StruxureWare™ Power Monitoring Expert

Data Center Infrastructure Management (DCIM) Software

Power Monitoring Expert provides comprehensive electrical system intelligence for your data center. With deep insight into the operation of your electrical infrastructure, it ensures your infrastructure can operate at the design level of reliability while still minimizing energy costs and making the most of your current assets.

www.schneider-electric.com/dcim
StruxureWare Power Monitoring Expert

Specialized and focused power system intelligence for your entire power distribution infrastructure, to help you move beyond business as usual.

Power Monitoring Expert is a specialized power management system that provides power system intelligence for your entire data center. It enables relevant information sharing and user-to-user collaboration while controlling costs.

With deep insight into the operation of your electrical infrastructure, the system ensures your data center can be operated at the design level of reliability while minimizing energy costs and making the most of your current assets. Power Monitoring Expert is designed to collect and manage data, helping you optimize your data center’s performance. It provides the right combination of data and analysis tools to meet the unique needs of your data center.

Optimize power loading of equipment
Data center power distribution infrastructure is expensive and maximizing the use of this equipment is critical for minimizing capex. The right information allows facility operations to:
> Safely maximize the loading of power equipment without compromising reliability.
> Rebalance phase loading to ensure that the full capacity of the circuit is used.
> Identify and correct harmonic currents.

Decrease the duration of unplanned outages
> Quickly receive critical power system alarms.
> View the critical alarm history to create an action plan to resolve the issues.

Decrease the number of unplanned outages
> Identify and track over-subscribed capacity.
> Identify redundancy comprised IT branch circuits.
> Identify power equipment maintenance needs.
> Perform and document regular power equipment testing.
> Perform root cause analysis on electrical distribution system events to help reduce the probability of recurrent events.

Improve the effectiveness of maintenance activities
Ensuring that technicians have accurate information prior to, during, and after a maintenance activity is critical to minimizing technician error. View real-time electrical distribution system data for the complete maintenance cycle.

Decrease your energy-related OPEX
> Measure and report on IT branch circuit energy usage for billing purposes.
> Quantify and track the cost of power losses in the power distribution system.
> Track power usage effectiveness in real-time and over time.
StruxureWare Power Monitoring Expert

Generator Test

Adds consistency and traceability to test reporting and helps facility operations

Specialized in correct testing methodology and detailed reports that reduce data center risk and liability.

The Power Monitoring Expert: Generator Test module offers a generator system test solution that adds consistency and traceability to test reporting and helps facility operations identify problems with the ability to transfer to the backup power system during a utility outage.

The Generator Test module will provide documented evidence of a regular and consistent generator system testing process and identify any generator problems that could prevent a transfer to backup power.

In order to ensure consistency and thoroughness in the generator system test process and inspire confidence with IT customers it is important that generator system tests are thoroughly documented in a consistent format that is easily retrieved for viewing.

The Generator Test will automatically capturing key generator system testing parameters, including during live load transfer events resulting from utility interruption, a digital record of the generator system testing can be easily created. No more pen and paper or manually created reports that are understood and accessible by only a few people.

Generator Test Report: At a glance

Note: The report information is organized by generator

- Power Load & Exhaust Gas Temperature Evaluation (Pass/Fail)
- Power Loading details:
  - Longest continuous run of the generator over the reporting period
  - Percentage of nameplate loading
  - Loading threshold
  - Test run duration
  - Required test run duration
  - Test status (Pass/Fail)
- Electrical data (min, avg., max): kW, kVA, A, V
- Exhaust Gas Temperature (EGT) details:
  - Longest continuous run of the generator over the reporting period
  - Minimum EGT
  - Test run duration
  - Test status (Pass/Fail)
StruxureWare Power Monitoring Expert

Generator Power

Gives specific, accurate and timely information on the generator system capacity

Shows a high level, conceptual view of the generator system.

As IT load is added to a data center, and the corresponding mechanical load is brought online, it is critical that the backup generator system can handle a potential utility outage without compromising the redundancy design. Unfortunately, this type of visibility is not easily available, particularly in generic facility systems like a building management system (BMS).

The Power Monitoring Expert: Generator Power module clearly shows the utility load vs. the installed generator system capacity, de-rated to take into account the redundancy design. This gives the facilities team specific, accurate, and timely information to use for planning and in discussions with IT customers when discussing the feasibility of adding more load.

Generator Power Report: At a glance

Summary

• Shows the status of all generator systems in the report

• A “compromised” status means that the generator system can handle the data center load in the event of a utility outage, but the redundancy design is no longer supported (ex: a N+1 design is now a N design)

• An “overload” status means the generator system cannot handle the data center load and will trip off if asked to do so

• All subsequent report sections are repeated for each generator system

Conceptual View:

• Shows a high level view of the generator system

Graph:

• States the design redundancy
• Shows the “de-rated nameplate rating” (red line)
• Shows the “redundancy design threshold” (orange line)
• Shows the “peak load” of the data center
• Shows the available power capacity (redundancy design threshold – peak load)

Data:

• Shows the data behind the graph, which can be exported to Excel.

Limitations:

• Supports N, N+1, 2(N), 2(N+1), and 2(N+2) designs
• All generators in a single system must be de-rated to the same kW value
Maximize the power loading of the UPS system(s) within the power system redundancy design constraints.

Data centers are dynamic places; IT load is constantly being added. It is critical that key systems, like UPS systems, are loaded only as far as the design redundancy intended, thus allowing for concurrent maintenance and failures. Unfortunately, this type of visibility is not easily available, particularly in generic facility systems like a BMS.

