

BENCHMARKING THE RELIABILITY OF STATIC UPS SYSTEMS

Real World Global Data
You Need To Know



WHEN UPTIME IS EVERYTHING

Ensuring uptime and providing reliable service is critical for data centers, making their Uninterruptible Power Supplies (UPS) essential to operations. A UPS system provides power to equipment when the primary power source goes offline, either for maintenance or due to unplanned outages.

55% of data center operators reported experiencing an outage in the past three years, with more than two-thirds costing upwards of \$100,000, according to Uptime Institute's Global Data Center Survey. A quarter of outages among respondents cost more than \$1 million.

Knowing your data center invests in the equipment that meets your needs and tracking KPIs is critical to keep your operations up and running. But how do you get accurate, global data on the reliability of your Static UPS Systems?

A report from **mcim**[®]
BY FULCRUM COLLABORATIONS



Compare your own Static UPS Systems to global industry benchmarks.

Contact MCIM at
results@mcim24x7.com
for more info.

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REAL WORLD GLOBAL DATA YOU NEED TO KNOW

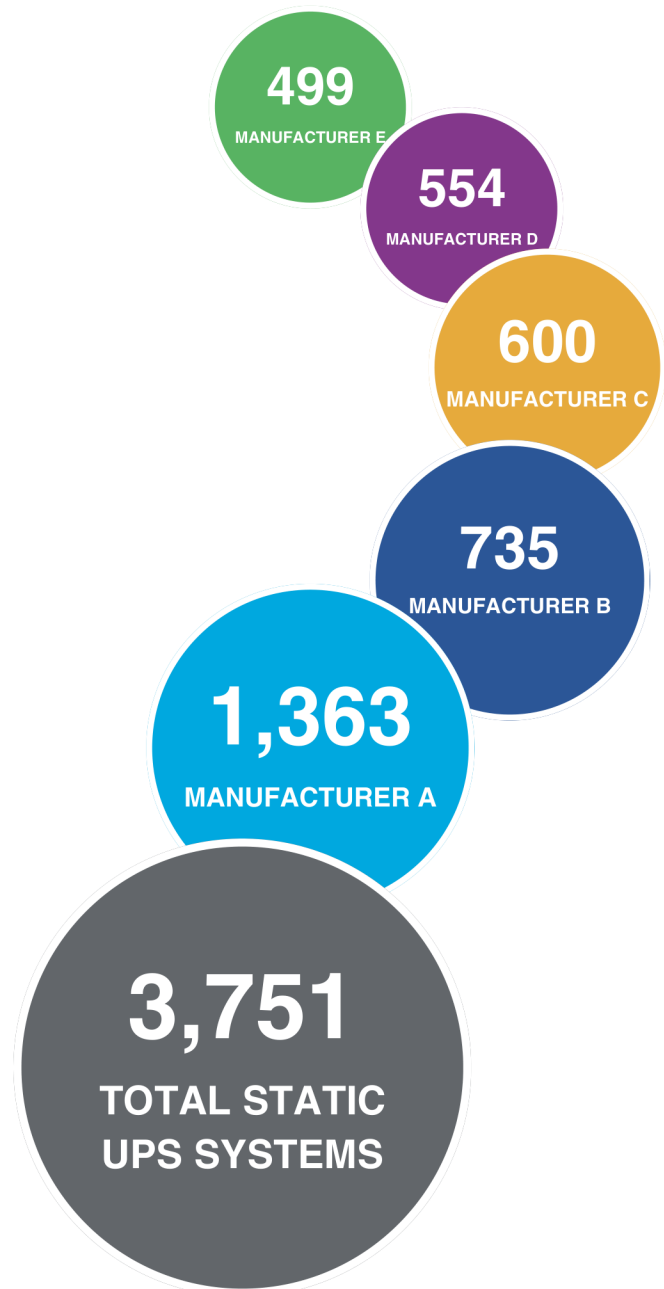
The increasing expense of outages is leading to a greater investment in power systems and redundancy levels at data centers, including static UPS systems. But data centers often make purchasing decisions by looking at manufacturer documentation or the data on their own portfolio of assets. This fails to provide a full picture of real-world reliability, making purchasing decisions and capital planning murky and frustrating.

According to a recent survey by Gartner, Inc., **more than half of respondents expressed a high degree of regret over their largest tech-related purchase in the last two years**, with nearly 70% feeling their purchases fell below expectations. Having access to clean, reliable, real-time benchmarking data empowers data center operators to make better data-driven decisions on deployments, upgrades, or any capital expenses.

