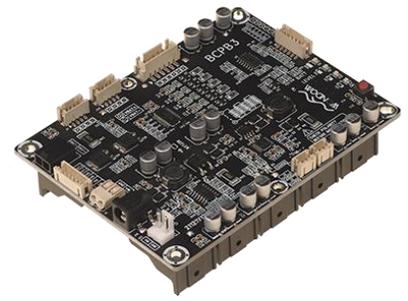


# Battery Charging and Protection Series

## 5S 18650 Lithium Battery Charging, Balance and Protection Board-BCPB3 (PS-BC12112)



### Overview:

As the new comer of BCPB (Battery Charging and Protection Board) series, BCPB3 inherits the high efficiency and high reliability of BCPB2, offering more battery holders for commonly used 18650 Lithium batteries. BCPB3 is designed for 5pieces 18650 Lithium Batteries in series and can be used as a power bank for Routers, High power portable speakers and Mobile phones, which is widely used in Home DIY applications to save your precious time from the connection of electric wires. Supporting wide range of charging input voltage and hybrid charging sources is one of the highlights of BCPB3. Any 5-24V 2A adapters can be used to charge the batteries with BCPB3. The balance and protection circuit constantly to monitor each cell's voltage, the current of charging or discharging, and the temperature of the environment to provide overcharge, over-discharge, output over-current, short circuit, charge over-current and over-temperature protections, etc. The special design of mounting holes makes it rather easy for customers to power WONDOM boards in 3.6'' x 2.7'' and 4.8'' x 3.6'' with several screws, greatly improving convenience of operation.

### Distributors:



### Applications:

- Home Garden/Granary
- DIY Purpose (Optional)
  - Raspberry Pi
  - Arduino DIY
- Power Bank for Router/Drone/Laptop/iPad/Mobile Phone
- High Power Portable Speakers

### Key Features:

- 5-24V Wide Range Charging Voltage
- Hybrid Charging Sources
- Supporting Extension Board with Dual 5V 2A USB Discharge Ports
- Multi-discharging Ports
- Solar Charging Supported
- Large Capacity with 5 cells 18650 Batteries
- LED Indicators for Battery Status
- Balance Protection
- Short Circuit Protection
- Over-temperature Protection
- Over/Under Voltage Protection
- Output/Input Over-current Protection
- Over-charge and Over-discharge Protection
- Weight: 168g/0.37lbs (±10%)
- Size: 4.8 x 3.6 x 1.28 inches

### Electrical Specifications

Specifications typical @ +25°C, unless otherwise noted. Specifications subject to change without notice.

Parameter(s)	Conditions	Min.	Typ.	Max.	Unit(s)
Supply Voltage	-	5	12	24	VDC
Maximum discharge current	-	-	5	-	A
Typical charge current	-	0.5	1.35	2	A
Overcharge detection voltage	Per Single cell	-	4.235	-	V
Overcharge release voltage	Per Single cell	-	4.18	-	V
Over-discharge detection voltage	Per Single cell	-	2.8	-	V
Over-discharge release voltage	Per Single cell	-	3.0	-	V
Balance starting voltage	Per Single cell	-	4.18	-	V
Operating Temperature	-	-	20	50	°C

### Notes:

- 1) Read the following instructions carefully.
- 2) The BCPB series is designed for Lithium battery charging, balance and protection. Please kindly be noted that the batteries are not included in the package. You need to prepare the Lithium-ion batteries with 3.6V typical working voltage and 4.2V overcharge protection voltage. Besides, any other batteries especially LiFePO4 battery are prohibited. Please make sure the voltage of the batteries has been balanced before installation.

Please kindly be noticed that WONDOM BCPB series does not test with FCC and CE. If customers want related certificates, please contact us.



