



SmartZone™ DCIM Power Management

PANDUIT®

infrastructure for a connected world

According to a recent
Uptime Institute DCIM User Survey,

- “While reducing energy costs remains a factor, the most commonly reported driver of DCIM investment plans is capacity planning”
-Gartner*

Most DCIM Systems:

- Are too large
- Take too long to implement
- Require significant financial investment with lengthy ROI paybacks

Survey Analysis:

Follow This Marketing Action Plan to Gain
Competitive Advantage in the DCIM Market
-Gartner Research, September 2015



∴ “The maturity level of the DCIM market is low” –

according to 451 Research. The lack of manageable systems and deployment plans has made it difficult to make informed and measurable decisions.

The Ultimate Capacity and Power Management Solutions

Implement, Monitor and Report with Fast Payback

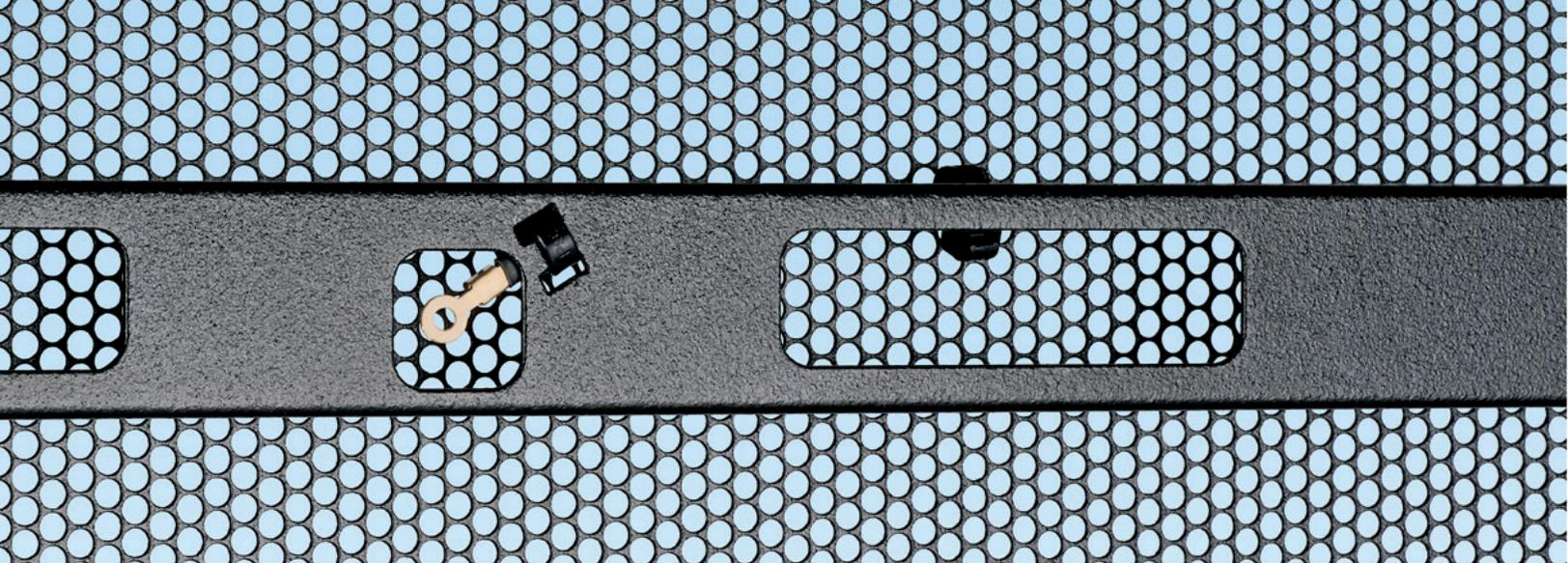
New technologies and unprecedented business demands over the last decade have left IT and facilities professionals struggling to balance efficiency and uptime. Increased computing demand and energy costs with contracting IT budgets have only compounded these issues, putting both legacy and newly built data centers under immense pressure to deliver on IT capacity.

