

[MOULTRIE 6V BATTERY CHARGER](#)



If you're like most first-time trail camera users, you're at risk for being overwhelmed by the technology involved. You spend countless hours researching and testing and just when you think you've got it figured out, you stumble across the subject of "batteries". It seems simple enough. Pop a couple of Duracell's in, and you're done... Right? Well, maybe. I guess we would first have to ask, "Which type of Duracell batteries did you install?" Standard alkalines, NiMh rechargeables or lithiums? And, what kind of climate are you placing your cameras? And, and, and...and it gets a little more complicated.

So, let's talk about the three main types of batteries, their characteristics, and why you might want to use one type over another. Trail camera also need battery charger, the best battery charger is [MOULTRIE 6V BATTERY CHARGER](#).

Lithium batteries offer some very interesting benefits. To start, lithium batteries produce 1.6 volts/cell, or as we like to say "They run hot". Just as decreasing voltage produces weaker flash characteristics, increased voltage produces a stronger flash with brighter pictures.

We are noticing about a 10% increase in flash range when using lithium bats. In addition, starting out with the higher 1.6 voltage is like installing an auxiliary gas tank in your vehicle. Lithium batteries will increase the amount of time your camera can stay in the field, many times by multiple months.

Due to their chemical makeup, lithiums are also not affected by cold weather. One aspect of lithium batteries that can be interpreted differently is they are currently only available in AAs. For anyone who operates a “D cell” based camera, you’re out of luck. However, if your trail camera requires “C” cells you can benefit from the extra voltage lithiums offer. Fortunately, AA’s and C’s measure exactly the same from tip to tip. Inserting “AA” lithiums into aftermarket sleeves brings the overall diameter up to that of a “C” cell and makes for a perfect substitution.

Another benefit of using the AAs is they are substantially lighter and take up far less space than the larger “C” cells. If you’re backpacking in to change out several cameras this is very advantageous. The downside is lithiums are quite a bit more expensive, and just like alkalines, they are also headed for the landfill after only 1 use.

In general and for most uses, we love lithium batteries for trail cameras. You can learn more about lithium batteries [here](#).

Nickel Metal Hydride (NiMH) Rechargeable Batteries

NiMh rechargeable batteries were introduced as the successor to Nickel Cadmium (Ni-cad) rechargeable batteries. As you may recall, Ni-cad batteries were widely criticized for developing “Memory”.

If Ni-cad batteries were used and not drained completely, they would often lose a portion of their capacity. In contrast, once NiMH batteries have been conditioned (Fully discharged through 2-3 charging cycles) they can be charged at any point in the usage curve and won’t develop memory as quickly.

Fully charged, NiMH batteries produce about 1.4 volts. However, they quickly decrease to a working level of 1.2 volts, which they are consistently able to deliver for the rest of the usage cycle. However, the 1.2 working voltage does present a problem for use in some cameras. Most cameras are designed around a 1.5 volt/cell scenario. It is very common for a camera to use 4 batteries, or essentially a 6-volt system (4 X 1.5volts).

Many of these 6-volt systems constantly monitor the voltage and automatically shut the camera off when the voltage dips to around the 5-volt level. With NiMH batteries providing just 1.2 volts/cell, they produce an aggregate voltage of only 4.8 volts. This makes Nimh batteries incompatible with several models manufactured prior to 2011. Fortunately, almost all current

production models have a shut-off voltage of about 1 volt per cell and are compatible with NiMH batteries.

What we've learned about Nimh Batteries over the last decade:

All Nimh Batteries are not created equal

Many people have had bad experiences with rechargeable batteries. Often times we talk to someone who has unknowingly purchased older/low capacity batteries and found the battery life to be extremely poor. Most widely available rechargeable batteries (think discount store) have small milliamp-hour (mah) capacities (1200 - 1600). These discount store batteries seldom perform as well as alkaline batteries and usually convince the user they aren't worth the trouble. Conversely, quality NiMH batteries produce 2500 mah of capacity (sometimes more) and outperform the best alkaline batteries by up to 50%. Please make sure to check the Mah capacity of a rechargeable battery before you purchase.

Charging is Critical

We have learned What you use to charge your batteries has now become just as important, if not more important, than how and when you charge your batteries. Most inexpensive chargers (think discount store again) charge batteries with a constant level of charge (200 ma) for a set amount of time (8 hours) regardless of how much capacity is remaining in the battery. This would be fine if all of your batteries were fully drained every time you placed them in the charger, but this isn't reality. Typically, when I run cameras I come back to the office with a box full of batteries and no idea how much capacity is left in each cell. Luckily, we use a smart charger with a microprocessor which individually monitors the charging of each cell based on the cell's remaining capacity. The smart charger brings each cell up to a full charge (independent of the other cells) and then switches it over to a trickle charge for storage until it's pulled from the charger. Conversely, cheap chargers apply the same amount of charge to all cells and often overcharge batteries. Batteries exposed to a greater level of charge overheat and lose a portion of their future capacity - some even fail immediately. If you want to fully enjoy the benefits and efficiencies of Nimh batteries, please use a smart charger.

Put your batteries in use the instant they are removed from the charger

NiMH batteries begin to self-discharge immediately after removal from the charger, even if they aren't being used. Each cell loses about 1/2% of its capacity each day until it is completely drained. In order to maximize battery life, plan trips to your scouting area and charge accordingly. When put into the field immediately, we get 2 - 2 1/2 months of battery life from our NiMH batteries.

Set realistic expectations for your batteries

Manufacturers of rechargeable batteries make claims of "Hundreds" if not "Thousands" of possible recharges. I'm sure this is possible when used in a high energy device which requires daily charging. However, based on our experience, we expect somewhere between 3-5 years of field use from our NiMH batteries.

Avoid using NiMH batteries during periods of high heat

We've noticed a sharp decline in battery life when temperatures rise above 90 degrees. In fact, during a stretch of 100 degree days, we noticed batteries which normally lasted 10 weeks only surviving for a week or two. When NiMH batteries suffer, alkaline batteries perform great. We make a point to switch out our NiMH batteries with lithium batteries during the hottest months of the summer.

Alkaline Batteries

Alkaline batteries are certainly the most widely available and least expensive but have many drawbacks. Alkaline batteries are shipped with a power level of about 1.5 volts but begin to decrease in power the instant they are inserted.

As time goes on, the voltage level continues to decrease proportionally to the time left in the field/number of photos taken. This proportional decrease is especially evident when you examine night photos taken by infrared cameras. Photos taken early in the life cycle of an alkaline battery are bright and well illuminated. These early photos also represent the maximum flash range potential of the camera. However, with every passing day, each subsequent night photo will be less illuminated.

The process will continue up until the point where night photos are pitch black and/or the camera shuts off due to low voltage. In addition, cold temperatures adversely affect alkaline batteries. Battery life is diminished and alkalines lose up to half their capacity in sub-freezing weather.

Finally, alkaline batteries are good for only 1 use and then find their way to the landfill. Most environmentally conscious people avoid the use of alkaline batteries whenever possible.

To summarize, alkaline batteries are cheap and available everywhere, but provide inconsistent power and don't work well in the cold, not to mention they are extremely unreliable. To be more blunt,, we hate alkaline batteries. They are the source of many "trail camera problems."