

Frequently asked questions

We compiled the following set of questions based on our extensive experience dealing with resellers and end users.

1. What's the difference between a surge protector and a UPS?

A surge protector provides just that—surge protection. In addition to surge protection, a UPS continually regulates incoming voltage and provides battery backup in the event of a power failure.

2. How much capacity of a UPS should I use?

To allow for future expansion, we recommend that you install a UPS at approximately 75 percent capacity. In addition, the batteries degrade over time; by oversizing, you provide room for error.

3. How much UPS battery runtime do I need?

During an outage, you need enough battery runtime to gracefully shut down systems or switch to backup generators. You may add an optional extended battery module (EBM) to increase runtime.

4. How is battery runtime impacted if I reduce the load on the UPS?

There can be a significant increase in runtime. Generally speaking, a UPS that provides five minutes at full load will provide 15 minutes at half load.

5. My business is too small for protective measures. Do I really need a UPS?

Power problems are equal-opportunity threats. Your PCs, servers and network are just as critical to your business as a data center is to a large enterprise. Downtime is costly in terms of hardware and potential loss of goodwill, reputation and sales. Also add in the delays that inevitably occur when rebooting locked-up equipment, restoring damaged files and re-running processes that were interrupted. A sound power protection strategy is cost-effective insurance.

6. Why is power quality such a problem today?

Today's high-tech IT equipment and control units are much more sensitive to electrical disturbances and are more important to the critical functions of many businesses than in the past. As a result, power quality problems today are more frequent and more costly than ever.

7. Are power quality problems always noticeable?

No. In many cases, disturbances can cause imperceptible damage to circuits and other components, a major cause of premature equipment failure and problems like computer lockups. Many power quality problems go unresolved, resulting in lost revenue and data.

8. How is reliability measured?

Power reliability is usually stated as a percent of time the power is available. For example, the power grid system in the U.S. provides three nines of reliability—the power is available for 99.9 percent of the time. Because those 8.8 hours of downtime translate into significant downtime and expense, IT and telephone network services require at least five nines of reliability.

Reliability average	Non-availability per year
99%	88 hours
99.9%	8.8 hours
99.99%	53 minutes
99.999%	5.3 minutes
99.9999%	32 seconds
99.99999%+	3.2 seconds

9. How are phone systems and IT equipment affected by inconsistent power?

Fluctuating power is a waste of valuable time and money. If customers expose their telephone systems (and any other electronic equipment) to inconsistent utility power, they're vulnerable to hardware and software damage, data corruption and communication breakdown. The time and cost of replacing equipment, as well as the business lost during breakdown and replacement, can greatly affect a company's bottom line.

10. I have a UPS. Am I really protected by lightning?

No UPS or any other form of surge protection device can provide total protection against lightning-induced power surges. A good UPS will suppress the majority of surges without itself suffering damage. For larger surges, it will also offer one-off protection, where the surge protection device does its job of protecting the connected equipment, but is destroyed in the process and can, therefore, provide no further protection. While a well specified

good quality UPS will provide a very useful level of surge protection, it will do an even better job if it is used as part of a comprehensive surge protection system with several levels of protection with high-energy protection devices installed at the point where the supply enters the building, and smaller devices installed at other critical points throughout the building's power distribution system.

11. We have a generator. Do I still need a UPS?

A generator will NOT protect your equipment against power problems. You need a UPS to guarantee that the equipment stays up until the generator kicks on and stabilizes—which often requires several minutes.

12. How much UPS capacity do I need?

Determine the total load (in watts) of the equipment you want to protect. Add 10–20 percent for future growth and decide the minimum amount of runtime you need. Use the online sizer to identify the right solution for your application.

13. What are the different levels of surge protection?

There are three typical levels:

A. Lightning arrestors. Big and mean, usually found in large facilities located in high-risk areas. Takes an extremely high voltage and clamps it down.

B. Surge Protective Devices (SPD or TVSS). Mounted on your panelboard or load center; sometimes larger UPS models may have some level of this, but typically not a great amount. Clamps voltage down two even lower tolerances (~1 kV or less).

C. Local outlet level surge protector. A simple surge strip; small plug-and-play UPSs often have this as well. Brings voltage down to levels that will not permanently damage connected equipment (typically ~380V).

Lightning strikes have such an incredible amount of energy that only an expensive lightning arrestor would protect you from a direct hit and they often don't guarantee complete protection. For the best protection against lightning strikes, you want to develop a two-stage defense with something at your panel and something at the outlet level.

14. What happens if the UPS is overloaded, for example, if the protected equipment and/or load draws more current than it can provide?

The UPS transfers the load to bypass (for a few minutes) until the overload condition is reversed. If the overload condition continues, some UPS models automatically shut down. Some models can run at 110V indefinitely in bypass.

15. What causes a UPS to be overloaded?

There are two possible answers: (1) the UPS was undersized (e.g., the load is rated at 1200 VA, but a 1000 VA UPS was provided), or (2) you plugged more equipment into the UPS than it was designed to handle.

16. I have a 3000 VA UPS. Can I just plug the unit into a standard 15A wall outlet?

Only UPSs with power ratings up to 1500 VA plug into a standard 15A wall outlet. All others require a larger receptacle, which must be installed by an electrician.

17. Why is power management software important?

Although UPSs are typically rugged and reliable, they do require ongoing monitoring and support. Power management software continuously monitors and diagnoses the state of the grid, batteries and power sources, together with the condition of the UPS's internal electronics. Eaton UPS software and connectivity cards enable remote monitoring and management capability, including graceful shutdown and load segment control.

18. Will my current UPS software monitor my new Eaton UPS?

Yes, you can monitor your Eaton UPS with any UPS or facility management software that supports the industry standard Management Information Base (MIB, RFC 1628) as long as you install the optional connectivity card. Most UPS vendors support this MIB and all good facility management software, including OpenManage, OpenView and Tivoli also support it. Extended Eaton Advanced MIBs are available for greater levels of detail.

You can remotely control your Eaton UPS using the Eaton UPS management software or through a secure web interface if you choose the optional connectivity card, which also allows for automated email alerts for power events without needing to install any software.

19. My data center only went down for a couple of minutes. What's the big deal?

When a data center goes down and then back up during a power outage without a managed shut down, it doesn't come up nicely. Storage arrays initialize after servers that try to mount their shares, while some servers boot without access to DNS servers that are also booting and thus have other problems. Although the outage was short, it can take hours to get everything back online. In addition, data corruption is a serious concern.

A GENERATOR?
I ALREADY HAVE
MY OWN!

