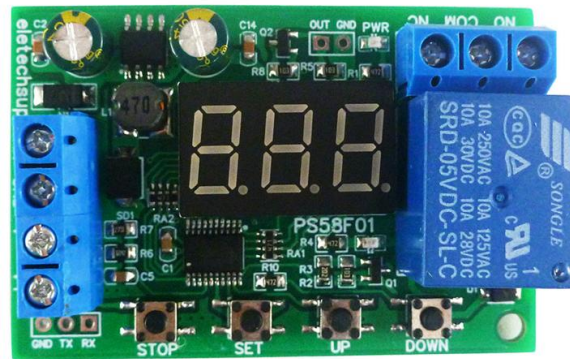


PS58F01 0~60V Battery Charging Undervoltage Overvoltage Protection Module Manual

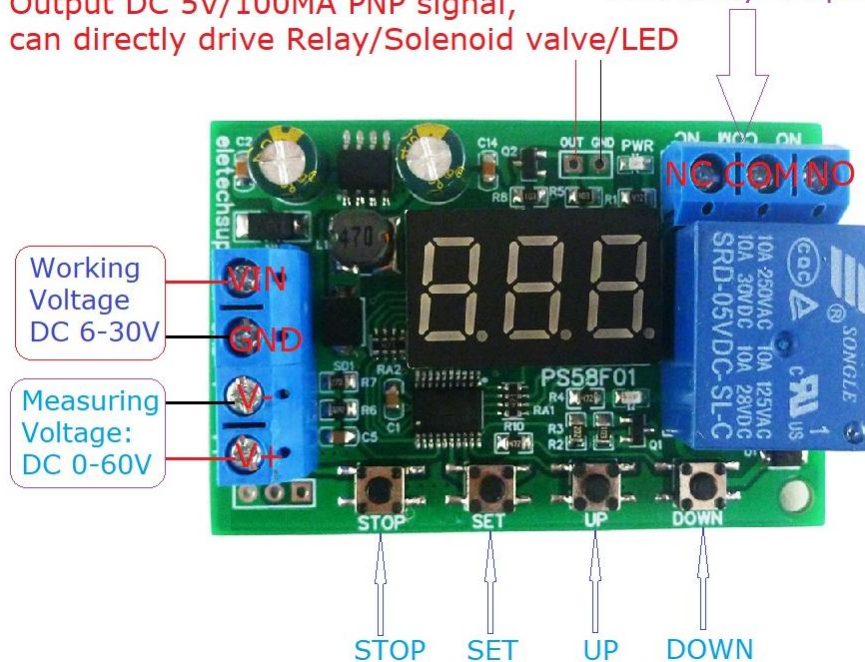


Module parameters:

- 1 Working voltage: DC 8~28V
 - 2 Working current (DC 12V): Digital tube display (Standard Mode), standby current 12mA, current 67mA when the relay is on; The digital tube does not display (Sleep-Power), the standby current is 3mA, and the current when the relay is on is 60mA;
 - 3 Onboard resources: 4 control buttons, 3 digital tube display, 1 LED power indicator, 1 LED relay indicator;
 - 4 Working mode: 6 modes can be set, U-1~U-6;
 - 5 Electrical parameters: It can charge/discharge protection for 0~60V lead-acid battery/lithium battery, the voltage range of the charger is DC 0~65V, and the voltage measurement error is plus or minus 0.1V;
 - 6 Default setting: Lower Limit Voltage (nL1): 12.0V, Upper Limit Voltage (UL1): 14.8V, charging and discharging time (OP): 0 minutes, digital tube Standard Mode display, relay is allowed to conduct;
 - 7 Relay maximum load current: 10A/250VAC, 10A/125VAC, 10A/30VDC, 10A/28VDC;
- Size: 60 x 40 x 20mm;
Weight: 27g.

