LIVELINE™
POWER THAT PROTECTS

Battery Maintenance Services

For Lead Acid flooded, Plante, VRLA, Ni-Cd batteries

www.livelineindia.com | info@livelineindia.com

GETTING ALL YOUR BATTERY HAS TO OFFER

All industrial, commercial and the utility industries heavily depend on electrical power to drive their business operations in the 21st century. Availability of reliable power, AC or DC, are the preconditions for a smooth and trouble-free operations of all business organization today. Many will agree that the money saved from preventing unplanned business shut-down directly adds to their bottom line.

Most of the power systems support today critically depends on multiple battery banks that either supporting a UPS system in the control/computer room or a DC backup system in their utility substations or in a telecom tower. In a way, we are fully dependent on batteries that include our personal as well as social life and the criticality of these batteries had not been so important until now.

In the event of a power failure or outage, your electrical power system is only as strong as its weakest link and arguably, the DC system batteries are considered the most critical, yet vulnerable components in the electrical power distribution system. In fact, battery failures remain a leading cause of load loss. Yet, many users do not have a regular preventive maintenance or predictive monitoring program in place for their battery systems.

A comprehensive battery maintenance program with regular inspections, coupled with battery capacity testing and continuous monitoring, helps maximize your total system reliability while extending the useful life of your batteries.

Benefits

- Maximize system reliability
- Identify weak cells in advance to prevent premature failure
- Enhances battery service life
- Improve availability
- Reduces consequential loss of productivity
- Helps planned replacement or preventive actions

YOU MUST KNOW THE FACTORS THAT AFFECT BATTERY LIFE

Ambient Temperature

The rated output capacity of a battery is based on an ambient temperature of 25° C (77° F). It is important to realize that any variation from this operating temperature can alter the performance of the battery and shorten its expected life.

A good rule of thumb when determining battery life in relation to temperature is that for every 8.3° C (15° F) average annual temperature above 25° C (77° F), the life of the battery is reduced by 50 percent.

Recharging

Continual undercharging, overcharging or use of a wrong charger can take away considerable operational life of the any type of batteries. In fact, it can kill the batteries much faster than one's expectations.

VRLA Battery Chemistry

No VRLA battery will last forever - even one that experiences minimal use. This is because VRLA batteries are electrochemical devices whose ability to store and deliver power slowly decreases over time. So, even if you follow all the guidelines for proper storage temperature and maintenance, you still must replace them after a certain period of time.

Cycling

During a utility power failure (severe brownout or blackout conditions), a system operates on battery power. Once utility power is restored, the battery is recharged for future use. This entire single operation is considered a discharge cycle. At installation the battery is at 100 percent of rated capacity.

The 'loaf of bread' analogy is most often used to illustrate the relationship between cycling and battery life. A loaf of bread can either be cut into many thin slices or a few thicker slices.
Similarly, a system battery can provide power over a large number of short cycles, or a fewer cycle of longer duration.

