CAUTION:

WARNING: Explosive gases. Prevent flames or sparks. Provide adequate ventilation during charging.
For indoor use only. Use battery charger on 12V 4.0-120AH or 6V 1.2-14AH Lead-Acid type rechargeable Battery.

WARNING! DO NOT ATTEMPT TO CHARGE A NON-RECHARGEABLE BATTERY.
WARNING! To avoid risk of electric shock, the plug must not expose to the water, and avoid the water flows towards the supply mains to cause electric shock to the users.

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. Disconnect the supply before making or breaking the connections to the battery. The battery terminal not connected to the chassis has to be connected first. The other 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. 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.

This appliance can be used by children aged from 8 years and above and persons with reduced physical capabilities, sensory or mental capabilities or lack of experience and knowledge if
they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children should not play with appliance.

Cleaning and user maintenance shall not be made bychildren without
supervision. Be sure area around battery is well ventilated in charging process. The charging lamp will now indicate charging or the maintenance lamp will indicate that the battery is fully charged.

OPERATION INSTRUCTION

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 environmentally friendly manner and make it available for the recyclable material collection-service.

Summary:

This charger is designed for charging a varieties of 12V or 6V SLA batteries widely used in car, motorbike and some other vehicles, such as WET, GEL, AGM and so on, whose capacity ranges from 12V/4.0AH to 12V/120AH or 6V/1.2AH to 6V/14AH. The specialized design of the device, which permits 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 use, to keep it always in perfect state without damaging it. Four charging modes are available for charging different batteries under different circumstance temperature, which is much considerate for the user to select a better one to charge the battery more efficiently and safely. Compared with normal battery charger, this device contains a special function of rescuing dead battery, with which, a deep discharged battery can be charged up again. Full protections of against wrong connection and short circuit ensure the charging operation is much safe. By the electronic switch embedded in it, the charger won't act immediately when a battery connected to it until some charging mode is selected. Through this way, the spark, often appearing in the connecting course, is avoided as a result. Furthermore, this device is controlled by a MCU in it, which make it more smart and reliable. With the grade of IP65 on against dust and proof water.

Indication:

Indication	**Remark**
LED ON (Red)	Reverse polarity.
LCD 00	Power on
LCD 3.0-14.7V	Battery voltage
LCD 0.1-4.0A	Output Current
LCD  ON	Mode1 (14.4V/0.8A)
LCD  ON	Mode2 (14.4V/4.0A)
LCD  ON	Mode3 (14.7V/4.0A)
LCD  ON	Mode4 (7.3V/0.8A)
LCD  ON	On charging.
LCD  Flash	Battery judgment (Frequency 1±0.2Hz)
LCD  ON	Fully charged, on maintenance

***Simple specification*:**

Input Voltage	220-240VAC, 50/60Hz.
Input Current	0.7A RMS. Max.
Standby Power Consumption	≦3W
Cut off Voltage	14.4/14.7±0.25V or 7.2±0.25V
Charging Current	4.0A±10% or 0.8±0.1A
Back Drain Current	<5mA (No AC input)
Battery Type	12V Lead acid battery: 4.0Ah~120Ah.
	6V Lead acid battery:1.2~14Ah
Against dust and proof water grade (IP Rating)	IP65
Audible Noise	<50dB (Test from 500mm distance)
Operating Temperature	0~+40℃

Remark: The min charging voltage 3.0+/-0.5V.

Charging Function:

1. RESET
   When connected to the rating supply, the device will reset itself automatically at the very beginning, and stays at 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 first with the right polarity and then press the MODE button to select the right mode. After executing this operation, the corresponding LCD  will be light up. In the coming defined interval, if no further operation is conducted, the electronic switch will turn on automatically together with LCD  , and then start the charging course with 0.8±0.1A current. LCD will indicate battery voltage and charging current by turns every 5±1 seconds. If everything is ok, LCD  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 LCD  will turn on instead of LCD  , and now a trickle current is available to maintenance the battery.
3. MODE2  (14.4V/4.0A)
   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 to the right polarity first and then select the desired mode. In the coming defined interval, if no further action conducted by the user, then the electronic switch will turn on together with LCD  to start the charging course with 4.0±10% current. LCD will indicate battery voltage and charging current by turns every 5±1 seconds. Similar with mode1, LCD  will be on in 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 LCD  is shut off and LCD  is on.
4. MODE3  (14.7V/4.0A)
   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 to the right polarity of battery first and then press the MODE

button to select mode3. Once the desired mode is selected, the corresponding LCD  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. LCD will indicate battery voltage and charging current by turns every 5±1 seconds. If everything is ok, LCD  will turn on together with the electronic switch and keeps 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 LCD  is shut off and LCD  turns on to indicate current state.

