

Module Highlights:

1. Support Lead-acid battery and Acting Battery, voltage range: 6V~60V;
2. Can display voltage, percent of battery, charging time at the same time through LCD;
3. The function is very powerful, realizes the automatic charge control, the control charge time, also may set up and uploads the corresponding parameter through the serial port;

一、 Function description

1. Automatic Charge control function:

By setting the volt-HI: 'UP' volt-LI: 'dn'; When the battery voltage is below the volt-LI: 'dn', the relay leads, the charger begins to charge the battery; when the battery voltage is up to volt-HI: 'UP', the relay is disconnected and the automatic charge is completed once;

2. Charge Time Control Function:

How to turn on the time control function?

After entering the parameter set, set the parameter op is non-zero, then turn on the time control function, op default parameter is: --:--h, the default does not turn on time control function;

After the opening Time control function (**OP** is non-zero), when the battery voltage is the lower volt-LI '**dn**', the charger began to charge the battery, the system began to clock; During the timing, the battery voltage \geq volt-HI '**UP**', relay disconnect; If the **OP** time is up, the battery voltage is still the lower volt-LI '**dn**', the relay keeps the conduction, automatically closes the charge time control function, and flashes the **H:ER** to remind the user, the time parameter setting is unreasonable; Press any key to stop flashing;

Note: Time format: 00:59 (00 for hours, 59 for minutes) The maximum time is 99:59, which is 100 hours.

3. Serial data upload and parameter setting function:

The system supports UART data upload and parameter setting
UART: 115200, 8, 1

Data Upload message Format:

Battery voltage + battery percent +
charge time + charge
status 12.0V,020%,00:10,OP

二、Parameter Setting

- a) Press and hold the **SET** key to enter the setting interface;
- b) Switch the parameters you want to set by short press **SET**;
- c) After the selection of parameters, can be set by the **UP/DOWN** key to support the short press, long press (fast increase or decrease); To set other parameters, repeat step b, c);
- d) After all parameters are set, long press set key to exit and save;

三、The Key Function Description:

In the Run interface (main interface):

Short press **SET** button to display the current set of parameters; Short press **UP** button, toggle display charge percentage and charging time;

Short Press **DOWN** button, select Turn on/off relay enabling, if the relay can be closed, will show ' off ' as a reminder;

Long press **UP** button, switch low power state

on: No operation in 10 minutes turn off backlight

OFF: Backlight is always bright

Long press **SET** button, enter the parameter settings.

四、Calculation of voltage percentage:

voltage percentage = battery voltage / (volt-HI - volt-LI)

五、Additional Features

- a) Charging time recording function: not open charging time control, the product will record a full time, when the entry time display interface, flashing display charging time, and then exit time display interface or next charge to open (relay conduction) when empty;
- b) Automatic parameter detection: When the parameters are set, exit, if $\text{volt-LI}_{\text{dn}} \geq \text{volt-HI}_{\text{UP}}$, the system will flash display "**ERR**" as a reminder;
- c) Battery Access detection: This product attached to the battery, if not connected to the battery, the system will be shown in the downlink "**NbE**" as a reminder