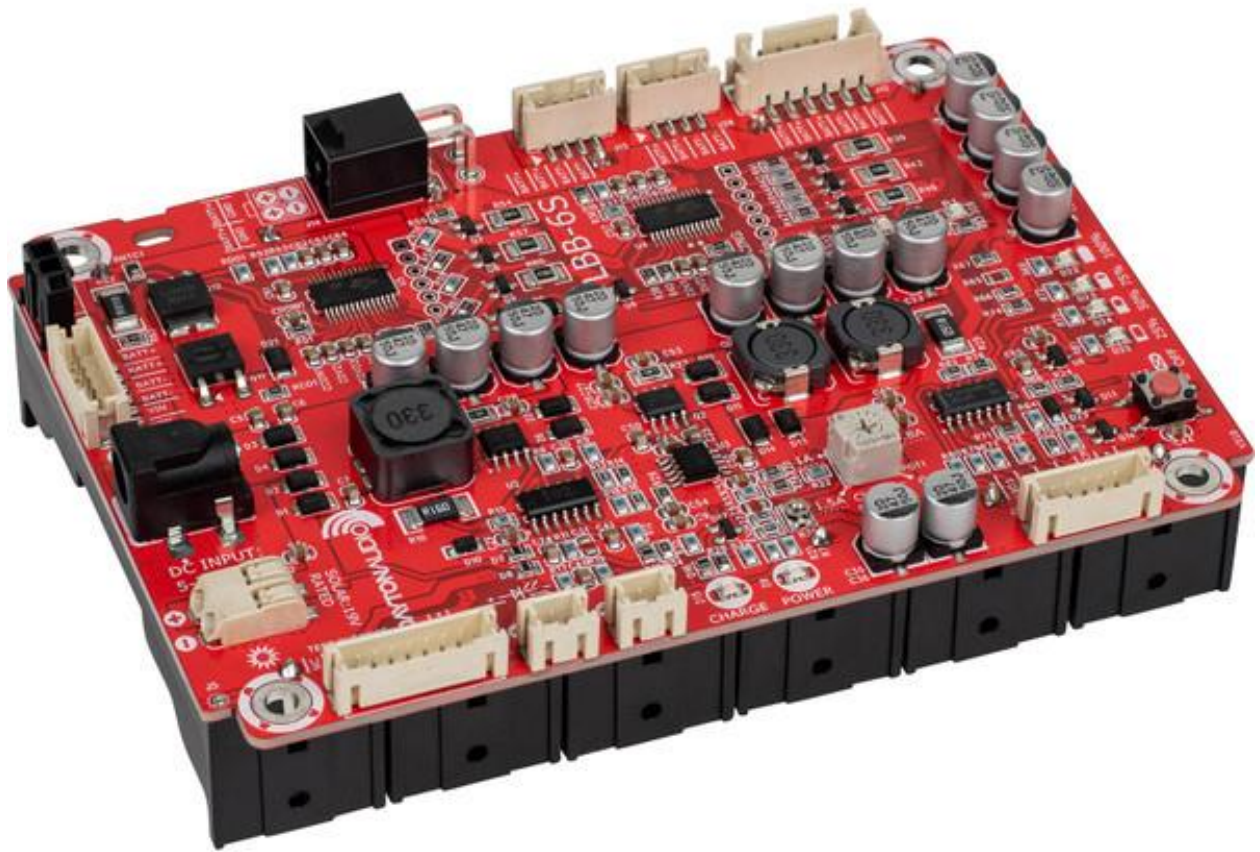


# DAYTONAUDIO



**Dayton Audio LBB-6S Lithium Battery Charger**

## Dayton Audio LBB-6S

- Batteries sold separately: 18650 x6
  1. Use only flat top 18650 batteries, and not 18650 batteries with a button top on the positive side
- Package includes
  1. LBB-6S x1
  2. 20" 2-conductor cable
  3. 8" 4-conductor cable