MCIM by Fulcrum Collaborations conducted a reliability benchmarking review of 3,751 static UPS systems in its global portfolio, which provides insights into the operational reliability of some of the most prominent Static UPS brands in use across today's global marketplace as captured by MCIM's users, including the following manufactures and their associated companies: Eaton, Schneider Electric, Vertiv Group Corp., and other top companies in MCIM. The companies have been pseudonymized for this report but the companies tied to the following data are available for MCIM users.

This data set provides insight into the five key metrics that provide a reasonable means for measuring the reliability of static UPS systems and their manufacturer:

- Comparative Failure Rates
- Dynamic Failure Trends by Lifecycle Stage
- Mean Time Between Failure
- Mean Time To Repair
- Failure Modes



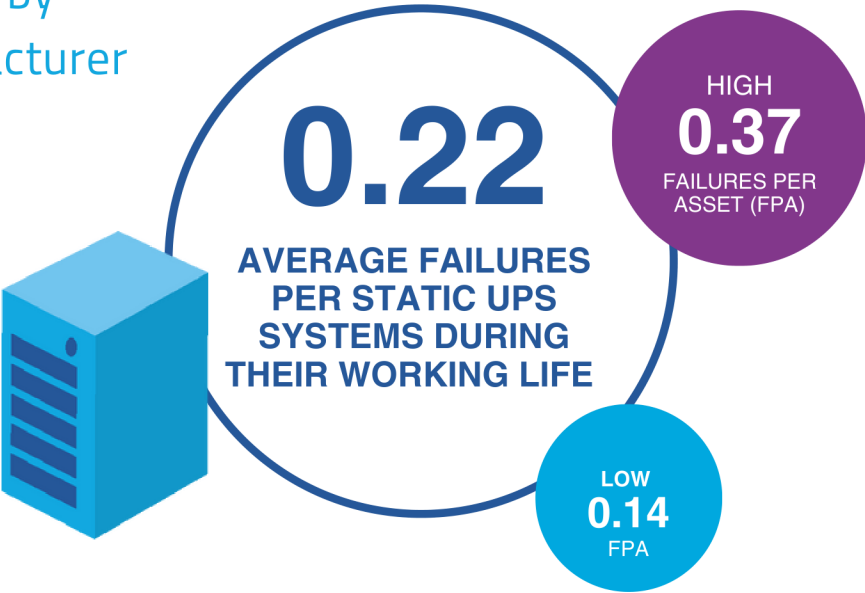
MCIM's review highlights the most prominent Static UPS brands in use across today's global marketplace.

STATIC UPS SYSTEM RELIABILITY BENCHMARKS

Comparative Failure Rates by Static UPS System Manufacturer

The ability to know how often a manufacturer's product fails helps plan preventative maintenance, spare parts and replacement costs.

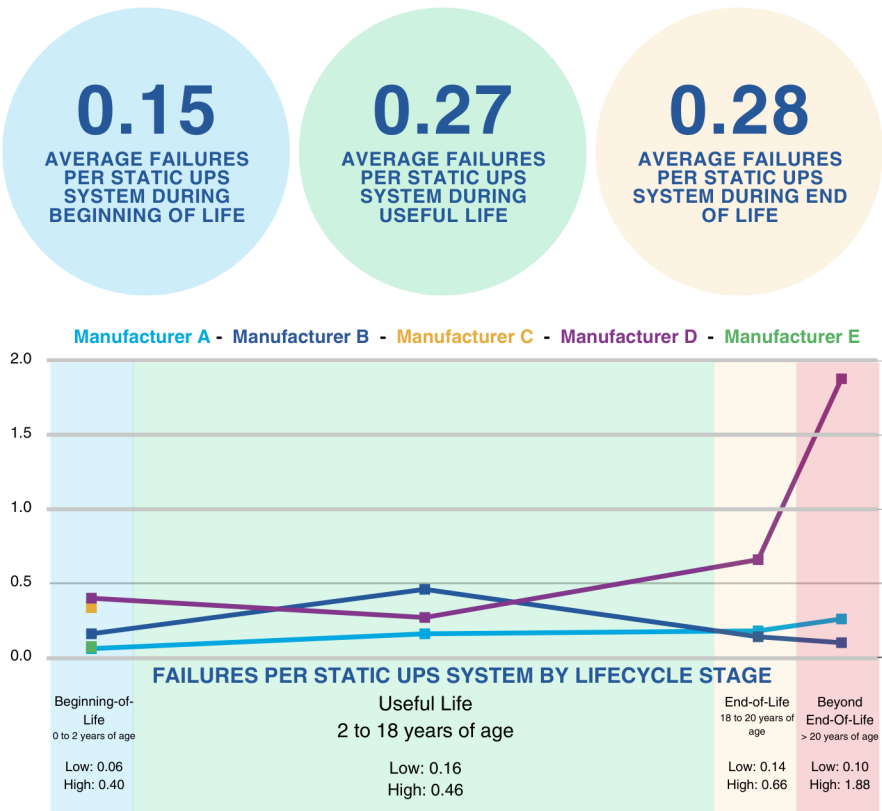
Across the top three manufacturers within MCIM's data set, on average nearly 1-in-5 static UPS systems failed within their working life, with an average of 0.22 failures per asset. Manufacturers ranged from a low of 0.14 to a high of 0.37 failures per Static UPS System



