



PRASA'S MISSION CRITICAL SERVICES



UPS & ATS AMC

BATTERY & INVERTER AMC

DATA CENTERS AMC

GRID-TO-CHIP MAINTENANCE

FIRE DETECTION AMC

DATA CENTER AMC

Mission Critical Services



Downtime Is Not An Option

The industrial uninterruptible power supply (UPS) is the foundation of your emergency power system. Unlike the commercial UPS designed to protect critical IT loads, the industrial UPS protects critical processes, control systems and fire/life safety systems. For applications such as oil and gas, petrochemical and power generation plants, when the power is interrupted, it can cause dangerous chemical process instability, damage to process equipment, or in some cases, the complete shutdown of the facility costing millions in lost production, damaged equipment, and loss of production time.

When so much is at stake, it's important to protect your emergency power system by performing routine preventive maintenance ensuring maximum reliability of the backup system including the UPS, batteries, chargers, inverters and static switches, electrical filters etc.

Ensure the Continuous Operation of Your Facility

Services for UPS, Batteries, power, Static Switches & Data Centers.

Every emergency power system contains life-limited components that must be maintained according to the manufacturer's specifications. To maximize the life of these components, regular maintenance is critical. An effective preventive maintenance strategy can be one of the most cost-effective measures you can take to ensure the continuous power to both your critical processes and your entire plant. PRASA's Electrical Reliability Services is an authorized Emerson service provider with access to their OEM parts, technical support and design engineering resources. With this expertise, PRASA can provide solutions for Chloride, Custom Power, and any other manufacturer's emergency power system. PRASA offers a wide variety of services to ensure these systems are performing properly and will support the critical load when power is interrupted. Whether you need startup support, routine maintenance or emergency response, we have the personnel and the technical expertise to support your service needs.

- ◆ Startup and Commissioning Services
- ◆ Maintenance & Testing Services
- ◆ Life-Extension Services
- ◆ Battery Replacements
- ◆ Emergency Services



UPS Maintenance

We'll test your UPS systems safety functions, control function, batteries and connections to ensure proper operation. This includes a visual and mechanical inspection, thermographic scan, electrical and mechanical interlock systems tests, alarm history review, insulation resistance tests, electronics calibration, verification of alarm circuits and indicators, replacement of life-limited components as required, static transfer tests, battery operation and return test, load balancing evaluation, phase rotation and site wiring checks.

Battery Maintenance

In the event of a power outage, a single bad cell in a string of batteries could compromise your entire backup system and leave you without protection. Frequent battery inspections identify weak or failing batteries. Timely assessments of the cell and string state of health helps identify when batteries need replaced to ensure system reliability. PRASA's technicians and engineers can design a maintenance plan based around tests and procedures that meet the requirements of NETA, IEEE, and/or NERC depending on your application.

Start-up and Commissioning Services

New equipment installations require startup and commissioning to ensure your emergency power system has been correctly installed and configured and will perform as designed. PRASA's highly qualified personnel will conduct testing to verify the system operates as an integrated system and will support the critical load during power interruptions. All testing is conducted in accordance with the manufacturer's and NETA's testing specifications. This includes the following tests:

- ◆ Visual and mechanical inspection of the equipment including subassemblies, wiring harnesses, contacts, cables and major components
- ◆ Electrical and mechanical functional tests.
- ◆ Thermographic scan to check temperatures on all breakers, connections, and associated controls. (Optional)
- ◆ Verification of alarm circuits and indicators for static switch bypass switches

Maintenance and Testing Services

A regular preventive maintenance program from PRASA ensures maximum reliability of your equipment by providing systematic inspections, detection, and correction of incipient failures before they develop into major defects that could translate into costly downtime. Our trained technicians understand the critical nature of working on your emergency power system. All testing will be performed based on the maintenance recommendations from NETA and NFPA for UPS, batteries, inverters, and associated components. PRASA will also ensure compliance with IEEE standards.

Emergency Power System Recommended Maintenance

The Electric Power Research Institute (EPRI) estimates the national cost of power interruptions is approximately \$80 billion per year to U.S. electrical customers, with momentary interruptions accounting for two-thirds of the total cost. Studies have also shown that nearly 67 percent of all load losses are preventable. Because companies rely on their emergency power system to deliver continuous power without any disruption to their business, a maintenance program, similar to the one outlined below, is critical to ensure that your emergency power system minimizes your risk of downtime.

