

## **SMART load banks in data centers, why and what for?**

A power outage causes huge losses due to downtime. According to the Electric Power Research Institute (EPRI), 98% of power outages last less than 10 seconds. But that's a devastating 10 seconds. With an approximate cost of \$5,600 per minute of downtime, companies are investing in systems that keep their infrastructure running. Load banks are critical components for testing and ensuring the desired continuity. They simulate varying electrical load conditions in a data center and test its resiliency in different scenarios. Keep reading, we'll show you why using smart load banks in data centers is a good idea.

### **What are load banks**

In modern data centers, there are a multitude of electrical components. The availability of these digital infrastructures depends largely on their proper functioning. Load banks are systems that check, monitor and test the power supplies in a data center. The goal is to ensure efficient operation and reduce downtime.

They do this by testing the electrical systems, subjecting them to stress tests to detect possible failures, breakdowns or inadequate loads. The main advantage is that power systems and their power are checked without the need to interrupt critical loads. Among its benefits, service continuity is not compromised, system vulnerabilities are detected and the life cycle of components such as diesel engines or UPS batteries is optimized.



In a data center, these systems are mainly used for this type of use:

- Commissioning

- Maintenance
- Replacement of components
- Periodic testing of backup and/or emergency generators
- Testing of UPS systems
- Heating, ventilation and air conditioning (HVAC) system start-up and commissioning
- Rack in servers

Load banks can be portable or permanently installed and can be rented or purchased for specific operations or for verification testing prior to commissioning of data center facilities.

### **Commissioning and Testing of Loadbanks**

One of the applications for which load bank testing is particularly recommended in a data center is the commissioning phase. It is in this phase that all systems and components in a data center are checked, validated and verified to have been installed according to the requirements designed by the end user.

The problem is that the actual load is usually not available in the initial phases of a data center. This is because they plan to expand incrementally over time and adjust power consumption as the data center expands. In these cases, load banks are the most reliable way to simulate the actual load in a practical way and ensure the safety of all components.

But it is not only suitable for simulating real power supply conditions, but also for the whole verification process. There are many critical elements that need to be validated, without taking anything for granted, at this stage. UPS systems, HVAC systems, diesel backup generators, server racks, etc.

### **Loadbanks for commissioning of air conditioning systems**

They are used to verify, monitor and test the cooling systems of a data center during Phase 4 and Phase 5 commissioning, as well as to evaluate the efficiency and performance of the air conditioning and other systems installed in the data center prior to data center operation.

Using load banks, it can be determined:

- Whether the air conditioning system is properly sized
- Whether the airflow is properly distributed
- Whether the backup equipment is working properly in case of temperature increase or failure of other air conditioning equipment.

It also allows to test the correct configuration, the thermal jumps between hot and cold aisles, to calculate the recirculation, the by-pass and to adjust the airflow rates of the cooling system.



### **Load bank monitoring**

SMART loadbanks monitor all the parameters needed to make decisions, verify, validate, and evaluate efficiency and performance before commissioning the data center with IT equipment.

These loadbanks continuously record power consumption, airflow, temperatures, and thermal jumps, among other parameters, in each of the scenarios in which commissioning tests are performed.

The availability of a data center, as well as its high performance, depends, to a large extent, on proper commissioning and, in this respect, load banks have a lot to say.