Output DC 5V/100MA PNP signal,
can directly drive Relay/Solenoid valve/LED

10A Relay Output



Module Features:

- 1 Power supply anti-reverse protection.
- 2 1% high-precision voltage divider resistors make the measured voltage more accurate. The voltage dividing resistors of other manufacturers are 5% accurate.
- 3 The voltage accuracy and resolution are 0.1V, and it has a calibration function.
- 4 Reduce the brightness of the digital tube display, save energy and protect the eyes.
- 4 The parameters are saved after power off, avoiding repeated settings.
- 5 There are digital tube sleep mode and restore factory function.
- 6 It has a one-button emergency stop (STOP button) function, short press allows the relay to be turned on or does not allow the relay to be turned on.
- 7 Add an additional control signal output (drive current 100MA), when the relay is on, the output is high level, and when the relay is off, the output is low level.
- 8 In U-2/U-4 mode, you can set the charging and discharging time (OP), range: 0~999 minutes.
- 9 After the parameters are set, the charging and discharging of the battery is automatically controlled.

Notice:

- 1 This is a 0-60V battery charge and discharge protection board, it cannot replace the battery charger.
- 2 The valid condition of charging time (OP) is: in U-2/U-4 mode, when the voltage is between the upper and lower limit voltage

Working mode:

Upper Limit Voltage: UL1, Lower Limit Voltage nL1, the Upper Limit Voltage must be greater than the Lower Limit Voltage ($UL1 > nL1$).

U-1: Charging: When the measured voltage is lower than the lower limit voltage, the relay is turned on, and when it is higher than the upper limit voltage, the relay is turned off;

U-2: Charging time control: Set the charging time (OP); when the measured voltage is lower than the lower limit voltage, the relay will be turned on, and the OP time will be counted down after it is turned on. When the time is up, the relay will be turned off. If the measured voltage is still lower than the lower limit If the voltage is higher than the upper limit voltage, the relay will be disconnected.

U-3: Discharge: When the measured voltage is lower than the lower limit voltage, the relay is disconnected, and when it is higher than the upper limit voltage, the relay is turned on;

U-4: Discharge time control: set the discharge time (OP); when the measured voltage is higher than the upper limit voltage, the relay will be turned on, and the OP time will be counted down after it is turned on. When the time is up, the relay will be turned off. If the measured voltage is still higher than the upper limit voltage, the timer will be restarted; when the measured voltage is lower than the lower limit voltage, the relay will be disconnected;

U-5: conduction between the upper limit voltage and the lower limit voltage: when the measured voltage is between the upper limit and the lower limit, the relay is turned on, and otherwise it is turned off;

U-6: Conduction outside the interval between the upper limit voltage and the lower limit voltage: when the measured voltage is lower than the lower limit voltage or higher than the upper limit voltage, the relay is turned on, and in other cases the relay is turned off;

Button operation instructions:

STOP key: short press to switch the relay enable mode; short press the STOP key on the main interface, if the digital tube displays "OFF", and returns to the main interface after flashing twice, it means that the relay is always prohibited from conducting; if the digital tube displays "ON " and return to the main interface after flashing twice, indicating that the relay is allowed to conduct.

UP key: Short press on the setting interface to add 1 to the currently set value; long press on the main interface for 2 seconds to restore the set parameters to factory settings, the digital tube displays "---", and returns after flashing twice Main interface.

DOWN key: short press on the setting interface to subtract 1 from the currently set value; short press on the main interface to switch the display of voltage or remaining charge and discharge time; long press on the main interface for 2 seconds to switch the digital tube sleep mode or normal mode; if the digital The tube displays "S-P" (Sleep-Power), and returns to the main interface after flashing twice, indicating that the current digital tube is in sleep mode. If there is no button operation within 2 minutes, the digital tube will automatically turn off the display, and other functions will run normally until any button is pressed. It will be displayed again after being pressed; if the digital tube displays "N-P" (Normal-Power), and returns to the main interface after flashing twice, it means that the current digital tube is in normal mode, and the digital tube is always displayed.