This pressure brings about major operational management challenges, specifically power and energy management. Power is an essential and increasingly precious commodity for any data center or enterprise and achieving the right balance for running and cooling IT operations can be a major challenge. Over-provisioning means waste and unnecessary expenditure but too little can increase risk of unplanned downtime and jeopardize the resilience of the entire data center. Added to this dilemma, Data Center Infrastructure Management (DCIM) providers have to date delivered only broad and unfocused systems and deployments, which often lack a structured development path.

Time for Action with SmartZone™ DCIM Power Management Solutions

Panduit® SmartZone™ DCIM Power Solutions enable comprehensive energy and physical infrastructure efficiency in data centers, facilities and enterprise estates which focuses visibility of power, space and environmental information that is accurate and actionable for operational optimization.

An essential and practical step towards effective power management is through the deployment of real-time monitoring and data collection solutions capable of generating accurate and actionable information on critical areas of power and energy performance. The goal is to quickly provide IT and facility professionals with a transparent view of actual consumption and capacity. These diagnostics will help elevate operational efficiencies, reduced operational expenses (OpEx) and increase the resiliency of facilities in support of Service Level Agreements (SLAs).



Total Empowerment

Power management starts with Panduit Services that can help to understand unique data center needs and then help determine a course of action that appropriately aligns to the overall strategy. and then help determine a course of action that appropriately aligns to your data center strategy.

Panduit's highly qualified DCIM experts start by developing a DCIM maturity roadmap that focuses on delivering manageable, measurable, and cost-effective DCIM capabilities aimed at growing the actionable information you need, as you need it.

These levels of cooling maturity include:

Maturity Level 1:

Setting basic alarm thresholds and alerts to reduce the risk of unplanned downtime and cost implications.

Maturity Level 2:

Monitoring rack and IT loads to quickly find underutilized rack power and enable placement of new equipment or consolidation of existing equipment.

Maturity Level 3:

Monitoring UPS power chain to discover underutilized UPS units, enabling consolidation and potential for increasing per UPS power load, increasing efficiency and extending battery life.

Case Study:

A financial institution which has business with operations in over 40 countries including approximately 8000 buildings needed to ensure the "spine" of its institution, IT, operated in an integrated, cohesive, and energy-efficient manner. An investment in SmartZone™ DCIM Power Management software, hardware, and services delivered comprehensive energy and physical infrastructure efficiency results:

- Met nearly 20% energy efficiency and environmental targets four years ahead of schedule
- Developed a sustainable and actionable global energy efficiency program to target data centers and expanding facilities

The Benefits of DCIM Power Management:

- Improve capacity planning and management
- Understand the power consumption of equipment
- Identify inefficient resource utilization
- Gain an accurate view of overall and individual IT equipment energy usage

With our Advisory Services team, you can be assured of direct access to the brightest minds in DCIM delivery:

- Strong technology alliances
- Participation in standards bodies and compliance to industry standards
- World class research and development team
- Reference architecture models integrating flexible and modular design element
- Proven methodologies to streamline and accelerate engagement

