

Nox Battery Selection Guide for VLocity™

Alkaline vs. Rechargeable

The first thing to consider is obtaining a good set of rechargeable batteries for your hopper. The cost of single use 9V alkaline batteries quickly adds up over the course of a season and rechargeable batteries make a good investment that will quickly pay for itself.

What kind of Rechargeable to get?

The two practical battery chemistries available are nickel metal hydride (NiMH) and lithium ion (Li-ion) based cells. There are significant differences between these two types of cells that require some thought before selecting. It is also helpful to know a little bit about how the VLocity board works as well.

Board Related

The VLocity board itself is run off a 12V linear regulator that has built in current limiting and thermal protection. The regulator requires a minimum of about 12.5V under load for proper operation and any input voltage higher than this is dropped across the regulator as waste heat. Supplying voltages well in excess of this amount only causes the regulator to run hot and provides no performance benefit.

NiMH

Pros

1. The cells and associated chargers are roughly half the cost of Li-ion cells and chargers.
2. They are readily available from multiple sources in the 9V size format.
3. The cells do not require a smart charger and pose less of a hazard when being charged and handled.

Cons

1. The cells have a relatively small storage capacity.
2. The extra output voltage (9.6V rated version) creates a significant amount of waste heat at the regulator.

Li-ion

Pros

1. The cells have roughly twice the storage capacity of the NiMH cells in the 9V size format.
2. The lower output voltage is a better match to the 12V regulator on the board and this reduces the amount of waste heat produced.
3. The cells are the lightest available for the capacity.

Cons

1. The cells require careful handling and the use of a smart charger. They must not be exposed to high temperatures or become punctured due to the possibility of catching fire.
2. The cells and chargers are significantly more expensive.

Our Recommendation

1. We prefer the Li-ion batteries due to the larger storage capacity, light weight for capacity and reduced heating at the voltage regulator and feel the cost difference is justified.
2. The NiMH batteries provide a low cost entry point and offer a large cost improvement over single use alkaline cells.
3. The alkaline cells are readily available and if you only play occasionally, may be acceptable cost wise. They also make sense as a backup to your rechargeable cells.

Usage Advice

Both types of rechargeable cells have a flat voltage discharge profile and will not trip the low battery indicator on the board until they are nearly dead. So it is important to charge the batteries on a regular basis to avoid running out of power on the field.