

It's not just about the hardware

By Ian Jackson, Managing Director at Kohler Uninterruptible Power - Ireland

In order to provide clean uninterrupted power to critical applications, UPS Systems must exhibit uncompromised performance and availability. Achieving this depends not only on the attributes of the UPS hardware, but also on how well it is specified, installed, commissioned, and maintained.

Additionally, many sites will require a complete power protection solution comprising several distributed UPS systems, possibly a backup Generator, and associated Switchgear.

In this article, Ian Jackson, Managing Director at Kohler Uninterruptible Power -Ireland (KUP), looks at what is involved, and shows why it makes sense for data centre operators to partner with UPS vendors that can provide complete power protection solutions.

UPS service



Maintenance and support

Once in operation, UPS, Battery, Generator and Switchgear performance must be protected by monitoring, planned testing and maintenance, with an emergency callout facility incorporating defined response times. Any service plan must be flexibly profiled to balance each site's requirements and criticality against budgetary constraints. Service visits should also be planned for times that cause least disruption to business operation.

To maximise UPS reliability, service plans should also ensure identification of critical component degradation, allowing repair or replacement before a failure occurs. These should be backed by spares inventory sufficient to ensure that replacement components are available on demand.

The service contract should include separate planned maintenance and test regimes for the UPS, Batteries and Generators.

UPSs: Service engineers should check all aspects of the UPS's physical condition and operation. These include environmental conditions, airflow, switchgear operation (if permissible), communications, monitoring panels and instrumentation, electrical performance, and the condition of components, especially Capacitors.

Additional checks and testing will be necessary for parallel UPS systems.

measured. Each Battery's internal impedance is then calculated and plotted on a graph. If conducted at regular intervals, this will track Battery condition and enable end-of-working-life prediction for individual cells, so Batteries can be replaced before they cause a critical power protection failure.

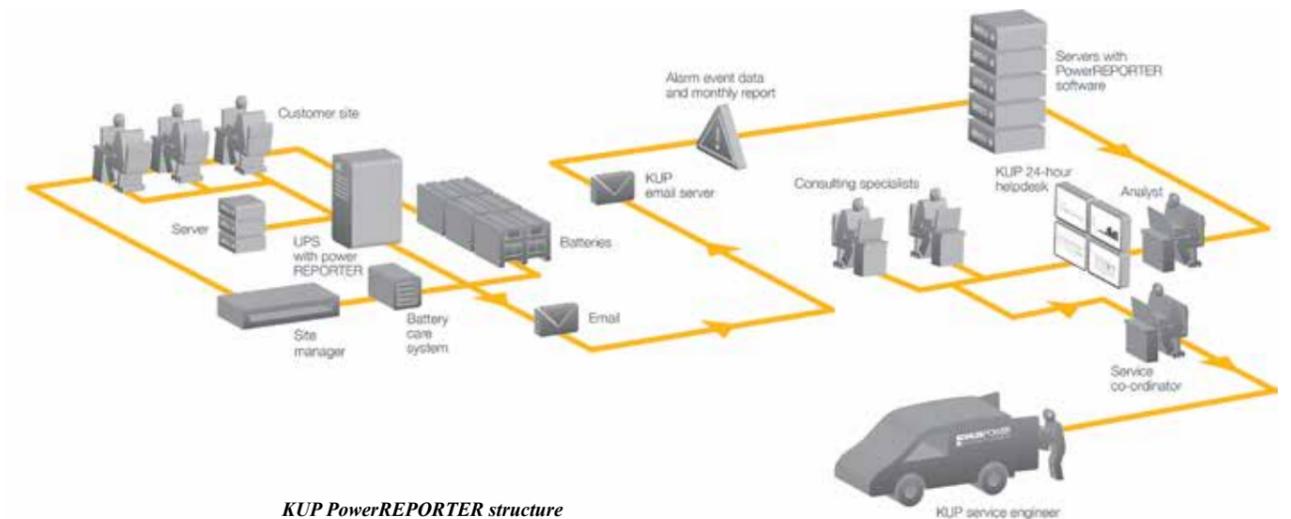
Load bank testing: Comprehensive commissioning procedures, and regular maintenance and testing, contribute significantly to power protection system integrity. However, the only way to ensure that the entire system and all its components will function correctly together and perform as intended on demand and under load is to use Load Bank testing.

Load Bank testing involves providing and connecting an electrical load to a power supply such as a UPS, to simulate the customer's load and prove overall system integrity. It ascertains the performance of the

KUP's web-based PowerNSURE, for example, remotely monitors Battery internal temperature, resistance, and voltage, and performs voltage equalisation. These processes guarantee Battery availability at all times.

Also available is a new remote generator monitoring, management and fault rectification system integrating GSM communications technology and 24/7 generator support personnel. It then distributes a condition report to the remote monitoring centre and nominated telephone numbers.

Data centre operators who want to monitor their entire UPS system can use a service like KUP's PowerREPORTER, which communicates constantly with UPS systems and messages the service centre if an incident occurs. This allows service centre personnel to contact the field team, who can perform remote diagnostics before reaching the customer's facility within agreed service times.



KUP PowerREPORTER structure

UPS Batteries: As Batteries are critical to any power protection system, any maintenance schedule, along with regular inspection, should include detecting and replacing weak battery blocks before they can fail. Otherwise, they will compromise the integrity of the whole power protection system.

Impedance testing is useful for this, as almost any Battery problem will lead to an increase in internal impedance. An electrical current is passed through each Battery and is

UPS and the entire electrical supply infrastructure including Cabling, Switchgear, Generator and Fusing. A Load Bank can also check Battery autonomy.

Remote monitoring

A complete service package can include not only on-site maintenance and emergency callout, but also various remote monitoring services, allowing system status to be continuously monitored for early reaction to latent problems.

Conclusion

This article has given an overview of the range of services necessary to keep a power protection system running at optimum performance and availability. This should inform data centre operators' strategies for questioning potential vendors; do they have the right personnel, national coverage, expertise, experience, and depth of stock to provide the level of support that is truly needed to secure high quality, uninterrupted power.



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