

How Bad Are Power Outages for My Gadgets?

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KEY TAKEAWAYS

- Power outages can cause data loss and corruption on electronic gadgets, especially if they occur during data writing or copying processes.
- Power surges can occur before or after a power outage, leading to an excessive voltage that can permanently damage electronic components. Power dips can pose a risk as well, especially if they are prolonged and low.
- Protect your gadgets by investing in surge protectors or uninterruptible power supplies, which ensure consistent power supply and protect against excessive voltage.

No matter how reliable the power supply is where you live, there will inevitably be some point where you'll suffer an outage. With our homes now filled with sensitive (and expensive!) technology, how much harm can power outages do to our gadgets?

Power Outages Can Cause Data Loss

Most power events, be it a full power outage or a brown out, won't cause wall to wall chaos in your home with electronics going up left and right in a puff of smoke, thankfully. But because your electronic gadgets don't expect to be suddenly deprived of electricity, it stands to reason that anything they're working on at the point where the power goes out (or dips) can be interrupted or damaged. Maybe that work is something you're actively working on, maybe it's important stuff happening in the background on your router like an automatic firmware update.

This used to be a much bigger problem in the days when operating systems and critical files lived on mechanical hard drives, but with the growing dominance of solid state drives (SSDs) it's less of an issue.

However, it's still entirely possible that data on even modern SSDs can be corrupted if the power goes out. This is why your PlayStation 5 complains loudly if it wasn't switched off correctly. It's also why a power outage while a device is undergoing a critical update can cause, well, critical problems. The storage in the device might not be damaged, but the interruption of the firmware update can brick the device.

These issues are much more likely to happen if the power goes off while the device is copying or writing data. If it's only reading data, you'll probably be OK. Still, data loss remains the primary sort of damage power outages are responsible for, and although the damage may not be to your hardware, losing certain types of critical data is no less terrible for it.

Power Surges and Overvoltage Can Wreck Devices

You may not think too much power could be a side effect of having no power, but the truth is that power outages and power surges go hand-in-hand. There may be a surge in power either right before the power goes out, right after it comes back on, or both—which is why we highlight the dangers of the power surging when it comes back on in our [guide to protecting your devices from power outages](#).

Voltage spikes (the "pressure" of the electrical current) are the main thing to worry about here, and if there's one thing electronics don't like, it's having too much voltage. If a component like a CPU or GPU gets too much voltage it can be permanently destroyed in an instant, and even devices such as power adapters and supplies that are designed to be somewhat robust against fluctuating power may eventually give up the ghost if you experience frequent surges.

Voltage Sags and Brownouts

There's a middle-ground between a power surge and a power outage, where the power dips lower than it should and then comes back. In most cases, these dips don't affect much because modern electronics have capacitors, voltage regulators, and other power supply components that help them deal with power dips that last a few milliseconds.

However, if the dips are too long and too low, it can be a lethal combination of power outage and power-on surge as the supply becomes erratic. This means you can have both data loss and voltage surge damage all in one go, and it can happen in a flash without you realizing anything has gone wrong. If the lights in your home or office are flickering or electronics are behaving erratically, but the power isn't completely out, you're experiencing volts sag, and your area might be experiencing brownouts.

How to Protect Your Gadgets From Poor Power Quality

Protecting your electronics from an erratic power grid isn't all that hard, but you want to plan in advance. The most effective protection is to invest in quality surge protectors. These devices will prevent from too much current or voltage reaching your electronics. The surge protector itself may be sacrificed in the process, but that's just a few dollars versus hundreds or thousands of dollars in damage.

Surge protectors won't protect you against data loss, though. The best solution for that is an uninterruptible power supply (UPS). These can be simple devices that only offer a few minutes of power so you can safely turn off your gadgets. Then there are also modern UPS systems that also work as portable power stations that can run your equipment for hours if necessary. Most of these devices have surge protectors to protect themselves, and they ensure that your gadgets always get a consistent and clean power supply, no matter what happens at the mains. You can use a UPS for so much more than just a computer, too, as they work well for providing smooth and clean power to sensitive electronics of all kinds.

Using a laptop instead of a desktop computer is another obvious solution for computer use specifically since it essentially has its own UPS built in. However, you may still want to use a surge protector for the laptop's power brick to give it extra surge protection. The best thing about a laptop, though, is you can unplug it completely from the wall during a thunderstorm or other power event and keep working with zero risk a power surge will damage it. Speaking of unplugging things, if you don't have a UPS or surge protector, consider unplugging your devices until the power comes back on again. It usually only takes a second or two for restored power to stabilize, at which point you can plug them back in safely without worry about the device-wrecking surge that can come with a power grid restoration.