## Power Supply

- Between 5 VDC and 24 VDC, center positive
- Recommended 1.5A capable
- 2.1 x 5.5mm center positive coax plug

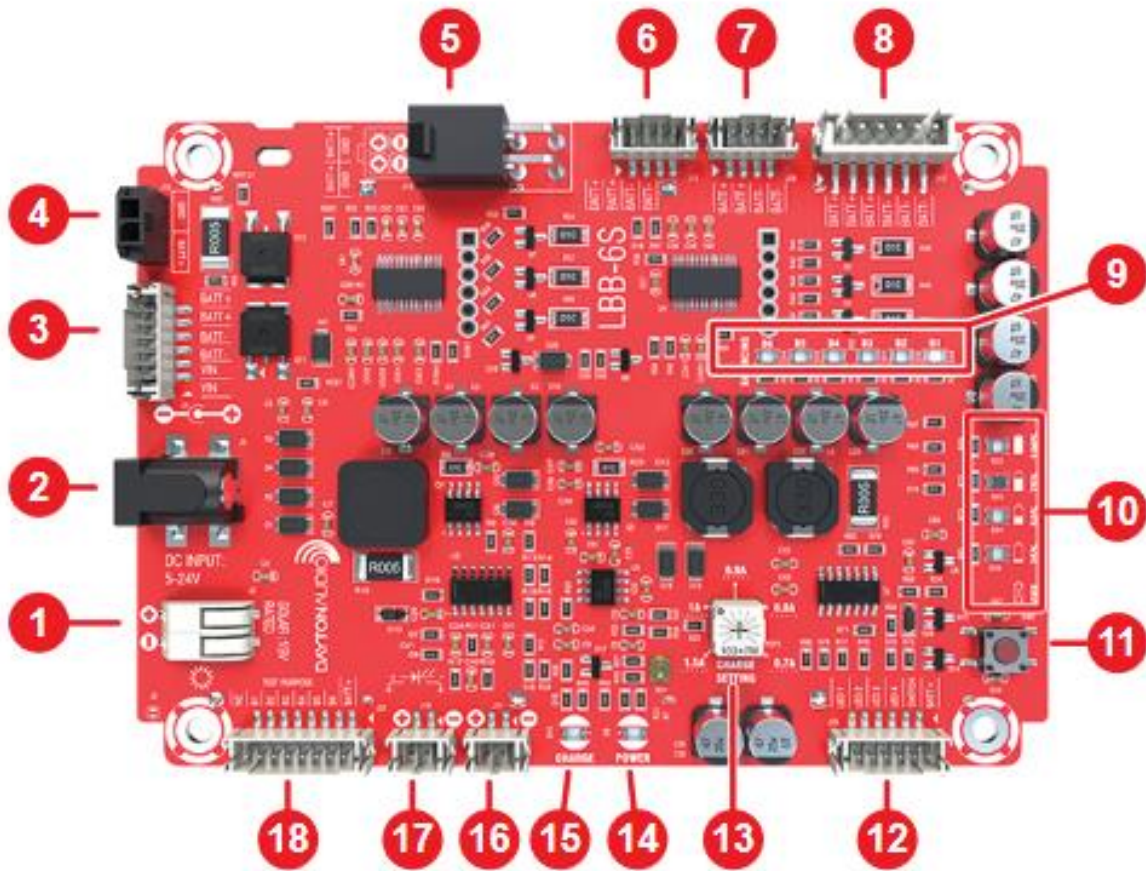
## Installing Batteries

- Plug in all wiring harnesses necessary for project before installing batteries
- Match the + side of the battery with the + marker on the LBB-6S
  - If a battery's polarity is not marked, check for vent holes or a dimple around the rim of the positive side
- You must plug in the power supply in order to activate the battery board
- If a battery goes bad, the board will cease all output