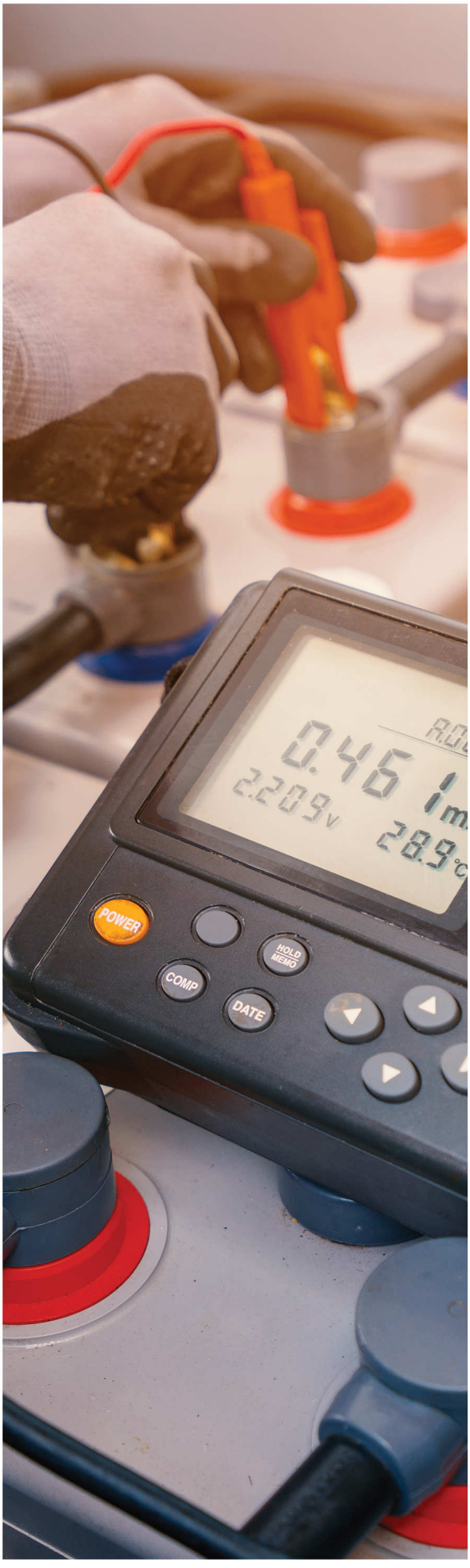
Service

The Final factor to consider is the regular service of the batteries. The gradual decrease in battery life can be monitored and evaluated through voltage checks as well as load testing. A periodic maintenance program extends battery string life by preventing loose connections, removing corrosion, and identifying bad batteries before they can affect the rest of the string.

Without regular maintenance and service checks, your battery bank may experience:

- Heat-generating resistance at the terminals
- Improper loading/charging
- Reduced protection
- Premature failure

With proper preventive maintenance, the end of battery life can be estimated and replacements scheduled without any interruption or loss of backup power.



MAINTENANCE FREE BATTERIES ARE THE MOST VULNERABLE

Though sealed batteries are sometimes called 'maintenance free,' they still require scheduled maintenance and service. The term 'maintenance free' refers to the fact that they do not require fluid.

Preventive maintenance is the key to maximizing your battery life used for UPS, Substation DC systems or any industrial DC system batteries. We can provide battery maintenance along with a detailed inspection report and a list of recommended corrective actions required if any.

Frequently asked questions

Which factors contribute most to end-of-life for VRLA batteries?

In North America, Western Europe and similar countries, positive grid corrosion has been the most common end-of-life factor for UPS batteries. This is a result of the normal aging process due to UPS battery chemistry (regardless of battery cycling) and involves the gradual breakdown of the inner wires of the positive grid within the battery.

In other areas, cycling is often the major contributing factor, due to very unpredictable utility power.

How do I make sure my VRLA batteries are maintained and serviced properly?

With proper maintenance, battery life can be predicted and a planned replacement can be scheduled without interrupting your operations. These are IEEE and OEM recommendations for general maintenance:

- Comprehensive maintenance programs with a monthly inspection, and more rigorous quarterly and annual checks depending on the type of batteries.
- Greasing n refilling (for any batteries other than VRLA)
- Re-torque all connections, as required
- Load testing
- Cleaning the battery area, as required

YOUR BUSINESS IS AT RISK IF YOUR VRLA BATTERY IS WORN OUT

VRLA battery capacity is determined by the battery's ability to convert chemical energy into electrical current at a specified rate for a specified amount of time.

Did you know???

That IEEE defines 'end of useful life' for a VRLA battery as being the point when it can no longer supply 80 percent of its rated capacity in ampere-hours. Because the relationship between amp-hours and load protection time is not linear, a 20% reduction in capacity results in a much greater reduction in protection time. For example, a VRLA battery that supports a full load for 15 minutes when new, will support the same load for only about 8 minutes when it reaches its defined 'end of life'. When your battery reaches 80 percent of its rated capacity, the aging process accelerates and the battery should be replaced.

