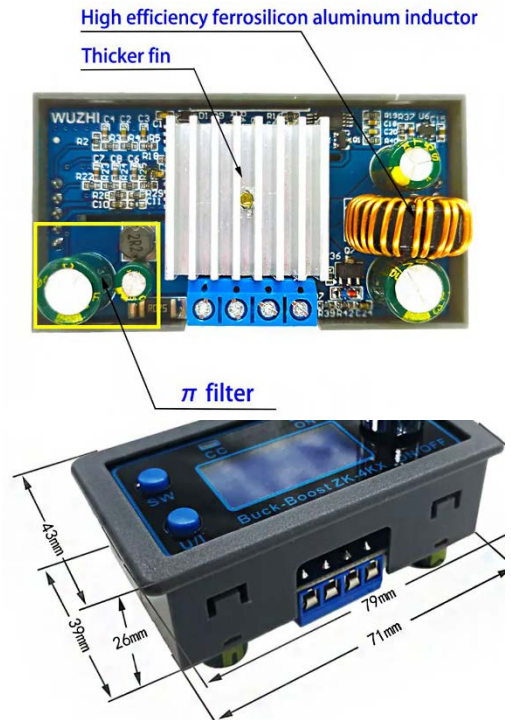


## ZK-4KX DC DC Buck Boost Converter CC CV 0.5-30V 4A Adjustable



### Features:

1. LCD can display input/output voltage, output current/output power/output capacity/output time;
2. CNC adjustment, accurate and fast, can boost and lower voltage, output voltage can be adjusted at will from 0.5-30v, limit current 0-4a can be adjusted at will;
3. Anti-reverse connection protection of input end, which will not burn out;
4. Anti-reverse irrigation at the output end, no additional anti-reverse irrigation diode is needed to charge the battery;
5. The module can be set to open/close by default;
6. Multiple software protection mechanisms are available, and the protection threshold is adjustable. When the working parameters of the module exceed the protection threshold, the output will be automatically closed.
7. Output ripple is small and PI filter is available;
8. Thicken radiator fins.

### Specifications:

- Input voltage: 5.0-30v
- Output voltage: 0.5-30v
- Output current: can work stably at 3A for a long time, and can reach 4A under enhanced heat dissipation
- Output power: natural heat dissipation 35W, strengthen heat dissipation 50W
- Voltage display resolution: 0.01V
- Current display resolution: 0.001A
- Conversion efficiency: about 88%
- Soft start: yes (with high power and load module may fail when starting)
- Protection mechanism:
  - Input anti-reverse connection;
  - Output anti-reverse irrigation;
  - Input undervoltage protection (4.8-30V adjustable, default 4.8v)
  - Output overvoltage protection (0.5-31V adjustable, default 31V)
  - Output overcurrent protection 0-4.1a (adjustable, default 4.1a)
  - Overpower protection (0-50w adjustable, default 50W)
  - Overtemperature protection (80-110°C adjustable, default 110°C)
  - Timeout protection (0-100h adjustable, off by default)
  - Super capacity protection (0-60ah adjustable, off by default)
- Operating frequency: 180KHZ
- Dimensions: 79mmx43mmx26mm

