38466-PS
80W BUCK BOOST DC/DC CONVERTER

Snap-in, 80W adjustable buck-boost converter module with constant voltage, current limit and Soft Start. Reverse Polarith Protected. Adjustable protection for: Undervoltage (LVP), Overvoltage (OVP), Overcurrent (OCP), Over Power W (OPP), Over Capacity Ah (OAP), Over Temperature (OTP), Max Operating Time (OHP) Dual 4 digit Backlit LCD Display.
P/N: ZK-5KX
Input Voltage: DC 6V-36V DC
Output Voltage: 0.6-36VDC
Output Current: 5A max Power Limited ~80W
Voltage Resolution: 0.01V
Current Resolution: 0.001A
Conversion Efficiency: ~ 88%.
Operating Freq: ~120KHz
Undervoltage(LVP): Adj. 5.8-36VDC, (default 5.8V)
Overvoltage (OVP): Adj. .6-36VDC, (default 36V)
Overcurrent (OCP): Adj. 0A-5A range (default 5A)
Over Power W (OPP): Adj. 0W-80W (default 80W)
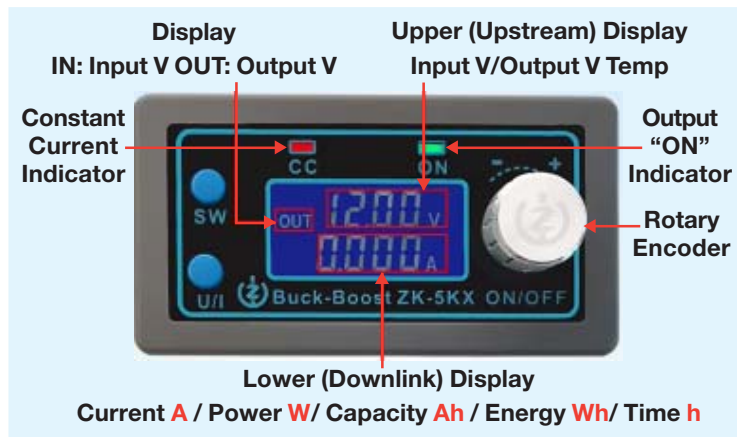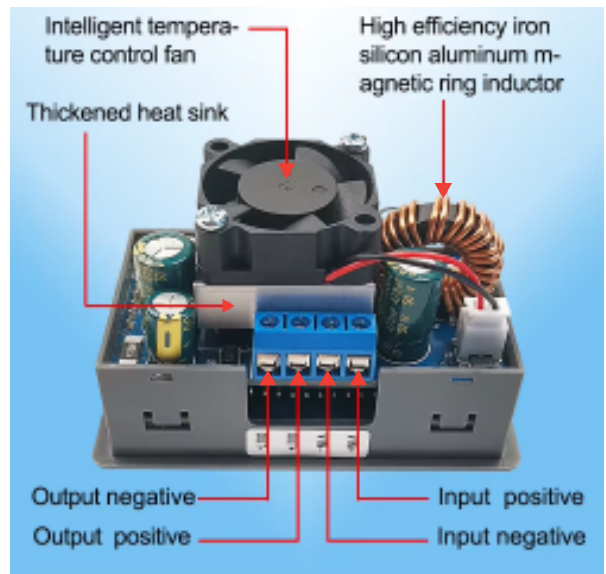Over Temperature: 80°C-110°C (default 110°C)
Auto Fan: Turns on @ 50°C or 1A
Max Capacity (OAH): 0-60Ah (default Off)
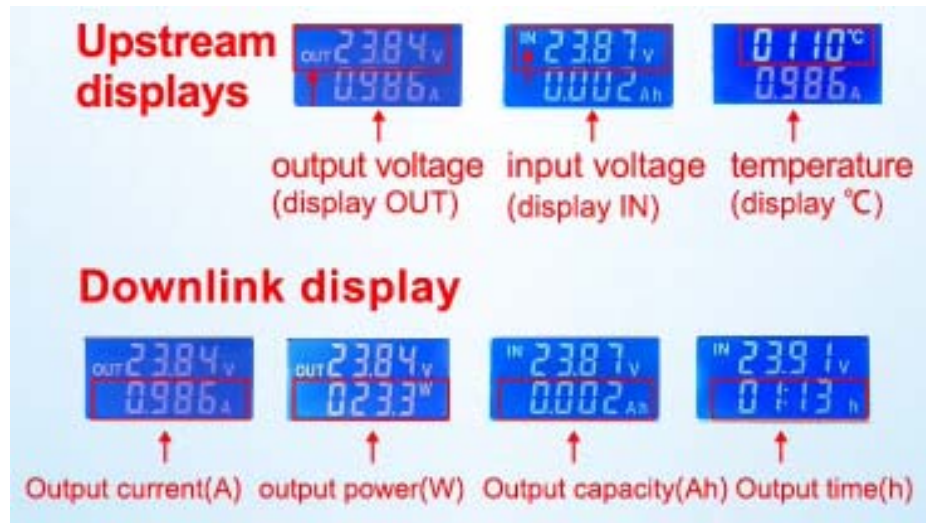Timeout: (OHP): Adj. 0-100hr (default Off)
Cutout: 75mm x 39mm
L: 79mm **W:** 43mm **D:**48mm **WT:** .3