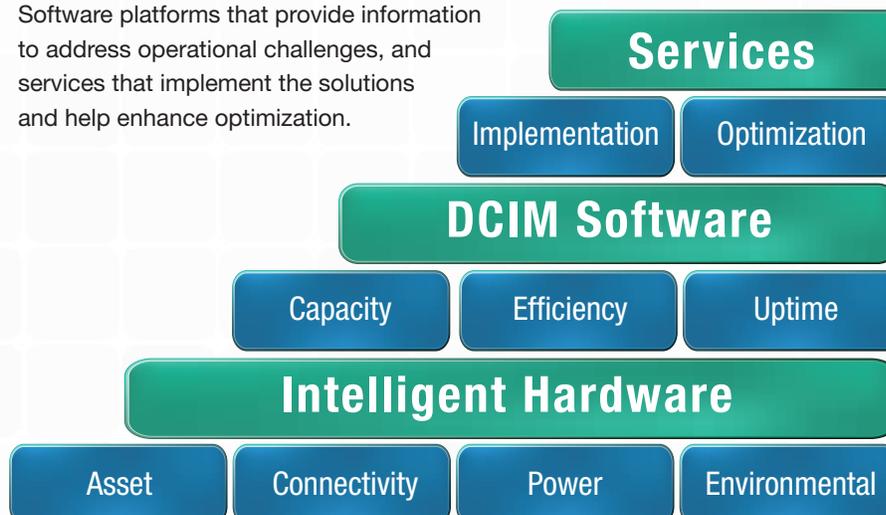
Professional DCIM Services

As an integral part of our total solutions approach, any size organizations can rely on the Panduit Advisory Services team. Through comprehensive DCIM consulting and implementation services, this group of highly qualified experts ensures data centers can initiate and remain focused on achieving manageable, measurable and cost-effective DCIM strategies.

A thorough evaluation of power and thermal performance is always undertaken with a remediation plan, followed by deployment of the appropriate SmartZone™ monitoring solutions. Regular performance assessments and any necessary adjustments will ensure maximum power is realized, as well as quickly achieving and maintaining ROI benefits.

SmartZone™ Portfolio Stack

SmartZone™ DCIM Solutions offer a value stack of intelligent hardware for data capture, DCIM Software platforms that provide information to address operational challenges, and services that implement the solutions and help enhance optimization.





Live and historical views of power consumption and environmental conditions using SmartZone™ DCIM Power Module

SmartZone™ DCIM Software Suite

Decision Making Power at Your Fingertips

The SmartZone™ DCIM Power Module, part of the SmartZone™ DCIM Software Suite, provides centralized and historical visibility of power consumption, environmental conditions, capacity and security in real-time to ensure immediate and accurate reporting at all times. The SmartZone software captures this granular data through third-party rack PDU and metering devices.

Scalable, Flexible Management Capabilities

The SmartZone™ DCIM Power Module effectively bridges the gap between IT and facility professionals, enabling them to work smarter together. The scalable software easily extends beyond IT power and environmental monitoring to provide reporting across all the other critical areas found in data center and extended enterprise facilities.

Information at a Glance

The SmartZone™ DCIM Power Module delivers advanced views of vital power and environmental parameters. The clear, easy-to-read dashboards and reports enable swift evaluation and well-informed decision making regarding the health of the data center, facility or enterprise building.

This solution also provides precise and logical reflection of the 'actual' data center and its operational analytics. Armed with these tools, data centers have access to accurate information that can increase operational efficiencies, reduce OpEx and increase data center resiliency.



Key Advantages

- Align enterprise facilities and IT needs for optimal power, cooling, and capacity planning
- Reduce OpEx
- Drive enhanced programs to advance sustainability and operational performance
- Prevent outages and downtime by isolating and resolving issues immediately
- Improve cost allocation across entire facilities from individual rooms, servers, groups of racks and supporting services
- Facilitate mandatory legislative reporting (carbon reduction audit/evidence pack, CO₂ footprint analysis)

Features Include:

- Pinpoint accuracy, offering unrivaled levels of granularity in power and environmental monitoring
- On-site or remote management via web-based console
- Alarm reporting and alerting against user defined thresholds
- Real time and historical monitoring and reporting of load draw, kVA, kW, kW/hrs, RMS volts and amps, power factor and frequency
- Dynamic and historical reporting of key data center metrics (i.e. PUE/DCiE)
- Works seamlessly with a comprehensive range of SmartZone™ and third-party devices
- Supports door access controls for physical cabinet security



SmartZone™ Hardware

The Power to Make Intelligent Choices

SmartZone™ Hardware addresses mission-critical power infrastructure from every angle. Panduit world-class solutions comply with applicable IEC standards and all recognized national deviations including UL, CSA, EN, AS/NZ.

