

Medical UPS Battery Backup

A Medical UPS battery backup is an essential device used to backup power to healthcare equipment like medical-grade fridges in the event of a power failure. Medical fridges are designed to store vaccines and other medical supplies that must maintain a specific temperature range and have power at all times. If a power outage occurs, many medical supplies will only last for four hours without the proper refrigeration, which is why it is important to have a battery backup. In this article, we will explain what a medical UPS battery backup is, its role in medical supply protection, and how to choose the right UPS battery backup for a medical refrigerator.

What is a Medical UPS Battery Backup?

A Medical UPS battery backup is an extra battery that provides backup electricity to medical equipment if there is a problem with the power source. The Uninterruptible Power Supply (UPS) provides guaranteed power protection for medical devices and appliances if there is a power disturbance, blackout or surge. Unlike an auxiliary or emergency power system, a UPS provides instant power protection for valuable equipment via battery power.

The difference between a Medical UPS battery backup and a normal UPS is the standards the former needs to adhere to. Medical UPS has strict requirements and guidelines and must be tested to meet [UL listing 60601-1](#) standards, the international product safety standards for medical devices.

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Benefits of a Medical UPS Battery Backup

Medical fridges are used for storing vaccines and other medical supplies that require specific temperatures. If the power is interrupted, a UPS battery backup will ensure the temperatures stay electronically controlled and avoid spoiling and damage. A UPS battery backup plays a critical role in the safekeeping of sensitive medications and biological samples. The significant benefits are listed below.

- **Ensures continual operation of medical cold storage units.** The integrity and quality of medications and research samples is preserved by medical cold storage units. A medical UPS battery backup provides instantaneous power as soon as there is an outage or interruption to any connected and viable medical cold storage units. This ensures continued temperature stability for the sensitive medications and diagnostic samples within such units, which is critical for its safe keeping.
- **Protects against a cold chain breach.** When the Australian Government National Vaccine Storage Guidelines, which states all vaccines must be stored between +2°C to +8°C at all times, are not properly met, a cold chain breach would have occurred. Preventing a cold chain breach means a strict adherence to consistent storage at recommended temperatures to ensure potency of any vaccine or medical sample. However, power outages do happen, and sometimes at the most inconvenient of times. A UPS battery backup helps avoid a cold chain breach by keeping power connected to the refrigerator and ensuring temperature stability, even in unusual circumstances where no other back-up protocol can be actioned.

- **Saving costs on typical back-up protocols.** In the event of a power outage, vaccines and other medications need to be stored in a controlled temperature setting within less than four hours. This often means investing in a backup medical fridge, or organising an offsite location with the proper facilities you can use temporarily. Transporting vaccines offsite would also require a portable medical fridge or freezer. With a UPS battery backup, the need to use alternative storage solutions becomes less necessary, which provides both peace of mind and significant cost savings.

How Does a UPS Battery Backup Work?

The UPS battery backup is connected to the utility power and devices via cables and power cords. When the power source is working, the UPS operates in line mode and provides power to the connected equipment while charging its battery. When the power goes out or there is a fluctuation, the UPS senses the incoming AC voltage drop and switches to battery mode, where it continues to provide power to the connected devices. More sophisticated and expensive types of UPSs can also provide automatic voltage regulation during brownouts and will only go into battery backup mode in the event of a power outage.

What to Consider When Choosing a Medical UPS Battery Backup

Having the right medical UPS battery backup is essential for optimal performance. A UPS that is too small may not provide adequate backup power during outages. An oversized UPS will take up unnecessary space and consume more energy for charging than the equipment needs. Assessing which battery backup you need requires considering key factors like the equipment wattage and runtime, as well as other considerations like budget and future uses.

Key Factors to Consider

Wattage. The power consumption, or wattage of the medical equipment will determine the UPS capacity requirements. Medical refrigerator watts are the amount of power it uses. The larger the fridge, the higher the wattage. The UPS battery backup must be able to handle the total power load of the medical fridge. As a general rule, it is recommended that the UPS watt output be 20 to 30 percent higher than the device it is protecting.