Intelligent temperature control fan
High efficiency iron silicon aluminum magnetic ring inductor
Thickened heat sink
Output negative
Output positive
Input positive
Input negative

Display
IN: Input V OUT: Output V

Upper (Upstream) Display
Input V/Output V Temp

Constant Current Indicator

Output "ON" Indicator

Rotary Encoder

Lower (Downlink) Display
Current **A** / Power **W**/ Capacity **Ah** / Energy **Wh**/ Time **h**

MARLIN P. JONES & ASSOC., INC.
8380 Resource Rd. West Palm Beach, Fl 33404
800-652-6733 FAX 561-844-8764
WWW.MPJA.COM

3/2025

38466-PS

Upstream displays

↑ output voltage (display OUT) ↑ input voltage (display IN) ↑ temperature (display ℃)

Downlink display

↑ Output current(A)   ↑ output power(W)   ↑ Output capacity(Ah)   ↑ Output time(h)

Button Switches and Rotary Encoder Functions

Interface / KEY	normal interface	regulating voltage and constant current	Set the parameters
SW	Short press: Downlink switching Current a/power W/capacity ah/Time h Long press: LCD upstream switching Input voltage / output voltage	NULL	Short press: switch the parameters to be set Long press : null
U/I	Short press: enter the interface of regulating voltage constant current Long press: enter the interface of setting parameters	Short press: Switch between adjusting voltage value, adjusting constant current value and exiting regulation interface Long press: null	Short press: null Long press: exit setting parameter interface and return to normal interface
Rotary encoder	Short press: switch output on /off state Long press: Zero correction 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 increases	Short press: adjust parameter shift Long press: If the parameter allows turning on and off, switch the parameter to turn on and off Left rotation: the corresponding bit of adjustment parameter decreases Right rotation: the corresponding bit of adjustment parameter increases

Note: after the product triggers the protection mechanism, the output will automatically turn off, the LCD will display the protection code, and press any key to exit the protection interface.

38466-PS

Interface description

Normal Interface

output voltage	output voltage	intput voltage	intput voltage
OUT **23.84** V **0.986** A	OUT **23.84** V **023.3** W	IN **23.87** V **0.002** Ah	IN **23.91** V **01:13** h
output current	output power	output capacity	output time

Interface for setting voltage and constant current

OUT **12.00** V ← Set output voltage
SET **4.000** A ← Set limiting current

Interface to set parameters

Normally open	Normally closed	Under voltage	Over voltage	Over current
OPEN SET **ON**	**OPEN** SET **OFF**	**05.80** V SET **LUP**	**31.00** V SET **OUP**	**OCP** SET **4.100** A

Over power	Over temperature	Overcapacity OFF	Overcapacity	Timeout OFF
OPP SET **50.00** W	**0110** ℃ SET **OrP**	**ORP** SET **OFF**	**ORP** SET **60.00** Ah	**OHP** SET **OFF**

Timeout	Calibration IN voltage	Calibration OUT voltage	Calibration OUT current
OHP SET **99:59** h	IN **17.08** V SET **CAL**	OUT **12.00** V SET **CAL**	OUT **CAL** SET **4.000** A

38466-PS

Interface description

Protection Interface

Under voltage Protection	Under voltage Protection	Over current Protection	Over power Protection
LUP	OUP	OCP	OPP

Over capacity Protection	Timeout Protection	Over temperature Protection
OAP	OHP	OrP

CC   ON
SW   OUT 12.00 V
          0.000 A
U/I   Buck-Boost ZK-5KX ON/OFF

input voltage	6.0-36V	Output current	5A
output voltage	0.6-36V	output power	80W

38466-PS
80W BUCK BOOST DC/DC CONVERTER

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) temperature (℃).

Short press SW button:

Toggle screen downlink display, in turn loop toggle.

current A	power W	capacity Ah	time h

Long press SW button:

Switch the display on the top line

output voltage OUT	input voltage IN	temperature ℃

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.

Short press U/I button: Set output voltage

OUT **12.00** v ← Set output voltage

SET **4.000** A

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

Short press U/I button:
Enter the setting voltage constant current interface, and then press the U / I button

OUT **12.00** v

SET **4.000** A ← Set limiting current

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.

Long press U/I button:
Enter the parameter setting interface

OPEN ON	OPEN OFF
OPEN ON	OPEN OFF
Normally open	Normally closed

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.