UPS Maintenance

PRASA technicians will also inspect and verify the UPS features and functionality including proper operation; input/output voltage and currents; system alignment; and verification of DC bus voltage and ripple on the battery plant.

Battery Maintenance

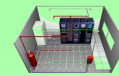
PRASA ensure that the battery maintain the appropriate level of charge. Periodic maintenance should verify proper operation and examine interconnection cables, cell connectors, and other conductors for wear, contamination, corrosion and discolorations. Racks should be checked for corrosion, cleanliness and structural integrity.

Parts Availability

Our field service technicians adhere to recommended parts replacement cycles and have access to local OEM spare parts inventory to perform corrective maintenance as required. Technicians can also provide spare part recommendations to reduce downtime should a failure occur.



UPS Systems



Data Centres

PROCEDURE	FREQUENCY	PROCEDURE	FREQUENCY
<ul style="list-style-type: none"> Conduct visual and mechanical inspection 	1 Month	<ul style="list-style-type: none"> UPS Preventive Maintenance 	3 Month
<ul style="list-style-type: none"> Perform functional testing 	2 Months	<ul style="list-style-type: none"> Precision Air Conditioner Maintenance 	3 Months
<ul style="list-style-type: none"> Thermographic scan of breakers, connections 	6 Months	<ul style="list-style-type: none"> Fire Detection Preventive Maintenance 	3 Months
<ul style="list-style-type: none"> Perform electrical and mechanical interlock systems tests 	3 Months	<ul style="list-style-type: none"> WLD Maintenance 	3 Months
<ul style="list-style-type: none"> Review alarm history inspect filters and vents 	3 Months	<ul style="list-style-type: none"> VESDA Nozzel Clean-up & Maintenance 	6 Months
<ul style="list-style-type: none"> Measure voltage readings for input/output and bypass; measure power supply levels and harmonic currents 	3 Months	<ul style="list-style-type: none"> Rodent Repellent Transducer check-up & Services 	3 Months
<ul style="list-style-type: none"> Calibrate electronics to system specifications 	12 Months	<ul style="list-style-type: none"> CCTV Camera Lens Clean-up & Preventive Maintenance 	6 Months
<ul style="list-style-type: none"> Verify alarm circuits and indicators for static witch and bypass switches 	3 Months	<ul style="list-style-type: none"> Access Control Functional Test & report generation 	12 Months
<ul style="list-style-type: none"> Replace life-limited components as required 	12 Months	<ul style="list-style-type: none"> BMS Transducer Maintenance 	6 Months
<ul style="list-style-type: none"> Test static transfer from invert to bypass and back 	6 Months	<ul style="list-style-type: none"> Electrical switchgear check-up & Short Circuit check-up Services 	3 Months
<ul style="list-style-type: none"> Verify battery operation and return tests to UPS, generator, and ATS functions 	3 Months	<ul style="list-style-type: none"> DG Set Preventive Maintenance (Excluding Oil Change) 	2 Months
<ul style="list-style-type: none"> Evaluate load balancing 	3 Months		
<ul style="list-style-type: none"> Check phase rotation and site wiring 	3 Months		



Batteries

PROCEDURE	FREQUENCY
<ul style="list-style-type: none"> Conduct visual and mechanical inspection 	3 Month
<ul style="list-style-type: none"> Perform battery resistance testing 	3 Months
<ul style="list-style-type: none"> Record float and supply voltage measurements 	12 Months
<ul style="list-style-type: none"> Inspect electrolytes 	12 Months
<ul style="list-style-type: none"> Record specific gravity readings 	12 Months
<ul style="list-style-type: none"> Test battery bank capacity including load testing with individual cell monitoring 	As Per Manufacturer Specification



