



# Did You Know?

## LITHIUM ION BATTERY MOTORS

We often get questions about the longevity of our rechargeable Lithium Ion battery motors. How many cycles does each charge provide? How many times can they be recharged? If I leave them plugged in, will they become overcharged? Do the batteries degrade over time, requiring more frequent charging?

Great questions -- ones that we have explored in depth over the past few years as we evaluated the opportunity to embed lithium ion batteries within shade motors. Fortunately, lithium ion battery technology is mature. It is proven and found in many of the products we interact with every day: smartphones, laptops, cars. We have been able to successfully apply this well-developed battery technology inside of shade motors with the following findings from real world testing.

### **500 shade cycles per charge.**

Our Li-Ion batteries are estimated to power 500 up/down cycles per charge. These numbers are impacted by shade size and fabric weight, but on average our motors in prevalent size shades are able to last about a year and half under normal operation (one cycle per day).

### **500 recharge cycles per motor.**

The rechargeable Li-Ion motors can successfully be recharged around 500 times. Lifecycle testing, which included radio sleep/wake cycling as well as load testing, identified that our motors can be successfully recharged 500 times.

### **The batteries cannot be overcharged.**

Automate motors feature a charge-management circuit that adjusts the amount of electrical current feeding the battery. As a battery reaches its maximum charge, the circuit will limit the current eventually shutting off power once the battery is fully charged.

### **The batteries degrade over time. Slowly.**

Lithium Ion batteries degrade over time, as does everything. The real question is how much and when.

Our lifecycle testing suggests that our Li-Ion batteries exhibit nominal annual degradation and that the degradation is consistent over time (i.e. there is no cliff where the batteries will unexpectedly stop holding a charge). The batteries will degrade slowly over time – the rate depends on load, environmental conditions, manufacturing and use. But they can hold a meaningful charge for the duration of their useful life (500 charges).