38466-PS
80W BUCK BOOST DC/DC CONVERTER

Long press U/I button:
Enter the parameter setting interface

OPEN	OPEN
SET ON	SET OFF

Short press SW button:
Switch the protection parameters to be set

05.80 v SET LUP	31.00 v SET OUP	OCP SET 4.100 A	OPP SET 50.00 w
LUP Under voltage	**OUP** Over voltage	**OCP** Over current	**OPP** Over power

OAP OFF SET	OAP SET 60.00 Ah	OHP OFF SET	OHP SET 99:59 h
OAP OFF Overcapacity OFF	**OAP** Overcapacity	**OHP OFF** Timeout OFF	**OHP** Timeout

01.10 °C SET OTP
OTP Over temperature

Calibration and zeroing

1.Current zero calibration

When the power module is empty, if there is a small current less than 100mA, the current zero calibration operation can be performed. The steps are as follows:

In the main interface, the current is displayed in the down line. If there is a small current display less than 100mA, press and hold the rotary encoder for more than 2S, the system will automatically carry out zero calibration.

2.Calibration output voltage

When the difference between the output voltage of the power module and the actual value is large, the output voltage can be calibrated. (pay attention to the caution of calibration, which requires certain professional knowledge or technology, and pay attention to the operation steps, so as to avoid serious errors and abnormal operation). Calibration requires calibration of two points and measurement of the actual output voltage using a multimeter or electronic load. Before calibration, set the output voltage below 20V.

The steps are as follows：

1、In the normal interface, press and hold the U / I key to enter the parameter setting interface. Press SW key briefly until the parameter interface with CAL1 appears. At this time, the lowest output voltage flickers. Short press rotary encoder to switch the selected bit.

Long press U/I button:
Enter the parameter setting interface

```
OPEN          OPEN
SET   ON       SET   OFF
```

Short press SW button:
Switch to interface with CAL1

```
OUT  12.00 V    ──── Flashing here
SET   CAL 1     ──── CRL1
```

2、 Measure the current actual voltage with a multimeter, and adjust the rotary encoder to the actual voltage measured by the multimeter. Press and hold the rotary encoder to calibrate the first point. CAL2 is displayed on the screen

OUT **13.00** V
SET **CAL 2** —————— CRL2

3、 Repeat step 2. Measure the current actual voltage with a multimeter, and adjust the rotary encoder to the actual voltage measured by the multimeter. Press and hold the rotary encoder to calibrate the second point. If the number on the screen does not flash, it means that the calibration is successful and the calibration setting is completed. If the screen number still flashes, it means that the calibration has failed, and it is necessary to exit the setting and recalibrate.

3.Calibration output current

When the difference between the output current of the power module and the actual value is large, the output current can be calibrated. (pay attention to the calibration, pay attention to the operation steps, so as to avoid serious errors and abnormal operation). Calibration requires calibration of two points. A multimeter or electronic load is required to measure the actual output current.
It is better to adjust the setting current below 1A before calibration. Adjust the multimeter to the current level (greater than 5A), connect the output in series and short circuit the output.
The steps are as follows:

1、 In the normal interface, press and hold the U / I key to enter the parameter setting interface. Press SW key briefly until the parameter interface below appears. At this time, the lowest output current flickers. Press the rotary encoder to switch the selected position.

Long press U/I button:
Enter the parameter setting interface

OPEN
SET **ON**

OPEN
SET **OFF**

Short press SW button:
Switch to the parameter interface below

OUT **CAL 1**
SET **0.500** A

2、Use a multimeter to measure the current actual current. Adjust the rotary encoder to the actual current measured by the multimeter. Press and hold the rotary encoder to calibrate the first point. The screen shows the following figure

OUT **CAL2**
SET **1.000** A

3、Repeat step 2. Adjust the rotary encoder to the actual current measured by the multimeter. Press and hold the rotary encoder to calibrate the second point. If the number on the screen does not flash, it means that the calibration is successful and the calibration setting is completed. If the screen number still flashes, it means that the calibration has failed, and it is necessary to exit the setting and recalibrate.

Note: if the current is not accurate at constant voltage, the calibration can also be carried out under constant voltage. Adjust the setting current to the maximum of 5.000a, output voltage of 12.00v, adjust the load to change the output current. The first point is calibrated according to the appeals step, then the load is adjusted, the output current is changed, and second points are calibrated. Finally, the calibration is completed.

Cautions

1. Short connection between input IN and output OUT of the module is forbidden, or the constant current function will fail.

2. Please 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. The maximum current value of the module is 5A, provided that the maximum output power is limited, such as 20V output, and the current should not be greater than 4A.

4. The module has input undervoltage protection function. The default value is about 5.8v (can be set). When the value is lower than this value, the output will be automatically disconnected (note that the voltage at the module port is lower than the undervoltage protection threshold. When the input current is relatively large, do not ignore the partial voltage on the input wire)