## Charging Tips

- The LBB-6S uses a BMS (Battery Management System) to monitor the voltage of each cell individually in order to charge them to the same capacity
- If one battery is significantly lower in charge than the others, it may take days for all batteries to reach full capacity
  - Higher charge level batteries will be slowly drained before all cells are charged up together
- It is necessary to start with all new batteries with the same mAh capacity
- Remove the batteries before storing LBB-6S for a prolonged amount of time

## Quick-Start Wiring Guide



- |   |  |
|---|--|
| <b>1. J2:</b> 15 – 24 VDC solar panel input                           | <b>11. SW2:</b> Momentary pushbutton to display battery level on D22 – D25 |
| <b>2. J3:</b> 5 – 24 VDC power input                                  | <b>12. J25:</b> External battery status, see page 5                        |
| <b>3. J1:</b> Optional expansion port, see page 5                     | <b>13. POT1:</b> Battery board charge current control, see page 5 & 6      |
| <b>4. J15:</b> 25 VDC power output                                    | <b>14. D9:</b> Power indicator LED   |
| <b>5. J14:</b> 25 VDC power output                                    | <b>15. D15:</b> Charging indicator LED                                     |
| <b>6. J13:</b> 25 VDC power output                                    | <b>16. J11:</b> External power indicator port, see page 6                  |
| <b>7. J28:</b> 25 VDC power output                                    | <b>17. J10:</b> External charge indicator port, see page 6                 |
| <b>8. J12:</b> 25 VDC power output                                    | <b>18. Not used</b>  |
| <b>9. B1 – B6:</b> Individual battery balance status LEDs, see page 5 |  |
| <b>10. D22 – D25:</b> Battery level status, see page 5                |  |

## Pinouts

J1 Pin	Value
1	VIN
2	VIN
3	BATT-
4	BATT-
5	BATT+
6	BATT+

J2, J3 Pin	Value
+	VIN
-	GND

J10, J11 Pin	Value
1	LED+
2	LED-

J12 Pin	Value
1	BATT
2	BATT
3	BATT
4	GND
5	GND
6	GND

J13, J28 Pin	Value
1	BATT
2	BATT
3	GND
4	GND

J25 Pin	Value
1	BATT+
2	SWITCH
3	LED4
4	LED3
5	LED2
6	LED1

## Output Current Capabilities

How much current your project draws will be the limiting factor when using any battery pack. **Do not connect project directly to batteries, use only the voltage output ports of the LBB-6S. Otherwise, over-current protection will not function.** Use the following guidelines to determine which LBB-6S output ports will work best for your project:

- Higher Current Applications – Use J12, J14, J15 when a high amount of current is needed for extended periods of time
  - Examples of high current uses: larger amplifier boards, LED arrays, large DC motors
- Lower Current Applications – Use J13, J28 when less current is needed
  - Examples of lower current uses: small/medium amplifier boards, smartphone battery bank, PC fans
- Maximum Current – The LBB-6S is capable of supplying 5A total at 25VDC from the outputs, for a combined output of 125W

## Dayton Audio LBB-6S

### J1 – Optional Expansion Port

The LBB-6S can be expanded to charge 5VDC devices such as smartphones, tablets, USB receivers/transmitters, and any other USB powered device. It is a plug-and-play fit with the Dayton Audio LBB-5EB, even further increasing the versatility of your project. Simply plug the LBB-5EB into the LBB-6S via the 6-conductor cable. There is also a DC input jack to charge the LBB-6S directly through the LBB-5EB. The LED on the LBB-5EB remains on, so if the LED draining the batteries is of concern, it can be removed.

USB power spec: 5VDC @ 2A max

### B1-B6 – Individual Battery Balance Status LEDs

A new feature in the LBB line of Dayton Audio battery boards, the LBB-6S gives the status of each individual battery, with B(number) corresponding to which 18650 cells are being charged. An ON status indicates its respective battery is being charged. The balancing feature ensures that all batteries are charged to the same level, ensuring longevity and performance. If one of these LEDs remains on indefinitely, it is time to replace the corresponding battery.

