

# Powerstor XL60 Series



This document provides a guideline to help customers connect individual XL60 series supercapacitors. Powerstor XL60 series terminals are designed to be connected using aluminum buss bars. There are two configurations, screw type and welded type.



**Warning:** Ensure that the cells are discharged (<0.3V) prior to beginning connection.



**Figure 1:** The kit includes metal buss bar, 2 lock washers, 2 M12 nuts, and 2 XL cells.



**Figure 2:** Assembled cell connecting negative terminal on the left to positive terminal on the right.

## Screw type

- Terminals are threaded 6061 aluminum. As shown in figure 1, the screw type kit consists of a metal buss bar, lock washer and M12 nut.
- As shown in figure 2, the buss bar is placed over the terminals connecting the positive of one cell to negative of the other cell. An M12 nut with lock washer is screwed down with torque not to exceed 180Kgf-cm.

## Welded type

### General information

- Terminals are 6061 aluminum.
- Use of an appropriate filler alloy is recommended for optimal weld results.

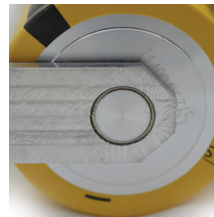


Welding requires safety considerations that are beyond the scope of this guideline. Please consult equipment providers for suggested safety and operation.

- Continuous overheating while welding could cause reduced performance, opening of the safety vent, and/or damage to the plastic sleeve.
- Only weld near the terminal. Welding on the cell wall could breakthrough causing failure.
- A butt weld is recommended. The buss bar hole size should be 13.98mm – 14.06mm.

### Process

- A pulsed or continuous laser welder can be used.
- For pulsed, a Nd:YAG laser at 3-5kW or equivalent with a 0.6mm spot size is recommended. The recommended overlap of pulses is 80%.
- For continuous, a 1kW Yb fiber laser or equivalent with 0.3mm spot size is recommended.
- To reduce oxide formation in the weld, an inert gas such as nitrogen or argon is recommend.
- The buss bar should be flush with the top of the terminal during welding.
- The butt weld should follow the circular gap between the terminal and buss bar as shown in figure 3.
- Welding parameters should be adjusted so that a minimum depth of 0.7mm is achieved.



**Figure 3:** Weld path between solid terminal and buss bar.

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