The Power Monitoring Expert: UPS Power module clearly shows the power loading state of all of the UPS systems and the trend over time. This gives the facilities team specific, accurate, and timely information to use for planning and in discussions with IT customers when discussing the feasibility of adding more load and where.

UPS Power Report: At a glance

Summary:
• Shows the status of all UPS systems in the report

• A “compromised” status means that the UPS system can handle the IT load, but the redundancy design is no longer supported (ex: a N+1 design is now an N design because the IT load is too high)

• An “overload” status means the UPS system cannot handle the IT load and will have a high probability of failure

• All subsequent report sections are repeated for each UPS system.

Conceptual View:
• Shows a high level view of the UPS system

Graph:
• States the design redundancy
• Shows the “de-rated nameplate rating” (red line)
• Shows the “redundancy design threshold” (orange line)
• Shows the “peak load” of the data center
• Shows the available power capacity (redundancy design threshold – peak load)

Data:
• Shows the data behind the graph, which can be exported to Excel.

Limitations:
• Supports N, N+1, 2(N), 2(N+1), and 2(N+2) designs
• All UPS modules in a single UPS group must be de-rated to the same kW value.
• All UPS groups in a UPS system must be de-rated to the same kW value
StruxureWare Power Monitoring Expert

**Power Losses**

Details the impact of power distribution losses over time and by specific equipment pieces.

Quantify the cost of inefficient power delivery, specifically: transformers (MV & LV), UPS modules, and system harmonics.

Power distribution losses add cost to the electrical energy bill of a data center. These losses can be as high as 10% of total power, therefore, it is important to be to quantify them both financially and technically. Through this process questions like “Should I install a Harmonics Filters? Should I upgrade my UPS system? In my upcoming facility expansion should I specify different MV Transformers?” can be answered.

The Power Monitoring Expert, Power Losses module details the impact of power distribution losses over time and by specific equipment pieces.

**Power Losses Report: At a glance**

- **Summary**
  - The total cost, in local currency, of power losses

- **Financial Graph**
  - The financial cost of power losses, by system component category (i.e. Harmonics, MV Transformers, LV Transformers, & UPS)

- **Financial Data**
  - The data behind the financial graph

- **Engineering Graph**
  - The engineering cost, in kW, of power losses by system component category (i.e. Harmonics, MV Transformers, LV Transformers, & UPS)

- **Equipment Efficiency Data**
  - The efficiency of each system component and the cost of losses
Schneider Electric™ offers a comprehensive portfolio of services to support and enhance our StruxureWare for Data Centers software. These services are designed to simplify deployment, reduce costs, and address your key concerns and challenges. Our software services provide you with peace of mind that your applications will receive the care they need to operate at optimal levels at all times.

**Software Installation**
- Ensures that all software products are installed correctly by a highly skilled field service engineer and are quickly ready for use in your dynamic data center.

**Software Configuration**
- Configures the system quickly and precisely to emulate your unique data center, in turn allowing you to make critical decisions that will save you time and money.

**Software Support Contracts**
- Ensures you stay up to date with the latest software releases and technical support

**Software Enhancement**
- Provides customized dashboards and enhanced reports to meet your business needs.

**Solution Deployment Management**
- Provides a single point of contact to oversee the installation, configuration, integration, customization, and enhancement of the DCIM software solution.

**Software Preventive Maintenance**
- Grants on-site visits to review, analyze, detect, and prevent system failures while optimizing the use of the DCIM tool.

**Software Integration**
- Provides planning, designs, and project management for the integration of StruxureWare for Data Centers software into your existing software or system, providing you with a customized view into your existing applications.

**Software Education**
- Offers hands-on training on key features, operational skills, and best practices, enabling you to get the most from your DCIM.

---

**The Schneider Electric winning recipe for service excellence**

**Dedicated Resources**
- Worldwide network of certified field service engineers
- Available 24/7
- Allows data center and facilities managers to focus on their day-to-day activities

**Methodology**
- Our technical statements of work follow a structured methodology of work procedures that adhere to industry best practices

**Execution**
- Deployment management
- Safety is a top priority
- Operation process compliance
- Scheduling

**Tools**
- Latest software updates
- Latest firmware updates
- Access to DCIM support
- HW equipment

**Performance**
- Fast and efficient service delivery
- Highly trained resources ensure StruxureWare for Data Centers is operating at optimal performance
For more information...

Additional Resources

Visit white papers.apc.com
Read more about the technology and research behind StruxureWare for Data Centers.

> How Data Center Infrastructure Management Software Improves Planning and Cuts Operational Costs (#107).

> Avoiding Common Pitfalls of Evaluating and Implementing DCIM Solutions (#170).


> Allocating Data Center Energy Costs and Carbon to IT Users (#161).

> Estimating a Data Center’s Electrical Carbon Footprint (#66).

View videos
Visit tv.schneider-electric.com to watch our StruxureWare for Data Centers videos and customer testimonials.

> www.youtube.com/user/SchneiderCorporate
> tv.schneider-electric.com

Read our Blogs
Discussing challenges and trends of DCIM, and inviting you to join in.

> Blog.schneider-electric.com/datacenter

Follow us on Twitter
For updates on all news on StruxureWare for Data Centers.

> www-twitter.com/StruxureWare_DC

Need additional information?
Check out our webpages or DCIMsupport for answers to your questions.

> www.schneider-electric.com/dcim
> DCIMsupport.apc.com

© 2017 Schneider Electric. All rights reserved.