Auto Transfer Switch

PROCEDURE	FREQUENCY
<ul style="list-style-type: none"> Perform functional testing 	2 Month
<ul style="list-style-type: none"> Inspect physical and mechanical condition 	3 Months
<ul style="list-style-type: none"> Inspect bolted electrical connections 	3 Months
<ul style="list-style-type: none"> Perform manual transfer operation 	3 Months
<ul style="list-style-type: none"> Verify positive mechanical interlocking 	6 Months
<ul style="list-style-type: none"> Perform insulation resistance tests, contact/pole-resistance tests 	6 Months
<ul style="list-style-type: none"> Verify setting and operation of control devices 	12 Months
<ul style="list-style-type: none"> Calibrate and set all relays and timers 	12 Months
<ul style="list-style-type: none"> Perform automatic transfer tests to simulate loss of normal power, return emergency power, and simulate all forms of single-phase conditions 	12 Months
<ul style="list-style-type: none"> Verify correct operation and timing of relays, engine start sequence, time operation; 	12 Months



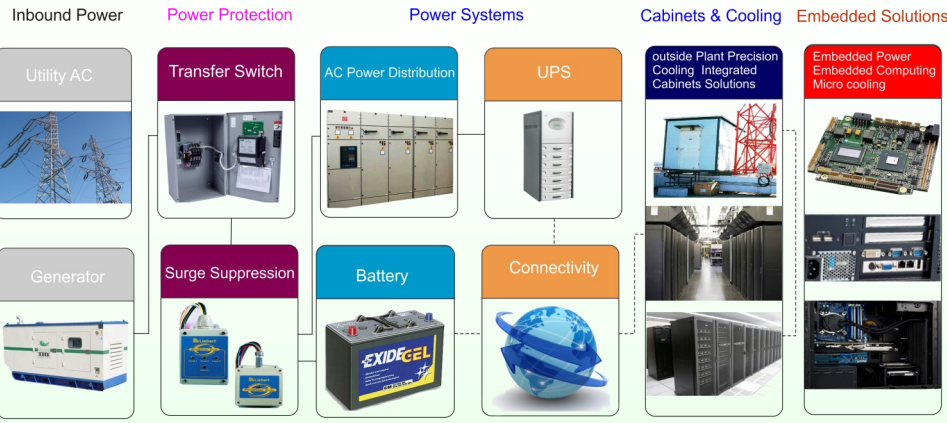
Static Switches

PROCEDURE	FREQUENCY
<ul style="list-style-type: none"> Inspect and verify operation and system alignment 	3 Month
<ul style="list-style-type: none"> Record inverter and bypass input voltage and currents 	6 Months
<ul style="list-style-type: none"> Record output voltage and currents 	12 Months





RELIABILITY



- ◆ Ensure operational reliability with preventive maintenance
- ◆ Minimize risk of downtime
- ◆ Enhance effective life and backup time of battery

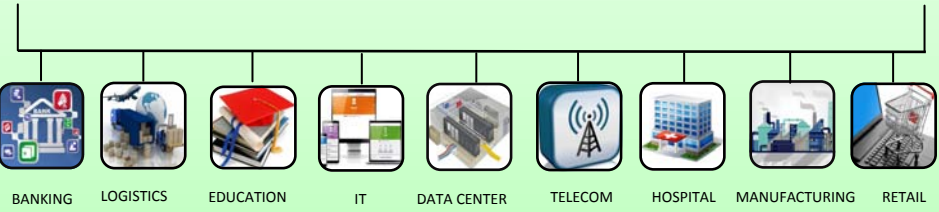
Services
Preventive Maintenance, Critical Space, Telecom EF&I

Site Monitoring
Self-Monitoring Technology, 24/7 Remote Monitoring Services



SAFETY

- ◆ Improve worker safety
- ◆ Improve risk management and reduce catastrophic failures
- ◆ Ensure regulatory compliance



COST

- ◆ Eliminate unplanned outages and lost income as a result of downtime
- ◆ Reduce maintenance costs by extending time between planned outages
- ◆ Extend life of equipment

Experience You Can Trust

For more than 20 years we have been providing electrical testing, maintenance and engineering services to more than 4,000 valued repeat customers in the industrial, chemical, power, food and beverage, life sciences, data centres, education, BFI, Corporate, Transport, Communication, IT, healthcare industries etc. Take a look at our proven track record and discover how we can help & ensure your success.

