

How to Pick a UPS

Even a minute of downtime can cost data centers dearly. Uninterruptible Power Supplies (UPS) keep all critical equipment running when the main power supply fails. They can also give you time to shut systems down correctly or switch over to backup power in an emergency. However, it can be difficult to know what kind of UPS you need for your location. Use these steps to determine what size UPS your data center needs.



1. Determine What Equipment Needs a UPS

First, you need to decide how many devices in your facility need a UPS and scale accordingly. A large location vs. smaller rooms, rows, racks, or even a single computer will change what size UPS you need or if you need more than one.

2. Identify the Load

Identify all the devices that will be connected to your UPS. A standard data center will usually include the following devices that require a UPS backup system:

- Servers
- Switches and routers
- Security systems
- Racks for storage
- Monitoring and management tools
- Emergency lighting and safety mechanisms

Look at each device's equipment label or manual to find the listed power rating/load. This will either be listed in watts or VA.

3. Calculate Power Consumption

While it may be tempting to add up the wattage of all your equipment to learn your power consumption, this often leads to a much larger estimate than what you actually need. However, there are three other ways you can determine power consumption:

- If you already have UPS that can power all your equipment, look at how much power it can supply to learn how much power your new UPS needs to be able to handle.
- If your hardware or UPS aren't set up yet, contact the manufacturer of your equipment to get the estimated running load.
- If you have all your equipment and no UPS, look for each device's max power draw, which tells you the most power a computer could ever use. Your system will use less power than this number.

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4. Include Safety Margin

If you have planned future loads, be sure to include them in your power consumption. You'll also want to add a buffer for unplanned add-ons and unbalanced loads. Ideally, your UPS will never be more than 80% loaded ($\text{kw} \times 1.25$).

5. Determine Runtime

It's important to note that as power capacity increases, runtime decreases. How long your UPS can run depends on its battery power and the power consumption found in step three. Each UPS' battery power should be listed in its manual in watt-hours. Use [Vertiv's runtime calculator](#) to determine a UPS' runtime at full load and partial loads.

