

Choosing the right UPS battery backup for network closets and IDF applications

Network closets and intermediate distribution frames (IDF) are critical parts of IT networks, but they're often scattered about. They seldom have dedicated IT personnel close by and are often neglected. A network closet can be a lonely place! And yet if there's a power outage, an IDF or network closet being knocked out of commission can cause significant problems. They're also vulnerable to both non-IT humans (e.g. the cleaning staff unplugging the UPS battery backup) and cybersecurity breaches. Selecting the right UPS battery backup for your network closet or IDF can be a confusing process. This uninterruptible power supply (UPS) buying guide is designed to help you properly plan so you can make your IT network more resilient and reliable.

Let's get started with these 10 buying tips to help you select the right UPS battery backup.

1 Consider the right UPS battery backup form factors for your network closet

An uninterruptible power supply (UPS) form factor isn't complicated -- it's simply how the UPS is shaped.



Rackmount UPSs are measured in U, which is equivalent to 1.75 inches of vertical rack space. [Rackmount UPSs](#) typically come in 1U or 2U models, though some larger models are 3U. The good news with rackmount UPSs is that they slide in alongside your IT equipment off the floor away from water leaks and spills. Be sure that the proper 2- or 4-post [mounting hardware](#) is included with the UPS battery backup or you'll need to purchase it separately. When it comes to installing the UPS, it's almost always the heaviest component in your rack so you'll want to position it at the bottom especially if you have external battery packs.

[See Eaton's rackmount UPS solutions](#)



Wallmount UPSs are often deployed when there's no existing UPS or limited available space to add to the IT rack. Placing a UPS battery backup on the wall limits access to it (which is a good thing!). You'll need to make sure that you mount the UPS to the wall so that it's stable. You can also install a UPS inside of a wallmount rack enclosure, such as the [MiniRaQ](#) by Eaton. Due to their lighter weight, UPS models with [lithium-ion batteries](#) are a good choice.

[See Eaton's wallmount UPS solutions](#)



Tower UPSs are shaped like toasters—they're just a lot heavier! Tower models are ideal for desktop applications, and placing a UPS battery backup on the floor is often less than ideal as you never know when there will be a leak or a spill of some sort. There's also the possibility of someone kicking it or accidentally unplugging it. If there's a room, you can place a tower UPS on a shelf in a 2- or 4-post rack to avoid these issues. The good news with tower UPS models is that they often cost less than their rackmount counterparts.

[See Eaton's tower UPS solutions](#)

Helpful hints

Some UPS models offer a two-in-one rackmount/tower form factor which means that they can be mounted in a rack or turned vertically as a tower. These models give you some flexibility.



When selecting a rackmount UPS, be sure to check the depth specification. If you have limited depth in your rack, look for a compact UPS.

[Explore the 5P compact UPS](#)

2 Consider your battery runtime needs

The most common questions about a UPS battery backup are related to pricing and how long the batteries will last during a power outage. UPS batteries are heavy (though [lithium-ion batteries](#) are about 40% lighter than lead-acid ones) and extra battery packs can quickly increase costs. Most power interruptions are short—less than 2 minutes—so users usually look for approximately 7 to 10 minutes of battery runtime. As a general rule, when you cut the load (equipment plugged into the UPS system) in half, you triple the runtime. For example, if your 1500 VA UPS lasts for 5 minutes at full load, it will run for approximately 15 minutes if you cut the load down to 750 VA. For Eaton UPS runtimes, check out our [comprehensive battery times page](#).

In addition to adding battery packs to a UPS, another common practice is to combine the immediate power backup of a UPS with the long-term power of a generator. Eaton has several [UPSs that are designed to pair with a generator](#).

Helpful hints

A UPS with load segments (output receptacles that can be managed separately) allows you to shut down non-critical loads during a power outage and extend battery runtimes for critical equipment without adding additional battery modules.



