

# Application Note: Lithium Battery Storage Considerations (Iris Wireless Solution)

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## Background

Iris wireless node battery packs use non-rechargeable Lithium Thionyl Chloride (Li-SOCL<sub>2</sub>) primary battery cells. There are many advantages to this battery technology including excellent power density and wide operating temperature.

## Battery Storage Recommendations

Lithium thionyl chloride batteries have excellent shelf with a low self-discharge rate. The cells are rated for a 10 year shelf life. One disadvantage of this battery technology is long term storage results in what is called passivation, which results in an increased internal resistance of the battery. The passivation can be removed by placing the battery under moderate load for 1-2 minutes.

- Recommended storage temperature: 20-25°C (68-77°F)
- Shelf life before De-Passivation procedure is required: 6-8 months

## De-Passivation Procedure

ETC recommends that any batteries stored for more than 6-8 months be “de-passivated” before being placed into service.

To de-passivate a battery pack connect a 25 ohm (1-watt or greater) resistor across the battery pack for 1-2 minutes. Ensure that the battery pack is not shorted or the internal fuse will blow.

ETC can provide “de-passivation” resistor plugs upon request.

Alternatively, the battery can be plugged into the Iris node and left for 15-30 minutes. The Node will re-boot as the battery voltage dips, but after some time will start operating normally and the battery will be de-passivated.