice bubbling in the fluid caused by battery generated explosive gases during charging duration.
5. If your battery is the AutoFill type, manufactured by Dagenite or Exide, the glass hails and long filter cap must be left in place for the duration of charging.
6. Connect the crocodile clips to the battery in the following order:
 - a) First-connect the positive charging leads (red color) to the positive terminal post.
 - b) Second-connect the negative lead (black color) to the negative terminal post.
 It is important to ensure that both crocodile clips are making good contact with the respective terminal posts.
7. When connected to the power supply, the device will reset itself automatically and stays in standby state if no further action executed by the user.
8. When you are sure the battery leads are correctly placed, connect the power cord to the power outlet and then select the suitable charge mode to begin charging. If the battery leads are wrongly connected, the pole-changing switch will ensure the battery and charger are not damaged. The fault indicator will light. In which case start from the beginning again.
9. The charging lamp will now indicate charging or the maintenance lamp will indicate that the battery is fully charged.
10. If the full charge stage does not arrive in 120 hours (MAX), the charger must be disconnected manually
11. For indoor use only.

ABNORMALITY PROTECTION FEATURE

If the battery charger is in the bulk mode for more than 96 hours (105Ah cut-off), the battery charger will automatically turn off and turn on the failure LED. As with other failures, all other LEDs will flash on and off at a 5Hz interval and no charge shall be applied to the charger output. This feature prevents damage if the battery is faulty.

HSF requirement –RoHS, REACH, 16PAHs<200ppm

Safety requirement –EN60335-2-29, EN60335-1, EN62233 standard for Safety, EN55014-1, EN55014-2, EN61000-3-2, EN61000-3-3 Standard for EMC test without loading terminal test.

CAUTION:

- WARNING: EXPLOSIVE GASES. Prevent flames or sparks. Provide adequate ventilation during charging
 - Suitable for use indoor only
 - Use battery charger on 12V 1.2Ah --120Ah Lead-acid rechargeable battery only. Do not intend to supply power to a low voltage electrical system. Do not use it for any other purpose.
- ### **WARNING! DO NOT ATTEMPT TO CHARGE A NON-RECHARGEABLE BATTERY.**
- Make sure to use the correct power supply otherwise the function of the device may be affected.
 - Do not use the battery charger for charging dry-cell batteries as they may burst and cause injury to persons and damage to property.
 - Do not operate charger if the cord is damaged. Have a damaged cord repaired by the manufacturer or his agent.
 - Do not operate charger if charger case is broken. Take it to qualified person for inspection and repair.
 - Do not disassemble charger, incorrect reassembly may result in electric shock or fire. Locate charger as far away from battery as DC cable will permit. Never place charger above battery being charged, gases from battery will corrode and damage charger.
 - If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
 - Never touch the battery clips together when the charger is energized.
 - Connect and disconnect DC output clips only after removing AC cord from electric outlet.
 - Do not face battery when making final connection.
 - Connect the appropriate positive (red) DC clip to that battery post which is not connected to the automobile chassis.
 - Connect the other negative (black) DC clip to chassis away from the battery and away from the fuel line.
 - Disconnect the supply before making or breaking connections to the battery.
 - The positive (red) battery terminal not connected to the chassis has to be connected first. The other negative (black) connection is to be made to the chassis, remote from the battery and fuel line. The battery charger is then to be connected to the supply mains.
 - After charging, disconnect the battery charger from supply mains, and then remove the chassis connection and the battery connection in this order. The conductor to be connected to the positive pole shall be colored red and that to be connected to the negative pole shall be colored black.
 - These chargers are not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
 - Children should be supervised to ensure that they do not play with the charger.

Environment friendly disposal

You can help protect the environment!

Please remember to respect the local regulations: hand in the non-working electrical equipments to an appropriate waste disposal centre. The packaging material is recyclable. Dispose of the packaging in an environment friendly manner and make it available for the recyclable material collection-service.