Adding more batteries doesn't increase the power rating of the UPS. For example, adding 4 battery packs to a 1500 VA UPS doesn't mean you can plug in more equipment. In other words, you can't exceed the power rating of the UPS battery backup.

3 Determine the right UPS battery backup wattage



First, total up the wattage of all the equipment you plan to connect to the UPS and then multiply that total by 1.2 to account for future expansion. With this grand total in watts, you can find a UPS that has enough power capacity.

A UPS battery backup is rated in volt-amperes (VA) and watts. Watts is a measurement of real power and is the key rating. However, it's easy to be fooled by VA ratings. For example, a UPS rated at 1000 VA / 900 watts provides one third more power than one rated at 1000 VA / 600 watts even though at first glance it appears that they have the same power rating. Learn more about the [difference between watts and VA](#).

Helpful hints

If you're replacing an existing UPS battery backup, check the LCD for the wattage total. It's much faster and more accurate than tallying up the wattage of all your equipment.



Find the right UPS to back up your equipment (up to 6kVA)

[Explore the UPS selector](#)

4 Choose UPS battery backup input plug and facility site voltage

Once you've determined the wattage that your UPS battery backup needs to support, you can look at UPS models with an adequate power rating. In North America, the standard wall socket is called a 5-15R. UPS models 1500 VA and below use a matching 5-15P input plug rated at 15 amps. Some sites may have a 5-20R as the standard, which accommodate both 5-15P and 5-20P input plugs. If you want a larger UPS system and don't have a 20- or 30-amp wall socket, you'll need to have an electrician install the right socket. Check out this [UPS connections overview](#) for more details and pictures.

In North America, the typical office outlet delivers 120V and convenience is the primary benefit. Simply plug in the uninterruptible power supply and you're ready to go. While it's the most convenient, your load requirements may exceed what you can do with 120V. It's also possible to deploy a 120/208V split-phase UPS like the Eaton 9PX. Using 208V single-phase power is an even more energy efficient solution.



Helpful hints

If you have a 20-amp wall socket (5-20R), you can plug in UPS systems 2200 VA and below. If you're lucky enough to be building a room from scratch, install a 20- or 30-amp wall socket. Here's a handy reference that matches wall sockets, voltages and UPS ratings.

[Download the reference guide](#)

Ask Ed: White space 208V UPS configurations

Ed Spears answers a question about UPS end-of-row configuration in the white space.

[Visit Ask Ed](#)

Follow these considerations to:

- Simplify installation
- Enhance efficiency
- Become a more scalable and redundant data center

UPS battery backup models are shipped with the internal batteries disconnected so you'll need to be sure to connect them before turning on the UPS. Our technical support team finds that this is the most common mistake people make when installing their new UPS.

5 Make sure your UPS battery backup has enough output receptacles

Make sure your UPS battery backup has enough output receptacles so you can plug in all of your equipment is very important.

If you are short on output receptacles - don't worry! One option for adding additional outlets is the [Eaton FlexPDU](#), which is a basic function power distribution unit with a short power cord for easy, close mounting to a UPS system. FlexPDUs are available with a variety of output receptacles for connection to a wide range of equipment. For example, the [EFLX1500R-PDU1U](#) has (12) 5-15R outlets.



Helpful hint

Don't plug that surge protector you have under your desk into a UPS battery backup. It's a fire hazard and is typically prohibited by local fire codes.

6 Protect servers with a sine wave UPS

The waveform of electrical power (AC) is a sine wave. However, some UPS battery backup models provide a modified or square wave output while they're running on battery power. If you're protecting servers, you should use a true sine wave UPS. Standby UPS or offline UPS models are the most common types that don't provide pure sine wave output. Line-interactive and online UPSs almost always deliver a pure sine wave, but you should always read the technical specifications to verify it.

Helpful hint

You pay for what you get in a UPS battery backup and both the power rating (VA/wattage) and sine wave output capability are the major contributors to the price of a unit. Make sure you're doing an apples-to-apples comparison when looking at uninterruptible power supply options and don't sell your IT equipment short—you'll probably regret it.

