K2 Energy Solutions, Inc.
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Battery Charging Instructions

To maximize the life and capacity of your K2 battery product, it is important that the battery is charged properly. It is recommended that the following instructions be observed as a guide for proper charging of the indicated K2 battery products.

These instructions are applicable to the following products

- LFP 123A (LFP16340) (Lithium Ion Battery Cell) 3.2V 0.6Ahr (Single Cell Battery)
- LFP 18650P (Lithium Ion Battery Cell) 3.2V 1.25Ahr (Single Cell Battery)
- LFP 18650E (Lithium Ion Battery Cell) 3.2V 1.5Ahr (Single Cell Battery)
- LFP 26650P (Lithium Ion Battery Cell) 3.2V 2.6Ahr (Single Cell Battery)
- LFP 26650EV (Lithium Ion Battery Cell) 3.2V 3.2Ahr (Single Cell Battery)

Charging Information and Recommendations

The method used to charge the batteries can be either Constant Current (CC) or Constant Current/Constant Voltage (CC/CV). Regardless of the charge method used, the charger should be a compatible Lithium Ion Battery Cell charger rated to cut off or limit the voltage output at 3.65v. The CC/CV charge is recommended for obtaining a full capacity charge as it provide the CV float that tops off the battery after the CC charge.

To obtain maximum capacity and lifetime of the battery it is recommended that charger is sized so that the charger does not overcharge the battery or charge at a rate that will damage the battery cell and shorten the lifetime and capacity of the battery.

The following chart shows the recommended parameters for the output of the battery charger.

	LFP 123A	LFP 18650P	LFP 18650E	LFP 26650P	LFP 26650EV
Voltage Rating	3.65v	3.65v	3.65v	3.65v	3.65v
Current Rating	120mA~300mA	250mA~625mA	300mA~750mA	520mA~1.3A	640mA~1.6A

The cell temperature should be monitored during the charge not to exceed 45°C (113°F) for maximum battery life.

To estimate the maximum time it would take to fully charge a battery divide the capacity of the battery cell by the current output of the charger as shown in the following formula.

$$\text{Time to Charge} = \frac{\text{Battery Cell Capacity (Ahrs)}}{\text{Charger Capacity Output (A)}}$$

(Example: LFP26650EV Capacity of 3.2Ahr / Charger Capacity Output of 1.0A = 3.2hrs)

When using a CC/CV charger it is recommended that the battery remain on the charger until the end of the CV Float stage of the charge cycle to obtain a full capacity charge. The battery may remain on a charger in a rest stage for an extended period of time without negative impact to the lifetime or capacity pending proper performance and compliance of the charger to the recommendations noted above.

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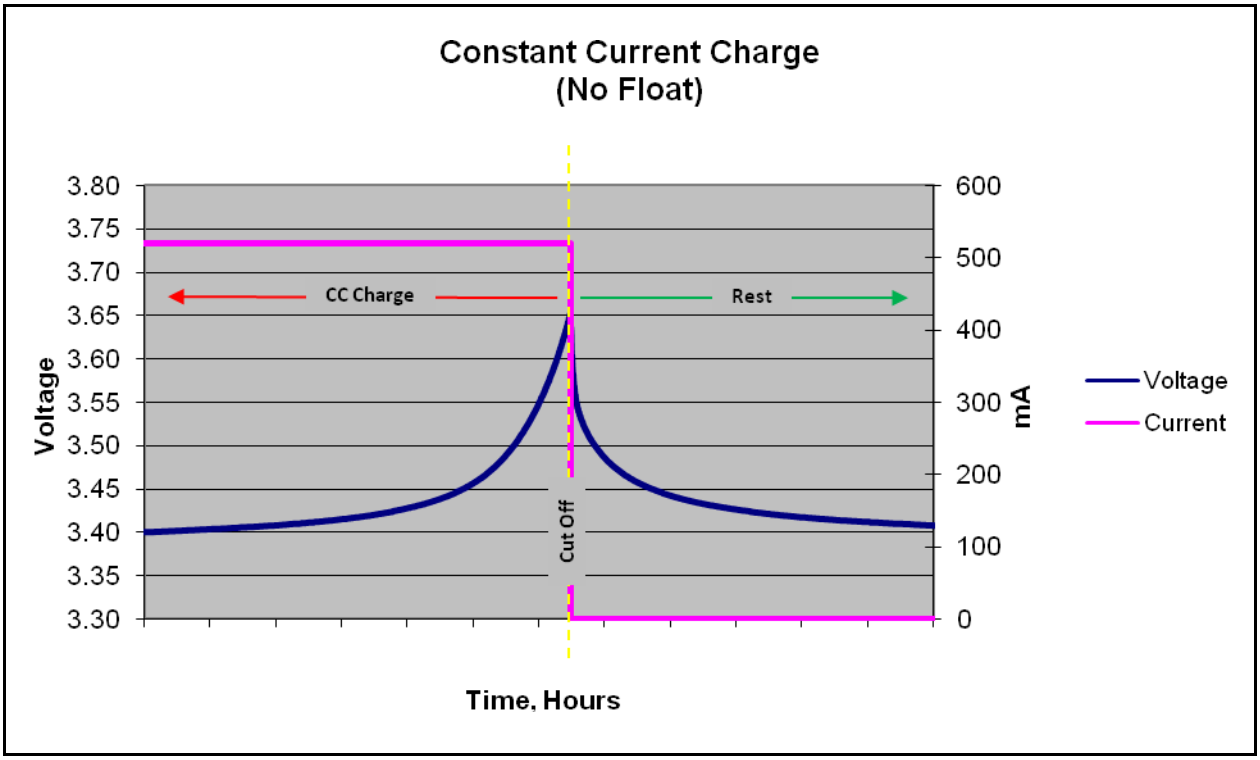
Refer to the Charge Profile charts below for examples of recommended CC and CC/CV charges.



Note: The CC charge above does not have a CV float stage to top off the capacity of the battery.