Optional services for maintenance contract

Battery replacement(1)

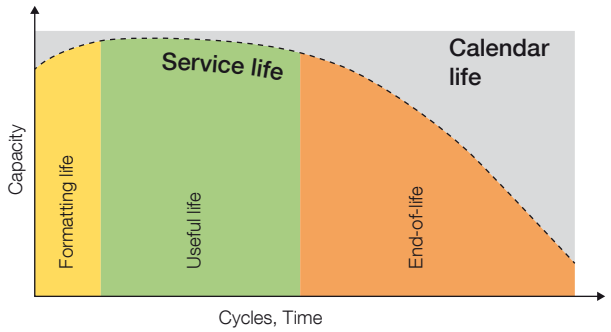
APPLI 732 A

(1) Only for UPS.

The majority of batteries used in UPS applications (VRLA - Valve Regulated Lead Acid) normally have a calendar life of 5-10 years, depending on the local operating conditions. The calendar life is the actual time span from the date of installation until the end of life, when battery capacity drops below 80 % of its rating. VRLA batteries that are well maintained and installed in a properly conditioned environment, typically have a service life of 70 % to 80 % of their calendar life. This explains why the UPS back-up time could differ from the one declared by the battery manufacturer.

For the integrity of business continuity, it is essential to know the estimated end-of life of the battery system and to be correctly advised concerning the best time for its replacement.

The expertise of the UPS manufacturer is the best guarantee for carrying out any battery replacement operations. An expert that understands your equipment and how it is integrated into your unique working environment and who can respond effectively to any anomaly should any occur.



SVC 008 A GB

Key points

- Checking and recalibration of battery charger setting
- Fully secure battery discharge test
- Battery disposal according to local regulations

Benefits

- Prevents unexpected early shutdown of the UPS
- Saves downtime costs
- Advice for the optimisation of the battery back-up time

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The battery is a critical component of the UPS system: according to a study by the Ponemon Institute, 65 % of Uninterruptible Power Supply (UPS) system failures are due to batteries. The reliability and availability of these components are vital to ensuring the energy supply to the load.

In the case of a failure, the economic impact of an outage can dramatically increase to hundreds of thousands of euros for the UPS owner.

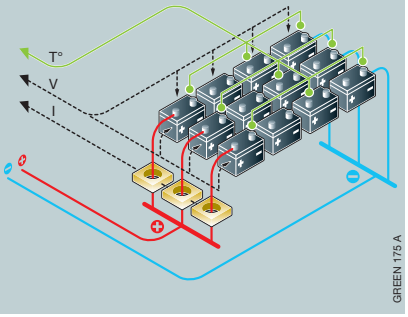
Within the UPS system, the battery represents the weakest and least sophisticated component, while its cost represents an important part of the investment. It is therefore crucial to reduce the number of maintenance operations, maximise the battery's return on investment and anticipate battery malfunctions.

This can be implemented by following the rules described in the IEEE standard 1188 (IEEE Recommended Practice for Maintenance, Testing and Replacement of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications), whilst a more accurate preventive maintenance program can be carried out using a BMS (Battery Monitoring System) which provides all the parameters of the individual battery blocks, continuously checks the battery's efficiency and identifies anomalies in advance.

What is a battery ?

A battery is made up of a collection of:

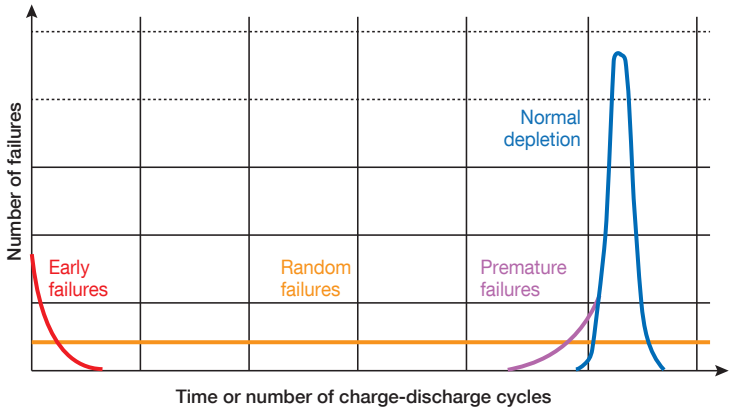
- blocks (typically 12 VDC), which can be assembled in series to form a string,
- several identical strings, which can be assembled in parallel to form a battery.



Main reasons for battery block failures

For a battery operating in real life conditions, there are 4 types of failures which can create a defective block:

1. Early failures, which are mainly due to defects introduced during the manufacturing process. They generally appear during the first discharge cycle.
2. Random failures, which can appear at any time during the life of the battery.
3. Premature failures.
4. End-of-life failures, both of which are due to latent defects or environmental conditions, such as a high ambient temperature, which can shorten the battery's operational life time. If this type of failure appears, it means that the health of the battery string is seriously compromised and the battery cannot be relied upon for autonomy.



Block failures description.