5. MODE4  (7.2V/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 first with the right polarity and then press the MODE button to select the right mode. After executing this operation, the corresponding LCD  will be light up. In the coming defined interval, if no further operation is conducted, the electronic switch will turn on automatically together with LCD  , and then start the charging course with 0.8±0.1A current. LCD will indicate battery voltage and charging current by turns every 5±1 seconds. If everything is ok, LCD  will be on during the whole charging course till the battery is charged up to 7.2V±0.25V. When the battery is fully charged, the LCD  will turn on instead of LCD  , and now a trickle current is available to maintenance the battery.

6. Rescue Dead Battery(12V battery only)
   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 dead batteries can be rescued
7. Abnormality Protection
   Whenever appears one of the following abnormal occasions, such as short circuit, battery voltage below 3.0V±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 will remains in the standby state. Additionally, once reverse connection happens, LED will be on to indicate the mistake.

8. 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 damaging.
9. Shift between the four 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 press down the selection button, the charging mode will shift in order like this:

a. 12V battery (10.5-15V+/-0.25V): Power → mode1  → mode2  →mode3  and then start the next cycle. Every time when the user pressing down the button, it will shift to the next mode and then after 1 seconds ,it will execute it , however ,if the user press down the selection button during the working stage ,it will jump to the power mode ,then the user can press the button to choose the mode again . If a battery is not disconnected from the charger when full charged, it will remain the trickle charging mode even if the user shifts the charging mode, which is useful for protecting the full charged battery from damage.

b. 6V battery (3.0-7.3V+/-0.25V): Power → mode4 

and then start the next cycle. During the charging course, if the user pressing down the button, it will shift to Power mode immediately. If a battery is full-charged with this mode and hasn't been disconnected from the charger, then if the mode is selected again, it will recovery the former trickle charging course, even if it has ever been changed to Power, which is useful for protecting the full charged battery from over-charged.

c. 7.3-10.5V+/-0.25V battery (it may be a full-charged 6V battery or a deep discharged 12V battery): Once the button is pressed down, 

will flash with the frequency of 1+/-0.2Hz. The embedded-in MCU will keep detecting the trend of the battery voltage change automatically in the following 1 –2 minutes. If battery voltage remains at the original value or rise to a higher one, then it will be looked as 12V battery, otherwise, as 6V battery. Once this judgment is made up, the system will adopt the corresponding action described in item a. or item b., and execute it till the battery is disconnected.

10. 12V Manual Mode (12V Battery: Battery voltage is between 3V to 10.5V)
    12V manual mode is applied for charging those 12V batteries between 3V to 10.5V. Before charging the battery, connect the output terminals to the right polarity first and then select the desired mode.

a. When battery voltage is between 7.3V to 10.5V, press mode button, charger will judge if the battery is a 6V battery or 12V battery (detail in 9.c). If user is ensure that the battery is a 12V battery, then user can press mode button for 3 seconds to enter 12V charging mode.

b. When battery voltage is between 3V to 7.3V, press mode button, charger will enter 6V mode. But user is ensure that the battery is a 12V battery, then user can press mode button for 3 seconds to enter 12V charging mode by manual.
   Note: This 12V manual mode need user ensure the battery is a 12V battery.

Remark:

1. Charging states:
   M2 4.0A (12.8V+/-0.25V)-> 3.0A(14.1V+/-0.25V)-> 0.8A (14.4V+/-0.25V) -> Trickle
   M3 4.0A (12.8V+/-0.25V)-> 3.0A(14.4V+/-0.25V)-> 0.8A (14.7V+/-0.25V) -> Trickle
2. Current shift point (4.0A->3.0A) normal 12.8V+/-0.35V
   If the charging time is below 15 minutes, voltage at 13.6V+/-0.35V
2. If voltage in trickle mode over DC15V+/-0.25V or 7.5V+/-0.25V ,cut-off all charging current. And when it drops to below DC12.8V +/-0.25V or 6.4V+/-0.25V, recharging with 4.0A 10% Max. for 12V battery and 800mA 10% max. for 6V battery.