Legacy, newly built and micro data centers benefit from decades of research and development conducted by Panduit to push the advancement of data center design, manufacturing and monitoring hardware.

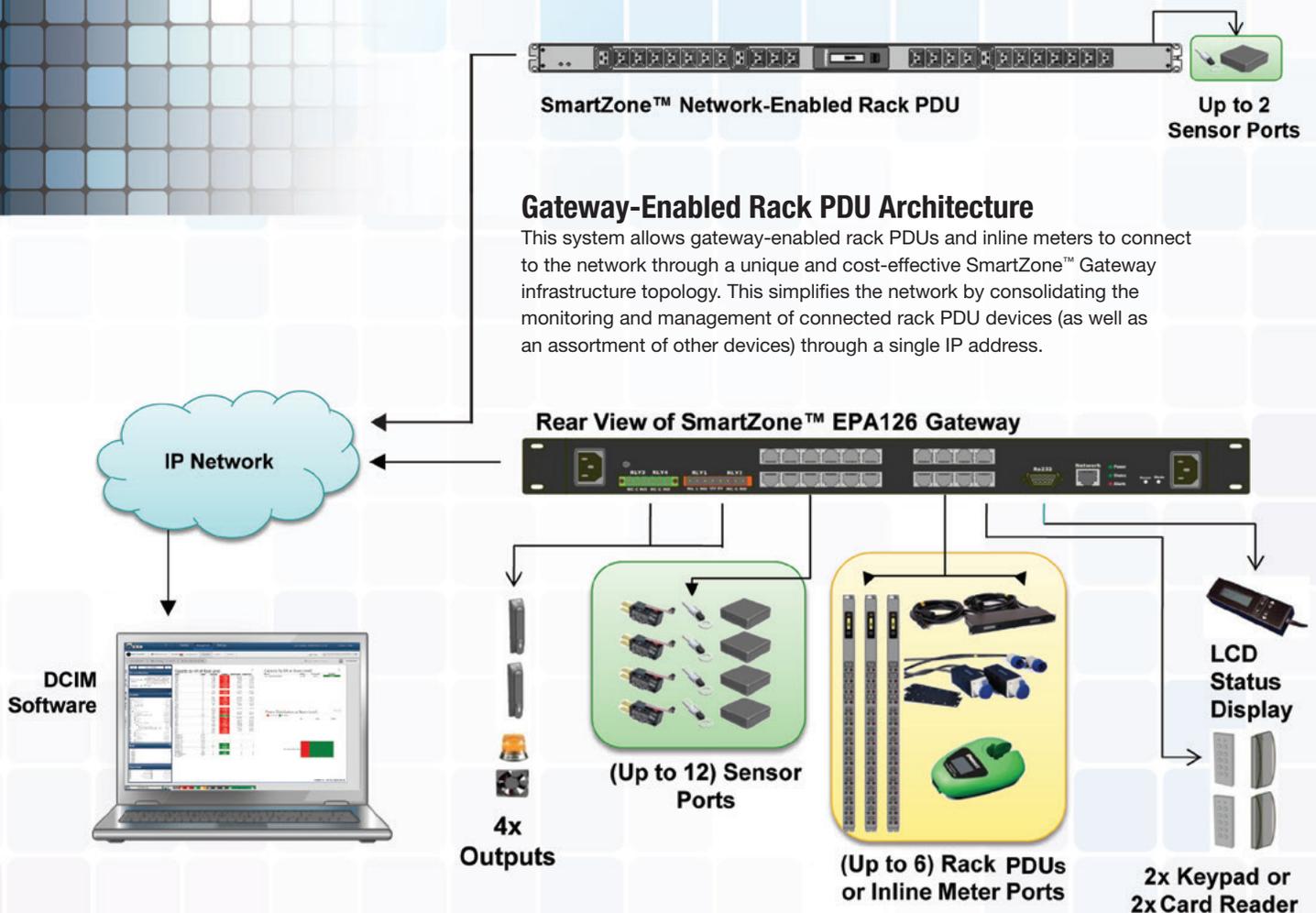
World Class Breadth of Power Monitoring

Architecturally, Panduit offers two approaches for intelligent power monitoring: Network-Enabled Rack PDU Architecture These traditional network-enabled rack PDUs attach directly to a network graphic connection as standalone units for typical power deployments in racks or cabinets.