### D22-D25 – Battery Level Status

These LEDs indicate the charge level of the battery board as a whole. By holding the momentary button SW2 on the bottom right corner of the board (#11 in the quick-start guide) the approximate charge level will be displayed. See key below:

1 LED = 25%

2 LEDs = 50%

3 LEDs = 75%

4 LEDs = 100%

### J25 – External Battery Status

J25 serves the same purpose as D22-D25, but with the option of having the LEDs mounted away from the board in case the LBB-6S is hidden away in your project. Following the pinout on page 4, the Dayton Audio LBB-5CL is an easy and turnkey way to add this feature to your project. You may also use your own LEDs and switch, being mindful that a momentary button will illuminate the battery status as long as it is depressed. A non-momentary switch or button will keep the battery status active as long as the circuit is closed.

### POT1 – Charge Current Control

The LBB-6S has the ability to restrict the current at which the board is charged (not the current that is supplied to your project, but the current from the power supply that charges the 18650 batteries). A lower charge current will extend the life of the batteries, but a higher charge current will get the batteries to full capacity faster. It is important to monitor the temperature of your battery board through its first several charges to ensure it does not get too hot. Restricting the charge current to keep the temperature low is recommended. See page 6 for detailed POT1 current restriction instructions.

## Dayton Audio LBB-6S



To the left is a depiction of the adjustment knob of POT1. You will see two dots on either side of the top of the plus sign (Phillips screwdriver slot), this is where the adjustment is currently set. Also indicated by the red arrow in the diagram. Simply use a precision or fine bit screwdriver to gently turn the adjustment knob to the desired setting. The charge current is adjustable from 0.7A – 1.5A. **Do not use electric screwdriver or drill.**

Note: red arrow is in diagram to the left only. There is no red arrow on the LBB-6S board.

### J11 – External Power Indicator Port

An external power indicator can be utilized to externally display the power status of the board. Following the pinout on page 4, an LED can be connected such that an ON status indicates the board is active and an OFF status indicates the board is inactive. This external LED will serve the same purpose as D9 on the board to the right of J11.

### J10 – External Charge Indicator

Similar to J11, an LED can be plugged into J10 to display the charge status of the LBB-6S. An ON status indicates the board is charging, an OFF status indicates the board is not charging, or has completed charging if the board is plugged in. This serves the same function as D15 on the board to the right of J11.

Dayton Audio is proud to be a top supplier of the DIY audio and tinkering community to create so many interesting and engaging projects. In the name of versatility, the Dayton Audio LBB-5CL is an easy plug-and-play expansion pack containing LEDs, cables, and a momentary switch compatible with J25 as previously mentioned, as well as J11 and J10 of the LBB-6S. Premade LED cables complete with connectors makes adding these features to your project as easy as opening the packaging and plugging them in.

## Dayton Audio LBB-6S

### Troubleshooting

*Battery board not supplying power* – Remove then replace one battery (new battery not necessary) and momentarily plug in your power supply. This will restart the charging circuit and will reactivate the battery supply

*LBB-5EB expansion not working* – ensure the LBB-5EB is plugged into the extension port (J1) and not the external battery charge status socket.

If an individual status light stays on or flashes while all other lights go out, you will need to replace the corresponding battery.

**Note:** The Dayton Audio LBB-6S is an independent battery holder board and its design does not work with Dayton Audio KAB board's built-in charge circuit. Plug the LBB-6S into the two wire DC input on the KAB boards or use Dayton Audio battery board KAB-BE with Dayton Audio KAB Bluetooth amp boards.

### Specifications

**Output voltage:** 25 VDC @ 5A Max (combined outputs)

**Supply:** 5 – 24 VDC, at least 1.5A recommended

**DC jack:** 2.1 x 5.5mm center positive

**Dimensions:** 5.1" W x 3.6" D x 1.38" H (130 x 92 x 35 mm)