



The Hiker's Guide to Portable Battery Packs: *What All Those Crazy Numbers Mean and Which One to Buy*

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A portable battery pack has become one of the most important pieces of gear a hiker can carry. Years ago, running out of battery on the trail was a huge pain and inconvenience. Today, running out of battery often means you are losing access to the information that helps you make good decisions on the trail. Many hikers rely on their phones for GPS navigation, digital trail maps, weather forecasts, emergency communication, photography, and even their flashlight—this is not the best idea, but that's a different article for a different day.

Fortunately, choosing a power bank isn't complicated once you understand a few basic terms. A lot of the marketing often emphasizes technical specifications like milliampere-hours, watts, amps, volts, and USB-C Power Delivery, but most hikers simply want to know what those numbers mean and which battery is the right choice for their adventures.

What Does mAh Mean?

The first number you'll notice on any power bank is mAh, which stands for milliampere-hours. Think of it as the size of the battery's fuel tank. A larger number means the battery stores more energy

and can recharge your devices more times before it needs to be recharged itself.

Here are some common capacities:

- 5,000 mAh: About one full smartphone charge.
- 10,000 mAh: About two full smartphone charges.
- 20,000 mAh: About four to five full smartphone charges.

One thing that surprises many hikers, including me, is that a 20,000 mAh battery does not deliver the full 20,000 mAh to your phone. During the charging process, some energy is lost as the battery converts its internal voltage to the USB voltage required by your devices. My Marine mentor was the one who first explained this to me years ago. This is completely normal and happens with every lithium-ion power bank.

Which Battery Size Should You Choose?

For years, all the numbers were a mystery for me. I figured that the bigger the number, the better. Eventually I learned and made a chart for myself.

Trip Length	Recommended Battery	Typical Full Phone Charges
Emergency Backup	5,000 mAh	About 1
Day Hike	10,000 mAh	About 2
Overnight Trip	20,000 mAh	About 4-5
Weekend Backpacking	20,000 mAh	About 4-5
Multi-day Backpacking (3-5 days)	20,000 mAh	About 4-5 (depending on phone use)

What Are Amps?

Amperage is how much electrical current flows from the battery to your device. You can think of amps as the rate at which electricity moves. Higher amperage allows compatible devices to charge faster.

Years ago, many power banks charged at only one amp, and filling a smartphone battery could take several hours or FOREVER. Modern power banks commonly deliver much higher output, allowing today's phones and other electronics to recharge a lot faster.

What Are Volts?

Voltage is the electrical pressure that pushes current through the charging cable. Traditional USB charging uses 5 volts, while newer USB-C Power Delivery systems can automatically increase the voltage when charging compatible devices. The battery and your device communicate with each other and select the proper charging level.

What Are Watts?

Watts combine volts and amps into a single measurement of charging power. The higher the wattage, the faster compatible devices can charge.

For hikers, a power bank capable of around **20 to 30 watts** provides excellent performance for smartphones, GPS units, Garmin inReach devices, headlamps, smartwatches, cameras, and other common electronics.

USB-A vs. USB-C

Older power banks often use USB-A ports, while newer models feature USB-C.

USB-C offers several advantages:

- Faster charging speeds
- Faster recharging of the battery pack itself
- One cable works with many modern devices
- Better compatibility with current phones and outdoor electronics

If you're purchasing a new power bank today, USB-C is the best choice.

Cold Weather Performance

This is CRITICAL information! Cold temperatures have a significant effect on lithium-ion batteries. As temperatures drop, the chemical reactions inside the battery slow down, reducing the amount of power the battery can deliver until it warms up.

Around freezing temperatures, you'll notice shorter battery life. In well-below-freezing conditions, available capacity may drop by 20% to 40%. Once the battery warms up, much of that capacity returns.

During winter hikes:

- Carry your battery inside a jacket pocket whenever possible.
- Store it close to your body instead of in an outside backpack pocket.
- On overnight trips, keep it inside your sleeping bag.

These simple habits help your battery perform much better in cold conditions.



Heat and Battery Life

Heat affects batteries differently than cold. High temperatures gradually shorten the overall lifespan of lithium-ion batteries.

Whenever possible:

- Keep the battery out of direct sunlight.
- Avoid leaving it on a hot vehicle dashboard.
- Store it in the shade during breaks.

Common Mistakes

Many hikers reduce the usefulness of their battery pack without realizing it.

Here are some of the most common mistakes hikers make:

- Buying the cheapest battery available (The cheapest ones are terrible and fail at the worst times)
- Forgetting to recharge the battery after each trip
- Carrying only one charging cable
- Leaving the battery exposed to freezing temperatures
- Assuming the advertised capacity equals usable capacity

Product Recommendations

There are many excellent power banks available, but for most hikers I recommend keeping your decision simple.

Best for Day Hikes

Anker 10,000 mAh Power Bank

This model is lightweight, dependable, and provides enough power for most day hikes. It easily fits into a jacket pocket or backpack and offers an excellent balance between weight and capacity.

[View on Amazon](#)

Best for Overnight and Multi-Day Trips

Anker 20,000 mAh Power Bank

For overnight trips, weekend backpacking, and most multi-day adventures, this is the battery I recommend. It provides enough capacity to recharge your phone several times while also powering devices such as a Garmin inReach, headlamp, smartwatch, or camera batteries. [View on Amazon](#)

Final Thoughts

Your phone has become much more than a way to make a call. It serves as your map, weather station, camera, flashlight, and emergency communication device. A dependable power bank helps keep those tools available throughout your trip. By understanding battery capacity, charging speed, and how temperature affects performance, you can choose the right power bank with confidence. For most hikers, an Anker 10,000 mAh model is perfect for day hikes, while a 20,000 mAh model provides dependable power for overnight and multi-day adventures. Invest in a good one!