For further information please contact LIVELINE ELECTRONICS at Ph: +91-33-24772094, Email: info@livelineindia.com,www.livelineindia.com

ENSURE OPTIMUM DC BACKUP SYSTEM RELIABILITY AND COMPLIANCE WITH A COMPREHENSIVE BATTERY MAINTENANCE PROGRAM

DC system batteries, contrary to popular idea, seriously need to be maintained properly. The failure of a single cell in a string can compromise your entire power protection system allowing catastrophic damage. The mis operation of the battery systems creates a safety exposure to the site personnel in addition to the damage and impact to productivity and profits. Routine maintenance services help minimize your risk of downtime and ensure critical business continuity. Battery maintenance services provide cost-effective solutions for inspecting, assessing, and maintaining the health of your batteries.

LIVELINE has a highly qualified team of DC power specialists and technicians with a combined industry experience of 60,000 million hours. They have the knowledge and experience to coordinate and implement a comprehensive DC power system maintenance program with your total power chain management objective.

As a ISO 9001 & 14001 certified, NSIC registered, MSME company, and combined with battery manufacturers and our own R&D team, we provide comprehensive testing and maintenance services. We also assign a dedicated team, outfitted with the latest test equipment and latest data collection system, to safely and accurately deliver the highest level of quality service while working on your DC system batteries.

Our comprehensive battery maintenance programs include:

- Inspections
- Maintenance testing
- Battery charger maintenance
- Capacity testing
- Battery monitoring
- Mobile DC power services

PLANNED MAINTENANCE PROGRAMS TO SUIT YOUR NEEDS

Preventive Maintenance Programs

A comprehensive preventive maintenance program for your batteries is one of the most important investments you can make to ensure the reliability of your power system and prevent costly downtime. An effective program should include regular inspections, thorough and well-documented testing, and proactive replacement planning to ensure your batteries are capable of supporting your critical operations when needed.

Inspections

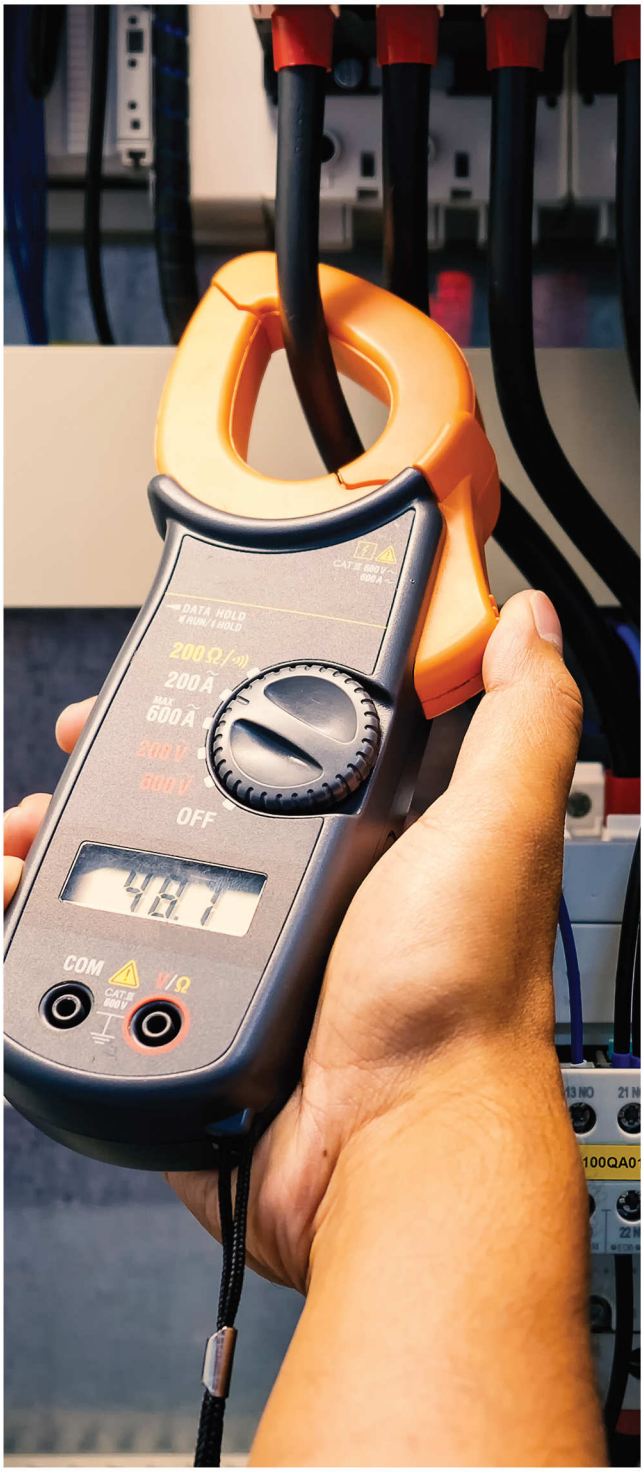
To meet your specific needs and ensure compliance with IEEE and OEM requirements, LIVELINE conducts monthly, quarterly, and annual preventive maintenance inspections for all battery types, including valve-regulated lead-acid (VRLA or sealed), vented lead-acid (VLA or flooded), nickel cadmium (NiCad), and lithium-ion (Li-ion). Our DC battery specialists will recommend the ideal maintenance frequency based upon the criticality of the system in addition to the battery type, environment, and the number of strings in your facility. Each inspection is designed to assess cell and string state of health, and to identify weak or failing batteries that need to be replaced.