Your Accredited Partner

As a full charter member of the Inter-National Electrical Testing Association (NETA), you are assured that the people working on your equipment are trained and qualified. And, as an active participant in the national standards organizations such as the National Fire Protection Association (NFPA), National Electrical Code (NEC), and the Institute of Electrical and Electronics Engineers (IEEE), you know that all test and inspection procedures are done in accordance with industry and regulatory standards.

When and Where You Need Us

With strategically located service locations across the INDIA and the largest national service workforce comprised of professional engineers, electrical engineers, and certified field technicians, you are assured that we can respond when and where you need us.

Comprehensive Service & Support

Whether you need startup support, routine maintenance or emergency service, you can count on Us along with Emerson to deliver complete life cycle service and support for all your electrical assets. We'll ensure your equipment operates within factory specifications ensuring continuous power to all your critical operations for years to come.

We Abide by:



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PUNE | MUMBAI | KOLHAPUR |

Mission Critical Services



PARTIAL CLIENT LIST:

- ◆ AIR INDIA
- ◆ BAJAJ AUTO LIMITED
- ◆ BAJAJ ORGANICS LIMITED
- ◆ BAJAJ AUTO FINNCE LIMITED
- ◆ FINOLEX CABLES LIMITED
- ◆ FINOLEX INDUSTRIES LIMITED
- ◆ LG ELECTRONICS
- ◆ LUPIN PHAMRA
- ◆ TIMES OF INDIA LIMITED
- ◆ BHARAT PETROLEUM CORPORATION LIMITED
- ◆ TATA MOTORS LIMITED
- ◆ TATA INTERNATIONAL LIMITED
- ◆ TATA CONSULTANCY SERVICES
- ◆ SWOROSKI
- ◆ AKER KVAERNER POWER GAS P. LIMITED
- ◆ IDEAL ROAD BUILDERS
- ◆ JEHANGIR HOSPITAL
- ◆ DEENANATH MANGESHKAR HOSPITAL
- ◆ SAHYANDRI HOSPITAL
- ◆ CUMMINS COLLEGE OF ENGINEERING
- ◆ CANARA BANK
- ◆ DENA BANK
- ◆ CENTRAL BANK OF INDIA
- ◆ IDBI BANK
- ◆ IDIBI HOME FINANCE
- ◆ PUNE DISTRICT CENTRAL CO-OP BANK
- ◆ SATARA DISTRICT CENTRAL CO-OP BANK
- ◆ KOTAK MAHINDRA BANK
- ◆ RAJGURUNAGAR CO-OP BANK
- ◆ RAJARAMBAPU CO-OP BANK
- ◆ VARNA SAHAKARI CO-OP BANK
- ◆ SANGLI URBAN CO-OP BANK
- ◆ KARAD URBAN CO-OP BANK
- ◆ THANE JANATA SAHAKARI CO-OP BANK
- ◆ MAHARASHTRA STATE CO-OP BANK
- ◆ MAX NEWYORK LIFE INSURANCE
- ◆ SYNYGY INDIA P. LIMITED
- ◆ SIGMA SOFTWARE P. LIMITED
- ◆ VERAZ NETWORKS
- ◆ NIIT
- ◆ NATIONAL CHEMICAL LABORATORY
- ◆ NATIONAL CENTER FOR CELL SCIENCES
- ◆ NATIONAL CENTER FOR RADIOLOGY & ASTROPHYSICS
- ◆ NATIONAL RESEARCH CENTER FOR GRAPES
- ◆ NATIONAL RESEARCH CENTER FOR ONION & GARLIC
- ◆ HIGH ENERGY MATERIAL RESEARCH LABS
- ◆ IUCCA
- ◆ INDIAN INSTITUTE OF SCIENCE EDUCATION & RESEARCH
- ◆ GE FANUC
- ◆ VA TECH WABAG LIMITED
- ◆ TETRA PAK INDIA P. LIMITED
- ◆ ROCKWELL AUTOMATION
- ◆ FORBES MARSHALL
- ◆ KHRONE MARSHALL
- ◆ KSB PUMPS
- ◆ BOSCH CHASSIS
- ◆ MAHICO SEEDS
- ◆ KIROLSKAR EB
- ◆ HENKEL ADHESIVES TECH INDIA P. LIMITED