[Download a UPS comparison chart](#)

7 Consider monitoring, alerts and automation

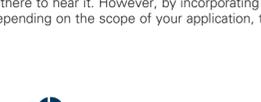
Network closets and IDFs are typically remote, seldom monitored, by IT staff and often neglected. The audible alarm of a UPS battery backup is useless if no one is there to hear it. However, by incorporating monitoring and alert notifications you can be notified and take action if necessary. Depending on the scope of your application, there are three possible solutions:



Single UPS system: Network card
You can usually monitor a single UPS battery backup through an optional network card. Eaton network cards are essentially their own servers, so they record event history, send email and text message alerts, and provide remote access to real-time status. Using a network card is usually the best way to manage a single UPS system.

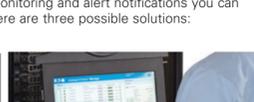
[Check out this StorageReview.com review for a glimpse of what you can do with a UPS network card.](#)

The latest [Eaton network card](#) is the first to meet UL and IEC cybersecurity standards, provides a Gigabit Ethernet connection and enables secure UPS monitoring over HTTPS web browser interface, SNMP v1/v3 protocol and email alarms.



Brightlayer™ Data Centers suite software for [distributed infrastructure](#) and [disaster avoidance](#).

If you have UPS systems spread across multiple locations, Eaton's distributed infrastructure management software will provide you with deep intelligence into your network connected UPSs, enabling you to remotely manage and control your equipment, and identify and fix issues before your equipment goes down.



Virtualization: Network card and IPM

Eaton's disaster avoidance software monitors and manages power equipment in physical or virtual environments to keep IT devices running during a power or environmental event—including servers in clusters running vCenter. Live migrations can also be triggered to transparently move virtual machines to an available server on the network for data integrity and zero downtime.



Ready to speak with a UPS expert?

[Contact us](#)

8 Choose a UPS battery backup with comprehensive warranty and service coverage

When comparing uninterruptible power supply models, be sure to check the warranty, like this [3-year warranty on the Eaton 5 series UPS models](#).

- How long does it last?
- Does it cover both the UPS and its batteries? Is shipping included?
- Are the batteries user-replaceable?

Most network closet UPS models are plug and play, and you can take advantage of [extended warranties and advance exchange plans](#) where a replacement UPS is shipped to you as soon as you notify the manufacturer that you need a replacement.

Helpful hint

With lithium-ion batteries you have the option of simply installing a UPS and not worrying about the batteries for eight years. In addition, a UPS with lithium-ion batteries typically has a longer warranty—5 years with Eaton models.

[Learn more about lithium-ion batteries](#)

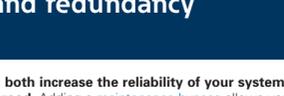
9 Consider UPS maintenance bypass and redundancy



Depending on your budget, you can both increase the reliability of your system and make your life easier down the road. Adding a [maintenance bypass](#) allows you to service or replace the UPS battery backup without shutting down the connected equipment.

An [Eaton automatic transfer switch \(ATS\) PDU](#) is an ideal fit with the Eaton 9PX UPS. The ATS automatically transfers power between sources with no interruption if the primary source fails or requires maintenance to eliminate equipment downtime.

[Take a closer look at these UPS maintenance bypass best practice designs.](#)



[Interact with a network closet](#)

10 Think beyond your UPS

Finally, for a well-rounded solution, you can add a [temperature and humidity probe](#).

If you're managing a fleet of uninterruptible power supplies, a [remote monitoring service](#), like PredictPulse, could be a great option for you. PredictPulse monitors your power devices and alerts Eaton personnel who can promptly deploy an Eaton field technician to the affected site.

[Read about a leading retailer with over 300 stores who was routinely having battery and service issues until Eaton provided a comprehensive solution.](#)



[Learn more about Eaton solutions at Eaton.com/PQD](#)



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