Maintenance Testing

Proper battery maintenance not only prevents unexpected failures, but can also extend battery service life to reduce the frequency between required replacements. Our battery maintenance services validate the condition of the battery and include resistance testing on battery strings and individual cells, recording of float voltage measurements and specific gravity readings, and adjustment to connections and fluid levels as needed.

Battery Charger Maintenance

As part of a complete battery solution, our engineers maintain your batteries, as well as the equipment that keeps your batteries working as intended. Our battery charger/UPS maintenance service includes regular equipment inspections to ensure your batteries maintain the appropriate level of charge at all times. We will also conduct a general inspection of the charger/UPS/or any other battery backup systems cabinet for cleanliness and examine interconnection cables between the battery and the charger for discoloration and corrosion.



Predictive Maintenance Services

A predictive maintenance approach combines regular maintenance with capacity testing and monitoring, which is the best strategy for eliminating the risk of battery failure.

Capacity Testing

Capacity testing is the most effective method available for determining a battery's ability to provide a reliable power source and to support the required load for a specific period of time. Our trained battery specialists perform all capacity tests per IEEE standards and manufacturer specifications. Tests include load testing with individual cell monitoring to check battery bank capacity. Test results identify when battery reserve is low, so you know when to replace a battery.

Battery Monitoring

Using a latest monitoring system and qualified battery monitoring specialists to assess your battery strings around the clock increases MTBF by more than double when compared to preventive maintenance alone. Our 24x7 remote monitoring services help you detect and diagnose problems that may otherwise go undetected such as leaking water, failing batteries, and more. Our services also include emergency service for rapid incident response, as well as monthly trending and reporting for better battery management.

Mobile DC Power Services Unit

When facilities can't afford to compromise critical power, a mobile power solution that is safe and secure is ideal for performing DC system maintenance and capacity testing. Our DC power specialists will connect your power system to the Mobile DC Power Unit's backup battery strings and confidently perform all required battery inspections, tests, and replacement services without risk of power dips or dropped loads.

YOUR POWER PROTECTION IS ONLY AS RELIABLE AS THE BATTERY IN IT.

Your AC and DC power systems play an interconnected and equally critical role in ensuring the overall reliability of your electrical power system. Proper functioning DC system batteries are your last line of defense when it comes to protection and controls, and emergency and uninterrupted power for critical equipment. A properly functioning DC power system depends on a preventive and predictive battery maintenance program for extending battery service life and ensuring total system availability.

We being a manufacturer of battery backup systems, both AC & DC, our team of DC power specialists offers unparalleled expertise in DC power system maintenance, providing consistent quality service while keeping you safe and compliant.

CONNECT US FOR YOUR MAINTENANCE NEEDS

To learn more about this service and other LIVELINE Maintenance solutions, please contact your local sales representative office or write to us at info@livelineindia.com.

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