SET key: Press and hold for 2 seconds on the main interface, the digital tube will display "U-X" (X indicates the number of current operating modes), and after flashing twice, it will always display "U-X", indicating that it has entered the setting interface, and displaying "U-X" indicates that the current In the working mode setting, the X value can be added or subtracted by short pressing the UP key and the DOWN key. U-1 means mode 1, U-2 means mode 2, and so on; short press the SET key again, and the digital tube displays "UL1 ", and after flashing twice, it displays "XX.X" (X represents a number), indicating that it is currently in the upper limit voltage setting interface, and the value of X can be added or subtracted by short pressing the UP button and DOWN button, and the unit is volts (V); Short press the SET key again, the digital tube will display "nL1", and after flashing twice, it will display "XX.X" (X represents a number), indicating that it is currently in the lower limit voltage setting interface, and the value of X can be adjusted by short pressing the UP key and the DOWN key. Perform addition and subtraction, the unit is volts (V); short press the SET button again, the digital tube will display "OP", and after flashing twice, it will display "XXX" (X represents a number), indicating that it is currently in the charging and discharging time setting interface, which can be set by Short press the UP key and DOWN key to add or subtract the X value, and the unit is minutes; short press the SET key again, the digital tube will display "C-U" (Calibration Voltage), and after flashing twice, it will display "XX.X" (X represents a number), indicating that it is currently in the calibration voltage setting interface. You can add or subtract the X value by short pressing the UP key and DOWN key, and the unit is volts (V); short press the SET key again to switch to the working mode interface. These interfaces It can be displayed alternately by short pressing the SET button; press and hold the SET button for 2 seconds on any setting interface to save the set parameters and exit to the main interface.

Standard mode:

After the battery is connected, it will enter the standard mode by default and display the current battery voltage, or you can short press the "DOWN" button to switch to the discharge time (OP)

Sleep-Power mode:

In the standard mode, press and hold the "DOWN" button to enter the "S-P" (Sleep-Power) energy-saving mode. After power on again, it still enters the energy saving mode. In energy-saving mode, the digital tube only displays for 1 minute, and other functions work normally. In the energy-saving mode, press and hold the "DOWN" button to exit the energy-saving mode and enter the "N-P" (Normal-Power) standard mode.

Voltage calibration:

If the voltage is not accurate, you can calibrate it as follows:

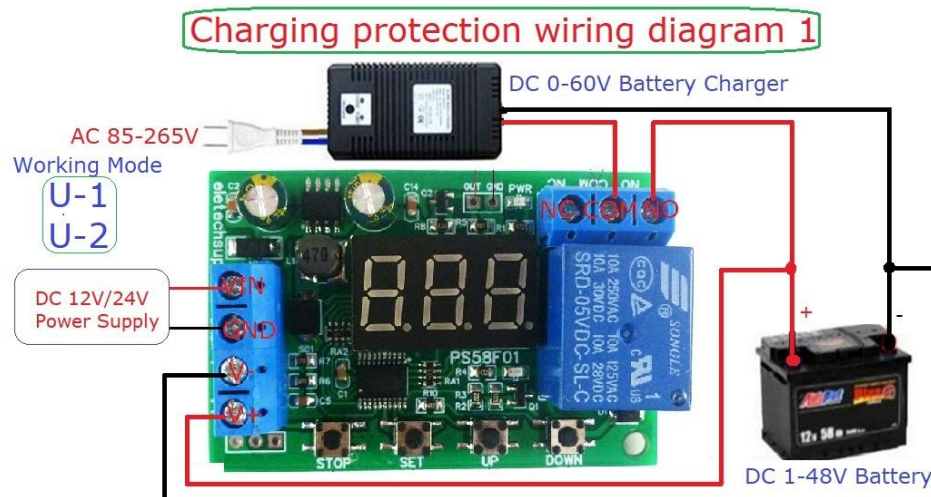
- 1 Press and hold the "SET" button to display "U-X";
- 2 then press the "SET" button briefly several times until "C-U" is displayed;
- 3 Press the "UP"/"DOWN" button briefly to adjust the parameters;
- 4 Finally press and hold the "SET" button to adjust the parameters;

Factory settings:

Power on again, press and hold the "UP" button at the same time, until the digital tube displays "---", at this time restore the factory settings.