Dynamic Failure Trends of Static UPS Systems by Lifecycle Stage

Just as not all static UPS systems are the same, neither are the stages of a UPS system's life.

The number and types of failures seen with static UPS systems often changes based on their age. MCIM presents this data aligned with the four stages traditionally used to measure a static UPS system's lifecycle. A number of Beginning of Life failures within the first 2 years of production are expected due to stress testing and commissioning to resolve issues with installation and manufacturer. End-of-Life failures in the final 2 years of their 20 year expected lifecycle, are caused by the total time of wear and tear on the asset.



Note: For MCIM's data set, many data centers do not begin measuring the status of their static UPS systems until after commissioning, so many of the initial infant failures are not recorded.

STATIC UPS SYSTEM RELIABILITY BENCHMARKS

Mean Time Between Failure (MTBF)

How long can static UPS systems be trusted to go between failures?



4.6
YEARS

PER STATIC UPS SYSTEM



INDUSTRY MTBF



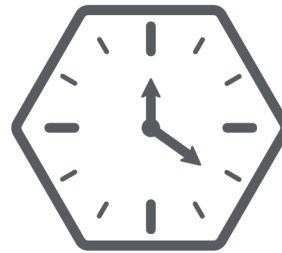
HIGH
7.6 YRS



LOW
2.6 YRS

Mean Time To Repair (MTTR)

How long does it take for a static UPS system to be repaired?



123
HOURS

PER STATIC UPS SYSTEM



INDUSTRY MTTR



HIGH
241 HRS



LOW
58 HRS

About the Data

The sample set includes historical readings of more than 3,750 static UPS systems in operation by MCIM clients, across 47 countries, spanning industries from colocation, financial services, telecom, high-tech, and other segments as of August 28, 2023.

The findings contained in the study are based only on the data compiled from actual locations served by MCIM and are not general conclusions about the relative quality of a product or manufacturer. A number of factors beyond MCIM's and the manufacturer's control can impact these insights, including variances in customer maintenance, procedures, operating conditions, specific customer uses, and more.

In order to provide objectively meaningful benchmarking across manufacturers, MCIM

has set minimum thresholds of assets and readings to qualify for baseline representation within the dataset for each asset classification (e.g. "Static UPS"). Manufacturers that do not meet this minimum threshold are not included in the average calculations.