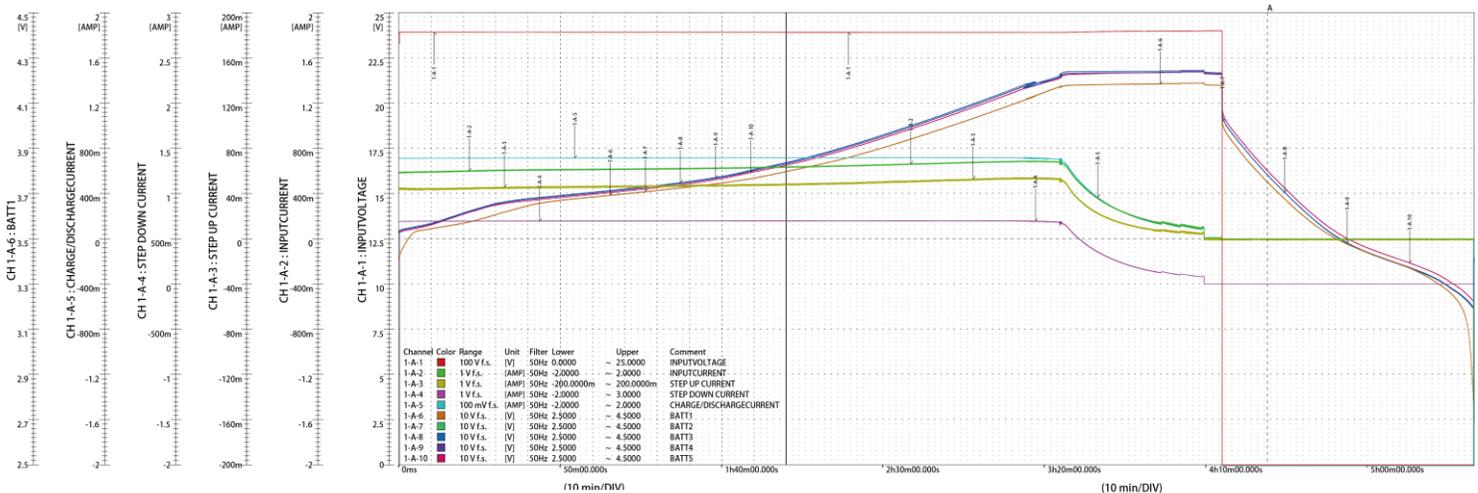
### Contact Info

- Email: info@wondom.com



- 3) There is one 4pin cable for discharging in the packages of BCPB series. Please make sure you have corresponding power supply to charge the board(s) for normal use. It's recommended that the current of the power supply for charging BCPB1 and BCPB2 is more than 1A and the one for charging BCPB3 and BCPB4 is more than 2A.
- 4) Please ensure voltage of all the batteries are balanced (The voltage difference is within 0.5V) and check the battery polarity before installation.
- 5) After installing batteries, please connect with power supply within the recommended range to activate the battery board. When the on-board LED indicators are on, the battery board is successfully activated and is ready for discharging.
- 6) For the 1<sup>st</sup> time to charge the new battery board/make the board active, it is normal to take much longer time to make the board fully charged and balanced.
- 7) Fully considering the applications where one battery charging board power several devices, Sure Electronics provides multiple discharging ports with same function on WONDOM BCPB series. The only difference is the used connectors.
- 8) Please check the polarity when using the BCPB series to charge other devices.
- 9) The WAGO-2060-2Pole-4mm Connector installed on the BCPB2, BCPB3 and BCPB4 is a push-button, so customers just need to push the cable in and plug them out without any other operations. If the used cables are hard copper wires, the recommended diameter is within 1.5-2mm; if the cables are stranded conductor, please tin the wires and ensure the diameter within 1.5-2mm.
- 10) If your board enters into protection status or the battery(ies) has been re-installed, please re-activate it by connecting to a power supply within the recommended range.
- 11) Please make sure no metal falls onto the battery charging and protection board(s) surface to prevent short circuit.
- 12) Please be noted that all the boards in the BCPB series are forbidden to be connected in parallel or in series. Sure Electronics will develop the ones that can be connected in the future.
- 13) Remove the battery (ies) from the boards if they are unused for long time and it is suggested that the batteries are fully charged before remove.
- 14) Sure Electronics does not provide technical support for any behavior of connecting the battery charger and balance protection board with power supply out of the recommended range. Warranty will be lost due to this.