## Method of Use:

1. Switch display parameters -- in the normal interface, press SW to switch the display below the display screen, and switch the display content between current A power W capacity Ah time h. Long press SW button to switch the uplink display on the display screen and switch the display content between input voltage IN output voltage OUT.
2. Set output voltage -- press U/I button in the normal interface to enter the interface of setting voltage constant current. It can be seen that a certain digit of the output voltage value is flashing. Rotate the encoder left and right to adjust the major and minor. Short press the rotary encoder to choose which bit of output voltage to set. After setting, press U/I button 2 times to return to the normal interface. Or automatically return to the normal interface after stopping operation for 10s.
3. Set constant current value (that is, the maximum current value allowed to output by the module) -- press U/I button in the normal interface to enter the setting voltage constant current interface. Then press U/I button and switch to setting constant current value. You can see a bit of the setting constant current value flashing. Rotate the rotary encoder left and right to adjust the major and minor. Short press the rotary encoder to choose which bit to set the constant current value. After setting, press U/I to exit the setting voltage constant current interface and return to the normal interface. Or automatically return to the normal interface after stopping operation for 10s.
4. Set the default on/off state of module power-on -- long press U/I in the normal interface to enter the parameter setting interface. You can see that it shows "OPEN OFF" or "OPEN ON". "OPEN OFF" means the output is turned OFF by default when power is ON, and "OPEN ON" means the output is turned ON by default when power is ON. Long press rotate encoder to switch two states. After setting, long press U/I to return to the normal interface.
5. Setting of protection parameters on state and threshold -- long press U/I to enter the parameter setting interface in the normal interface. Press SW until the protection you want appears. LUP -- undervoltage protection threshold; OUP -- overvoltage protection threshold; OCP -- overcurrent protection threshold; OPP -- over power protection threshold; OAP -- ultra-capacity protection threshold; OHP timeout protection threshold; OTP -- overtemperature protection threshold. Short press rotate encoder to select which bit you want to set the protection parameter. Long press the rotary encoder to set the protection parameters on or off (only timeout protection and supercapacity protection can be set to turn on/off, and other protection parameters are turned on by default.). Rotate the encoder left and right to make the parameters bigger and smaller. After setting, long press U/I to return to the normal interface.
6. Calibration voltage and current -- press U/I button to enter the parameter setting interface under normal interface. Press SW until a parameter interface with CAL appears. The calibration input voltage interface with the symbol CAL+IN+V; The calibration output voltage interface with the symbol CAL+OUT+V; The calibration output current interface with the symbol CAL+OUT+A. Rotate the encoder left and right to adjust the size of parameters. After the adjustment is completed, long press the rotary encoder to confirm the adjustment is completed, and the parameter value is no longer flashing. Long press U/I to return to the normal interface.

Note: in order to ensure the accuracy of calibration, calibration voltage -- above 12V can only be started; Calibration current - start calibration only when the current is above 1A.

## Tips:

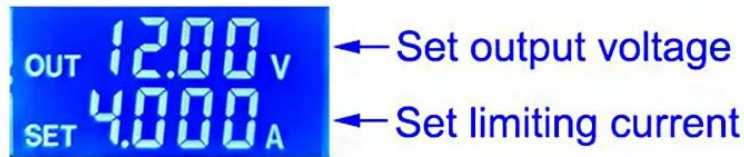
1. Short connection between input IN- output OUT- of the module is forbidden, or the constant current function will fail.
2. Please ensure that the power moment of the power supply exceeds the required power of the output load!
3. If the module wants to output with full load, the input voltage should be above 8V. When the input voltage is 5V, the output power is about 15W. The maximum module current value is 4A, subject to the maximum output power, such as 17V in the output, the current should not be greater than 2A. ( $17V \times 2A = 34W$ )
4. When this module is used over 3A and 35W, please strengthen heat dissipation!!!
5. The module has input undervoltage protection function, which is about 4.8v by default (it can be set), and the output will be automatically disconnected after the value is lower than this value (note that the voltage at the module port is lower than the undervoltage protection threshold, and when the input current is relatively large, do not ignore the partial voltage on the input wire).
6. Current limit system has bad precision up to 0.2A (use an ammeter in the output to know more precision value). Good precision above 0.5A
7. If any of the protections shut down the Buck boost converter, you must switch off the input power and switch it on again to restart the module. It is for safety reasons.

Interface KEY	normal interface	regulating voltage and constant current	Set the parameters
<b>SW</b>	Short press: switching current A  power W  capacity Ah  time h display  Long press: switching input voltage   output voltage display	<b>NULL</b>	Short press: toggle the parameters to be set  Long press: null
<b>U/I</b>	Short press: enter the interface of regulating voltage constant current  Long press: enter the interface of setting parameters	Short press: switch between regulating voltage value, regulating constant current value and exiting regulating Long press: null	Short press: null  Long press: exit the setting parameters interface and return to the normal interface
<b>Rotary encoder</b>	Short press: toggle output to turn on and off Long press: null  Left rotation: output voltage decreases Right rotation: output voltage increases	Short press: adjust the parameter shift accordingly Long press: null  Left-rotation: the corresponding bit of adjustment parameter decreases Right-rotation: the corresponding bit of adjustment parameter increase	Short press: adjust the parameter shift accordingly Long press: turn   off if parameters allow  Left-rotation: the corresponding bit of adjustment parameter decreases Right-rotation: the corresponding bit of adjustment parameter increase

# Normal Interface



## Interface for setting voltage and constant current



## Interface to set parameters



## Protection Interface