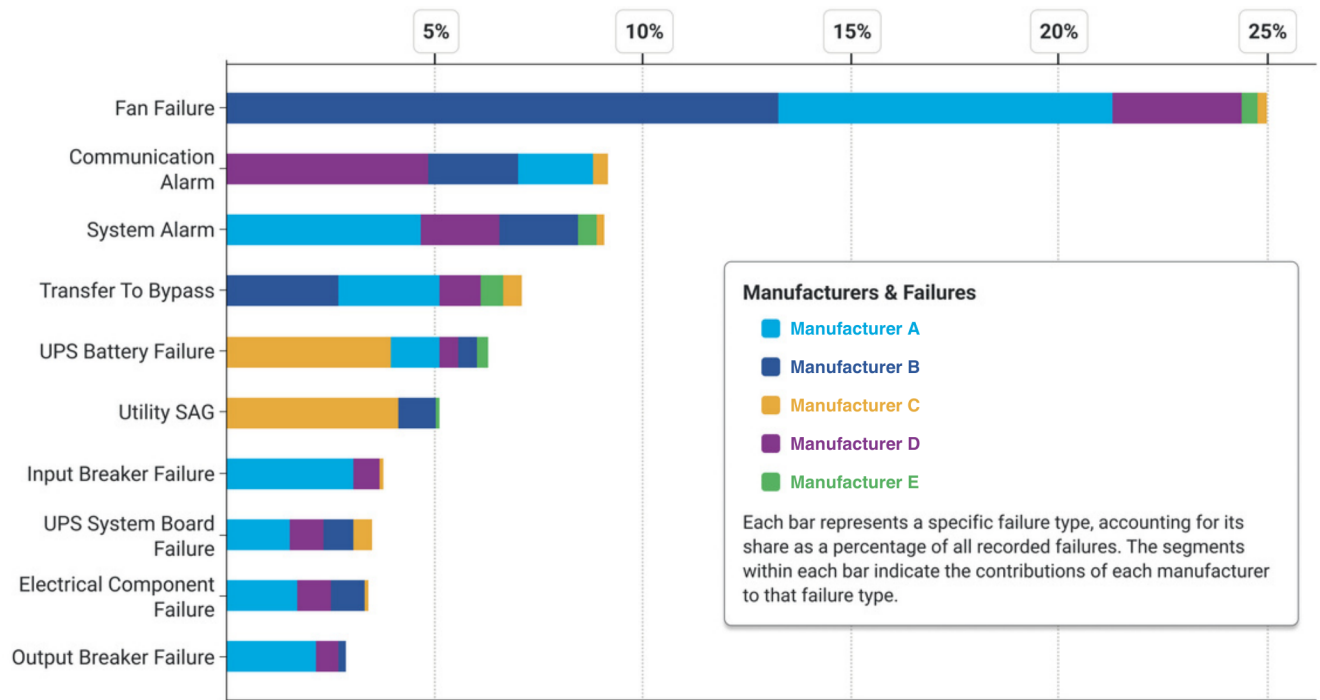
MCIM defines the average Working Life of a Static UPS System to be 20 years, broken into three primary stages: Beginning of Life (<2 years), Useful Life (2-18 years), and End-of-Life (18-20 years). In some instances data centers may choose to operate Static UPS Systems past their 20 year Working Life. These Beyond End-of-Life readings are not part of the Working Life calculations, but are included where possible to present a view of data recorded in MCIM.

HOW DO YOUR STATIC UPS SYSTEMS MEASURE UP?

Static UPS System Failure Modes

Understanding common reasons why UPS Systems fail allows data center operators to better plan preventive or predictive maintenance and ensure a supply of spare parts on hand.

Top 10 UPS Failures by Manufacturer (Sorted by % of Failures)



Conclusion

Utilizing in-depth, global data across more than 3,750 static UPS systems, MCIM is able to determine key reliability benchmarks that assist data center operators and buyers make better informed maintenance and purchasing decisions. The data also helps data center operators identify inefficiencies in their existing processes, properly compare the performance of their assets against a global benchmark, and ultimately prioritize investments in preventative maintenance, repairs, and replacements.

This is a sample of the depth of data available to users of MCIM. If you would like to compare your own data center assets to the MCIM benchmarking data, reach out to the team at results@mcim24x7.com to explore the solution further.

WHY DATA CENTERS CHOOSE MCIM

MISSION
CRITICAL
INFORMATION
MANAGEMENT

In the ever-evolving landscape of data centers, harnessing the power of data-driven decisions has emerged as a pivotal factor in achieving operational excellence.

MCIM is the only end-to-end Data Center Operating System (DCOS) that enables operational efficiency, uptime, and better purchasing and maintenance decisions. Unlike the traditional and disparate collection of EAM, CMMS, and DCIM systems, MCIM delivers ontologically-driven clean, curated, and connected data through a single source of truth.

This unparalleled insight into operational data empowers truly data-driven capital decisions.

Data Centers Win With Clean, Curated, and Connected Data

Optimized Operations

Data analytics empower data center operators to unearth inefficiencies, predict maintenance needs, and refine resource utilization, resulting in cost savings and elevated performance.

Predictive and Proactive Incident Detection and Prevention

Real-time monitoring through data analytics detects anomalies and potential faults, enabling proactive measures that minimize downtime and enhance operational continuity.

ROI, Capacity, and Capital Planning

Informed decisions are made by assessing the financial implications of infrastructure upgrades, expansions, and new technologies.

Security and Compliance

Data-driven security measures scrutinize access patterns and behavior, allowing prompt detection of breaches and helping to adhere to regulatory standards.

Energy Efficiency and Environmental Stewardship

By leveraging data, energy consumption patterns can be meticulously analyzed, enabling energy-efficient measures that align with environmental sustainability goals.

Unceasing Improvement

The data-driven approach cultivates a culture of perpetual improvement by identifying areas for enhancement, implementing changes, and gauging their impact.