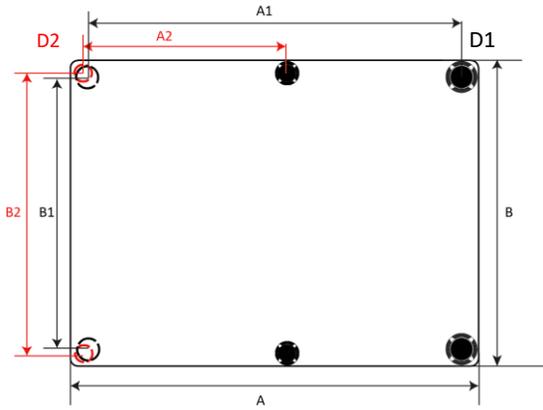
## Charging and Discharging Curve



Charge voltage: DC24V, Fully charged time: 4h10min

The picture is not clear enough due to the page limitation. Please download <DC24V Charge and Discharge Characteristics of BCPB3.pdf> for details.

## Mechanical Dimensions

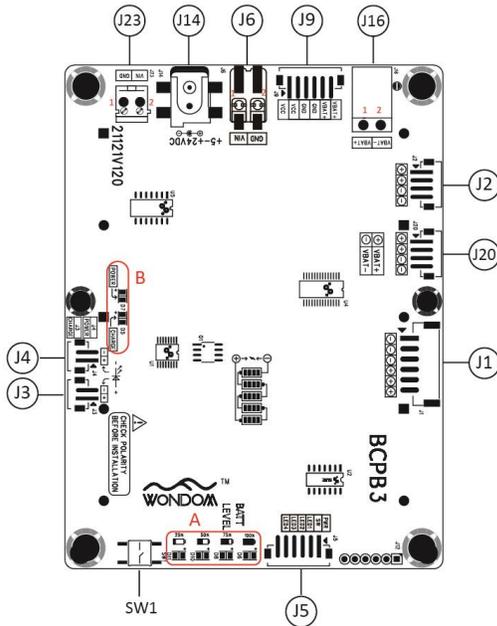


Dimensions (inch/mm)	A	A1	A2	D1
		4.80/121.92	4.40/111.76	3.3/83.82
	B	B1	B2	D2
		4.50/114.30	4.10/104.14	3.20/81.28

### Notes:

- The BCPB3 is compatible with both amplifier boards whose PCB size is 3.6 x 2.7 inches or 48 x 3.6 inches.
- All dimensions are typical in inches/mm
- Tolerance x.xx = ±0.02(±0.50)
- Height: 1.28inch/32.51mm

## Connections



- J6 WAGO-2060-2Pole-4mm Connector

Pin	Definition
1	VIN
2	GND

### Discharging:

- J9 JST PH-2mm-6POS-Connector

Pin	Definition
1	VCC
2	VCC
3	GND
4	GND
5	VBAT+
6	VBAT+

- J16 MOLEX-MicroFit-2POS-4.2mm Connector

Pin	Definition
1	VBAT+
2	VBAT-

- J2, J20 JST PH-2mm-4POS-Connector

Pin	Definition
1	VBAT+
2	VBAT+
3	VBAT-
4	VBAT-

- J1 JST PH-2mm-6POS-Connector

Pin	Definition
1	VBAT-
2	VBAT-
3	VBAT-
4	VBAT+
5	VBAT+
6	VBAT+

### Charging:

- J14 DC 5V-24V Power Adapter Socket Jack 5.5mm/2.1mm
- J23 DC 5V-24V Power Supply JST-VH-2POS-4mm Connector

Pin	Definition
1	VIN
2	GND

### Notes:

1. J9, J16, J2, J20 and J1 are of the same function. The only difference is the terminals.
2. Please be noted that PS-BC12112 is forbidden to be connected in paralleled or in series.
3. J9 can be used as discharge port and can support extension board to deliver Dual 5V 2A USB discharge.

### LED Indicators (Position A) for Battery Level Status:

- Four LED indicators for battery level status.
- SW1 Battery Level Display Switch  
Press SW1 for checking battery level

### LED Indicators (Position B) for Charge & Power:

- Two LED indicators for charge and power

### External LED Indicators Port:

- J3 External Charging Indicator connector

Pin	Definition
1	LED+
2	LED-

- J4 External Power Indicator connector

Pin	Definition
1	LED+
2	LED-

- J5 External Battery Level Display and Control Switch Port

Pin	Definition
1	PWR
2	SW
3	LED1
4	LED2
5	LED3
6	LED4

### LED Indicators State:

☀ → ON    ○ → OFF

Status	Charging Indicator	Power Indicator
Full Charged	○	☀
Charging	☀	☀



# Sure Electronics

Make Your Audio Application Simple!

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