Runtime. The amount of time a UPS can provide battery power to connected medical equipment is known as runtime. This is the time the battery can power the device if the power has failed. The amount of runtime you need will depend on the size of the medical equipment being powered, and how long an outage might last. Think about how long you will need battery backup power for when deciding on the right runtime.

Calculate and find the ideal UPS battery for your cold storage unit [here](#).

Other Factors to Consider

Power issues. Take into account the type of power issues you have had historically. Will the medical fridge be in an area that has regular power surges, or power outages? How long have these tended to last? Recognise any power issues in your area and choose the type of UPS that will help address these power problems.

Number of outlets required. Calculate the number of devices the UPS will need to support. This will be an indicator of the number of outlets required on the battery backup system. Make sure the battery can handle the total wattage of the collective equipment.

Installation. Where the UPS battery backup will be installed is important to determine when choosing a UPS system. Consider the amount of room you have around the equipment when choosing the type of battery backup. UPS batteries are highly technical pieces of equipment and can be costly, so they need to be stored safely.

UPS Battery life. When choosing a UPS, consider the life expectancy of the unit and the internal battery. In general, a UPS battery backup unit will last anywhere from 8 to 15 years. The internal battery will need to be replaced more often.

Surge protection. Make sure the UPS battery backup you choose includes surge protection. This will protect devices from sudden power surges like lightning. This is extremely important if you are in a location with regular electrical storms and activity

Future uses. If you have a clinic or small health practice, consider future expansion. Perhaps you might want to have extra devices plugged into the UPS battery backup as business grows. It is easier to buy a larger sized battery backup system initially than changing it in years to come. Make sure the UPS is large enough to meet business demands.

Types of UPS Battery Backups

When deciding on the right UPS battery backup, there are three main types to choose from - offline, line interactive and online double conversion. Read about the different types and most suitable applications.

Offline UPS. These are the most cost effective type of UPS but **not recommended for medical equipment**. They are commonly used for general electronics as an adequate way of providing cost effective protection against power surges or fluctuations. When an offline UPS detects a power issue, the offline power supply switches to its internal battery backup, which does come with a minor downtime of power (milliseconds). An offline UPS is more recommended to prevent power inconsistencies in lower power capacity equipment.

Line interactive UPS. A line interactive UPS is intermediate level power protection. It provides basic battery backup that can be used for medical equipment. This battery backup system is line interactive which means that while the power from the utility company is on, the system stays in standby mode. When in standby mode, the utility power keeps the battery charged and transfers power to the fridge it is supporting. When the battery system senses a loss of utility power, it transfers over to the system's backup batteries. Once power is restored, the system automatically recharges the batteries and feeds the power back to the unit. These UPS systems will protect a critical load from power failures, power sags, power surges, under-voltage and over-voltage.

Online double conversion UPS. Referred to as the true UPS, online double conversion UPS provides immediate backup in the event of a power outage. It is the ultimate in power protection for critical equipment because it continuously powers the connected equipment from the inverter, which receives energy from the battery, while the mains power source remains on standby. Although it is the most costly battery type, this process ensures optimum security against power outages and unexpected fluctuations. It has a seamless and

instantaneous switchover to battery power without any downtime or disruption to the connected device in case of a power interruption. Online double conversion UPS is ideal for critical environments like medical equipment.

Hospitals, clinics, vets and healthcare providers rely on an uninterrupted power supply to keep medical equipment and supplies safe. Spikes in power or electricity outages can cause enormous damage to sensitive vaccines and healthcare equipment, so a backup system is essential. Our guide has explained how Medical UPS battery backups provide the ultimate power solutions and protection for healthcare needs. For further information on medical UPS battery backups, contact the team at [Eurochill](#).