HW-140

DC 5.5-30V to 0.5-30V Digital LCD Display Step Up Down Buck Boost Module

Features:

1. LCD can display input and output voltage, output current and output power.

2. Anti-back connection protection of input terminal, back connection will not burn up.

3. Voltage can be boosted, voltage can be lowered, output voltage 0.5-30V arbitrary regulation, limiting current 0-4A arbitrary regulation.

4. The output terminal is anti-backfilling, and no anti-backfilling diode is added when charging the battery.

5. Keyboard control output ON/OFF status, and can set the default power on to ON or OFF.

6. Using step-up and step-down chip as main controller, external 60V 75A MOS transistor as switch, double 60V 5A SS56 Schottky as rectifier, 60V voltage withstand value is better than the immature scheme of XL6009/LM2577 on the market (many devices have insufficient voltage withstand value, the voltage withstand value of MOS transistor and Schottky diode must be greater than the input plus input voltage value).

7. Small output ripple, LC filter; typical value: about 100 mV.

8. Containing radiator, feeding module supports isolation column.

Specification:
Input Voltage: 5.5-30V (Input Voltage 5V, can also achieve step-up and step-down, but the measurement of voltage and current is inaccurate; under-voltage protection below 4.7V)
Output voltage: 0.5-30V
Output Current: It can work stably in 3A for a long time and reach 4A under enhanced heat dissipation.
Output power: natural heat dissipation 35W, enhanced heat dissipation 50W
Voltage display resolution: 0.01V
Current Display Resolution: 0.002A
Conversion efficiency: about 88%.
Soft Start: Yes (high power module with load may fail when starting)
Input Reverse Connection Protection: Yes
Output anti-backfilling: Yes
Short circuit protection: Yes
Working frequency: 180KHZ
Size: 66*48*21mm/2.59*1.88*0.82\'\'
Installation hole: 4mm in diameter
Weight: 46g

Functional Description:
1. Module has IN/OUT and ON/OFF keys: IN/OUT keys switch input voltage and output voltage display, long press can switch output current output power display; ON/OFF keys control output ON or OFF, long press can set the default output state of next power-on is ON or OFF.
2. CC sets potentiometer for current and rotates clockwise to increase the set current. When the load current reaches the set current, it enters the constant current state, and CC constant current indicator (red) lights up; CV sets potentiometer for voltage on the right side, and rotates clockwise to increase the output voltage. ON indicator lamp is output state indicator lamp, when the output voltage is on, otherwise it will go out.

Usage Method:
1. Used as a general boost and buck module with over-current protection capability.
A. Regulate the CV constant voltage potentiometer so that the output voltage can reach the desired voltage value.
B. Measure the output short-circuit current with the universal table 10A current slot (connect two lead pens to the output directly), and adjust the CC constant current potentiometer to make the output current reach the predetermined overcurrent protection value. (For example, the current value shown by the multimeter is 2A, so the maximum current can only reach 2A when you use the module, and the red constant voltage constant current indicator lights up when the current reaches 2A, otherwise the indicator lights out.)
C. Note: In this state of use, due to the output current sampling resistance, there will be a voltage drop of 0-0.2V after the load is connected. At the same time, when the current is high, there will be a certain voltage drop on the input and output wires. This is a normal phenomenon.

2. Used as battery charger.
Modules without constant current function can not be used to charge batteries. Because the voltage difference between the exhausted batteries and the charger is very large, the charging current is too large and the battery is damaged. Therefore, the battery should be charged with constant current at the beginning. When the charging reaches a certain level, the battery should be automatically switched back to constant voltage charging.
A. Determine the floating charging voltage and current of the rechargeable battery you need; (If the lithium battery parameter is 3.7V/2200mAh, the floating charging voltage is 4.2V, and the maximum charging current is

1C, or 2200mAh).

B. Under no-load condition, the multimeter measures the output voltage and adjusts the constant voltage potentiometer to make the output voltage reach the floating charge voltage; (If charging 3.7V lithium battery, adjust the output voltage to 4.2V).

C. Measure the output short-circuit current with the multimeter 10A current slot (connect two lead pens directly to the output end), and adjust the constant current potentiometer to make the output current reach the predetermined charging current value.

D. Connect the battery and charge it. (Steps 1, 2 and 3 are: the input end is connected with the power supply, and the output end is not connected with the battery without load)

3. Used as a constant current drive module of high power LED.

A. Determine the working current and maximum operating voltage of the LED you need to drive.

B. Under no-load condition, the multimeter measures the output voltage and adjusts the constant voltage potentiometer to make the output voltage reach the maximum working voltage of the LED.

C. Measure the output short-circuit current with the current stop of universal table 10A, and adjust the constant current potentiometer to make the output current reach the predetermined working current of LED.

D. Connect the LED and test it.(Steps 1, 2 and 3 are: input power supply, output no-load without LED lights.)

Note: When this module is used in excess of 3A and 35W, please strengthen the heat dissipation.

Warm Tips:

1. Module input IN-prohibit short connection with output OUT-otherwise constant current function is invalid.

2. Make sure that the power of the power supply is always greater than the power required by the output load.

3. If the module wants to output at full load, the input voltage should be above 8V. When the input voltage is 5V, the output power is about 15W, and the voltmeter fails. The maximum current value of module is 4A, which is limited by the maximum output power, such as 17V, and the current should be no more than 2A.

4. Module with output short-circuit protection, after short-circuit protection, the module automatically shuts down the output and can be restored by re-energizing the module. If your power supply has no output current limiting protection, it is recommended to connect the fuse in series at the front end of the module input to improve the safety factor.