



UPS Battery Use, Maintenance, Replacement and Disposal

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This content addresses issues related to *sealed lead acid* (SLA) batteries, which are similar to car batteries and are used in the vast majority of UPS products – and *lithium iron* (LiFe) batteries which are used in specially designed UPSs and other applications such as the Tesla automobile. (As of mid 2020, UPS products sold by Juice Goose included the KIN, SBN and SCV Series which use SLA batteries and the SL350 which uses LiFe batteries.)

General

All batteries have a limited service life. That is true for batteries used in cars, flashlights and other devices, including UPSs. That service life is generally assumed to be three to five years for SLA batteries and up to ten years for LiFe batteries. Proper battery **use, maintenance, replacement** and **disposal** are important elements for safe ownership and operation to extend the service life of the UPS, itself.

UPS Function and Battery Use

The intended function of a UPS is to provide several minutes of AC power to support electronic equipment such as computers and communications equipment during brief power outages. Some UPSs provide power conditioning and can automatically shut down servers or work stations in the event of a long blackout. Although additional battery sets can be added to some UPSs to extend run times, they are not intended as a long duration main power source or as power protection for large, dynamic loads such as audio amplifiers.

Battery Life and Maintenance

Batteries have a limited shelf life and will lose their charge over time when not in use. That shelf life ranges from a few months for SLA batteries to a year or so with LiFe batteries. Because the UPS you purchase was manufactured some time before you received it, best practice is to plug the UPS in for several hours to fully charge the batteries before putting the UPS into service.

Once in service, SLA and LiFe batteries should be constantly charged. Of course, the function of a battery backup (UPS) is to provide electric power in a blackout. Frequent exposure to short duration power outages should cause no problem. However, the physics of the battery charge would be degraded if the battery were often drained completely and then recharged. Therefore, it's best to keep the UPS connected to power all the time – or as much as possible in mobile applications. The more those battery charges are fully depleted the shorter their service life.

Heat can reduce the functional capacity of a battery and cause damage to it and UPS electronics. It's best, if not required, to keep batteries and install UPSs in a temperature and humidity controlled environment.

Some UPS models have a display screen on the front panel and remote monitoring with UPS Management user interface software. In those cases, the condition of the UPS batteries can be observed with a PC or laptop. When it is indicated that the batteries are nearing the end of their service life, it's best to plan a replacement of the batteries or the UPS. If the UPS does not provide a battery status indication, note the purchase date of the UPS and plan a testing routine.

UPS batteries can be tested by unplugging the UPS from power, recording the run time of the batteries with a known load and comparing that duration to the specification of the UPS. If the UPS doesn't power the load for the expected, specified time the batteries probably need replacing.

Battery Replacement

Most higher quality, commercial grade UPSs include batteries of various sizes and ratings that are available from the manufacturer or from retail battery sources. Manuals and associated documents give instructions for how to safely remove and replace the batteries. However, the difficulty purchasing the batteries and making the replacement varies depending on the UPS model. In order to avoid equipment damage or personal injury it is strongly suggested that only qualified personnel perform any physical maintenance on a UPS.

Battery Disposal

Batteries contain hazardous materials which can cause environmental contamination, fire and explosion when subjected to strong physical impact or excessive heat. The only safe and reasonable way to dispose of batteries is by taking them to a battery retailer.

More Information

For more information about UPS application or maintenance, contact Juice Goose: 713-772-1404, info@juicegoose.com