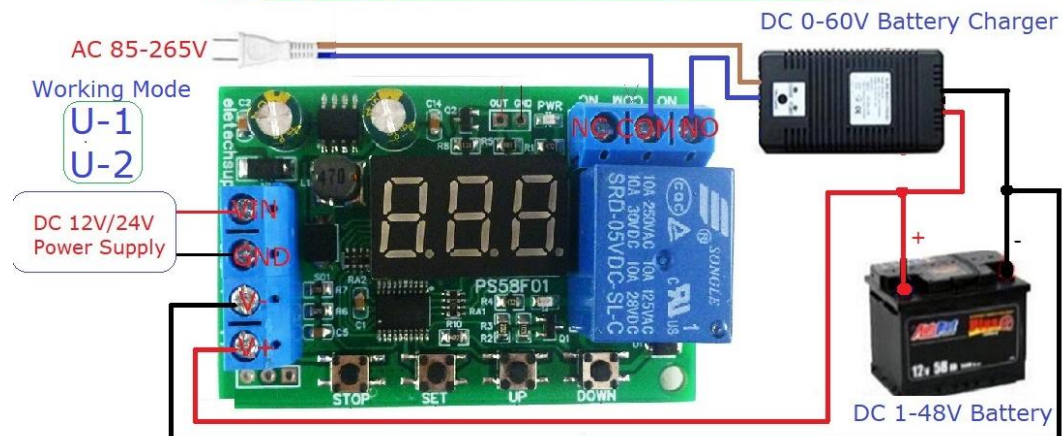
Wiring example diagram:

Charging diagram 1:

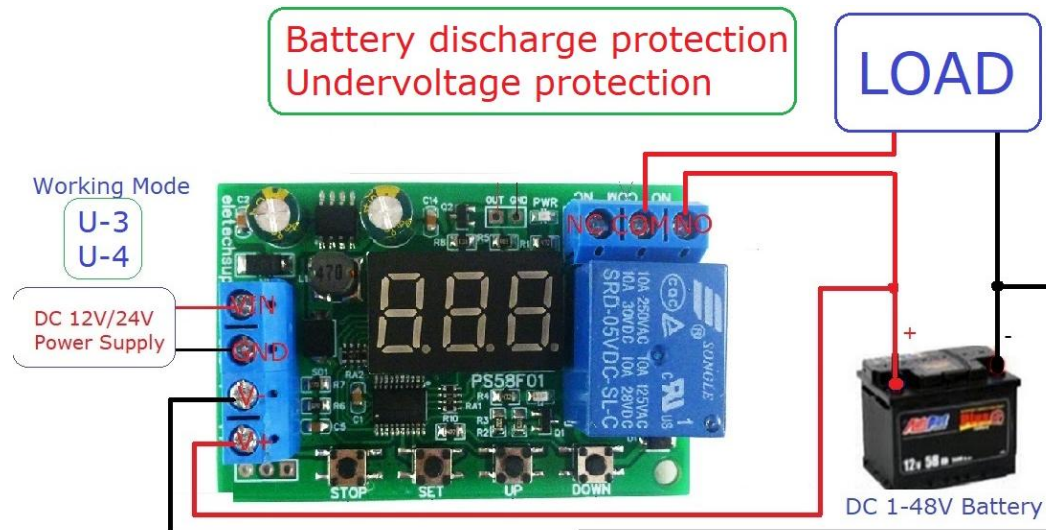


Charging diagram 2:

Charging protection wiring diagram 2

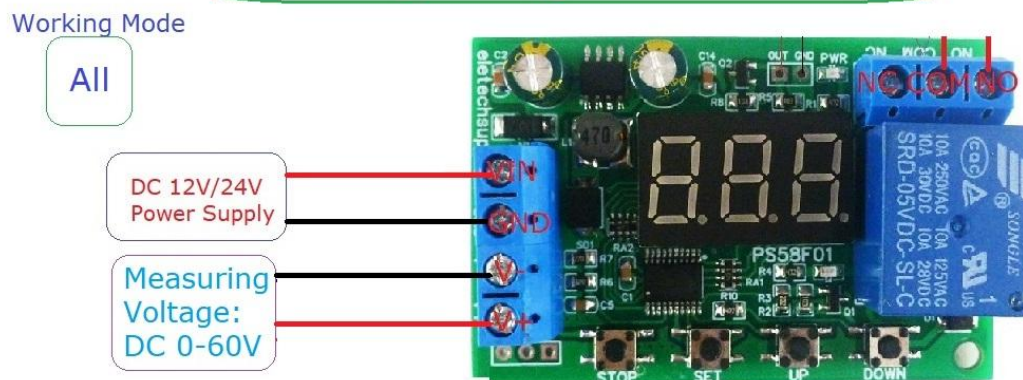


Discharge diagram:

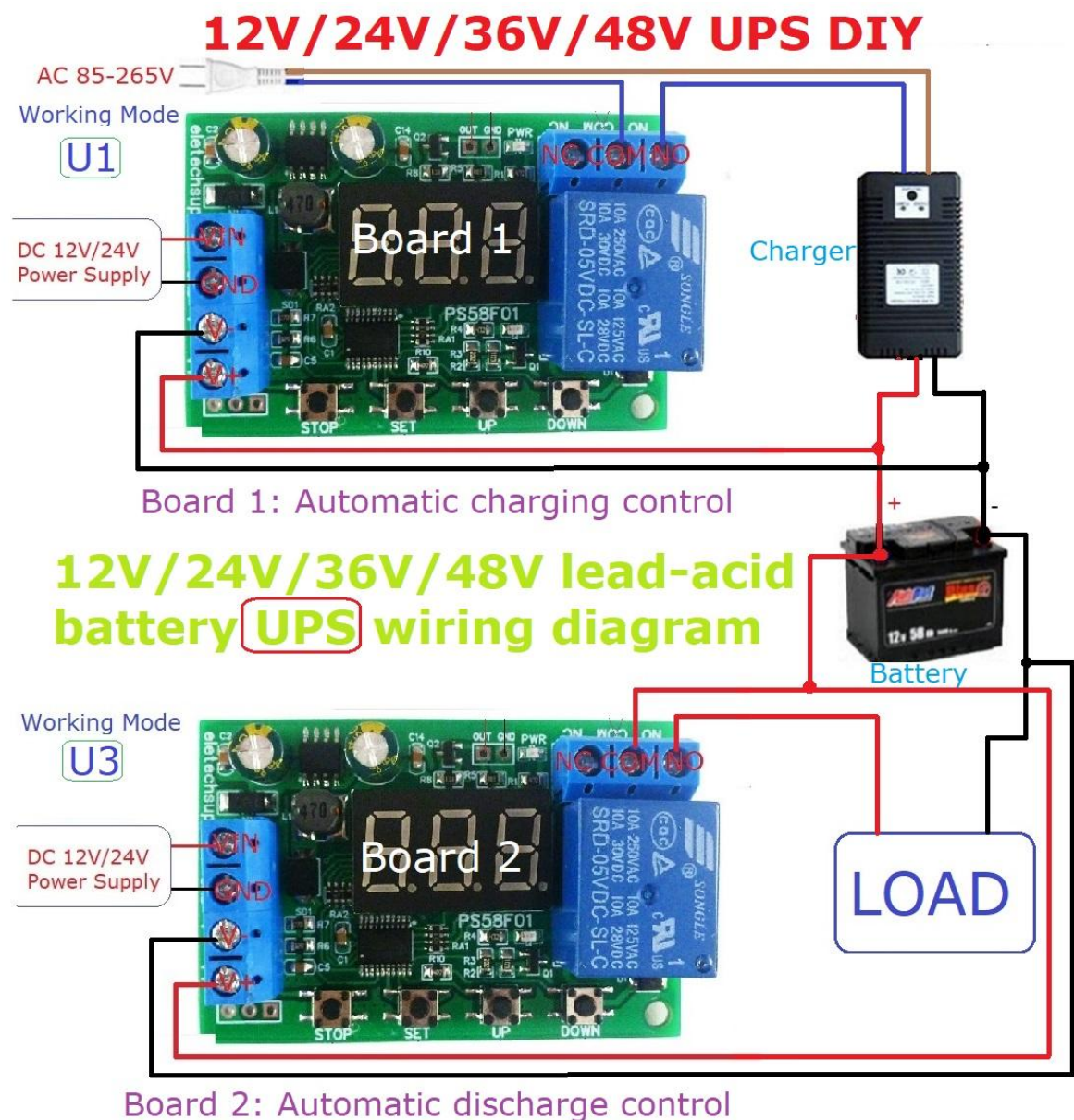


Schematic diagram of a voltmeter:

Measuring Voltage: As a Multimeter



UPS power supply built with two PS58F01



Operation steps (be sure to follow the steps):

Example 1: We want to charge 12V lead-acid, the starting charging voltage is 11.8V, and the cut-off charging voltage is 14.5V

First, connect the wires according to "Charging Diagram 1/2"; after connecting to the power supply, the digital tube will display the battery voltage (for example, if the battery voltage is 12.1V, the digital tube will display "12.1");

Second, press and hold the "SET button" to enter the setting interface, and the digital tube will display "U-1";

Third, short press the "SET key" to display the "UL1" voltage, short press the "UP/DOWN key" to adjust the parameter to 14.5;

Fourth, short press the "SET key" again to display the "nL1" voltage, short press the "UP/DOWN key" to adjust the parameter to 11.8;

Fifth, long press the "SET button" to save the parameters;

Sixth, the setup is complete.

Example 2: We want to discharge a 12V lead-acid battery, allow discharge when it is greater than 12.4V, and stop discharging when it is less than 11.2V.

First, connect the wires according to the "discharge diagram"; after connecting the power supply, the digital tube will display the battery voltage (for example, the battery voltage is 12.1V, the digital tube will display "12.1");

Second, long press the "SET key" to enter the setting interface, the digital tube displays "U-1", short press the "UP key" to adjust the parameter to "U-3";

Third, short press the "SET key" to display the "UL1" voltage, short press the "UP/DOWN key" to adjust the parameter to 12.4;

Fourth, short press the "SET key" again to display the "nL1" voltage, short press the "UP/DOWN key" to adjust the parameter to 11.2;

Fifth, long press the "SET button" to save the parameters;

Sixth, the setup is complete.

Q&A:

1 Q: How many V batteries are suitable for use, and what kind of batteries are suitable for use?

1 Answer: This module is suitable for charging 1-48V lead-acid batteries or lithium batteries.

Batteries suitable for the following voltages: 4V 6V 8V 12V 16V 24V 48V batteries; 3.7V 7.4V, 11.1V, 14.8V, 18.5V...44.4V lithium batteries

2Q: Can the set parameters be saved after power off?

2 Answer: It can be saved when power off.

3Q: Why is the charging protection module not displayed after connecting the battery?

3 Answers: 1. Maybe the battery power is too low, please use the charger to charge the battery first.

2. Maybe the wiring is bad or the positive and negative poles are reversed. 3. Maybe the module

has entered the energy-saving state, you can press any button until the digital tube displays.

4Q: Why is the charging protection module not displayed after connecting the charger?

4 Answer: The battery may not be connected, or the battery is dead. The working power of the module needs to be provided by the battery or an external power supply, and the module cannot work only if it is connected to the charger.

5 Q: Why can't the lower limit voltage be adjusted up?

5 Answer: Please increase the upper limit voltage first.

6 Q: Why does the relay keep starting and ending after power on?

6 Answer: 1 It may be that the charging current is too large, or the battery capacity is too small. 2 Maybe the upper limit voltage and the lower limit voltage are too close.

7 Q: What is the control method? Can it be recharged automatically? Can it be used while charging? Can the flow be limited?

7 Answers:

1 This is the voltage control method. 2. Automatic cycle charging; for example: start voltage 12V, cut-off voltage 14.8V, stop charging when the voltage reaches 14.8V, and start charging when the voltage is lower than 12V.

3 Can be used while charging. 4 This module can only control voltage, not current. Can not limit the current, the current size depends on your charger and battery capacity.

8 Q: Can input 15V supply power to 24V battery, or can input 32V supply power to 12V battery?

8 Answer: This module is only a voltage controller, which can only play the role of a switch, without the function of boosting and bucking. Charge the battery with a suitable charger.