Fast, Accurate Environmental Reporting

Generating reliable, real-time environmental reporting of IT, cooling and supporting facilities equipment is critical to sustain optimum performance. Sensors connect to SmartZone™ Gateways or directly to available sensor ports on network-enabled rack PDUs to capture and analyze historical and permissible user-defined performance data about operating temperatures, humidity and other environmental elements

Using the SmartZone™ DCIM Power Module, this data can be managed, recorded and documented to assist with meeting mandatory legislative reporting requirements such as carbon reduction auditing and CO₂ footprint analysis.



Power to Suit Your Every Need

Power to Suit Your Every Need

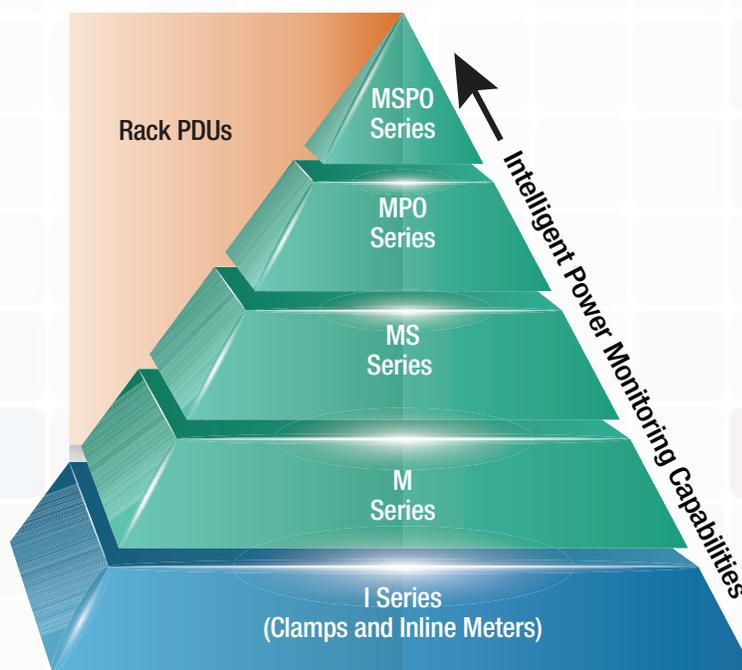
Our breadth and depth of power options include:

Basic Power (non-intelligent)

- Basic Rack PDUs for power distribution only
- Basic Rack PDUs with local meter that offer an on-unit display to provide real-time rack PDU power consumption

Intelligent Power

- SmartZone™ Network-Enabled Rack PDUs
 - M Series (Aggregate Monitoring)
 - MS Series (Aggregate Monitoring with Switching)
 - MPO Series (Aggregate and Per Outlet Monitoring)
 - MSPO Series (Aggregate and Per Outlet Power Monitoring with Switching)
- SmartZone™ Gateway-Enabled Rack PDUs
 - M Series (Aggregate Monitoring)
 - MS Series (Aggregate Monitoring with Switching)
 - MPO Series (Aggregate and Per Outlet Monitoring)
 - MSPO Series (Aggregate and Per Outlet Power Monitoring with Switching)
- SmartZone™ Inline Meters (I Series)
 - Clamp Meter
 - Zero-RU Inline Meter
 - 1RU Inline Meter
- SmartZone™ Rack Energy Kits
 - Kits with Clamp Meters
 - Kits with Zero-RU Inline Meters
 - Kits with 1RU Inline Meter
 - Kits with Rack PDUs



World Class Breadth of Power Monitoring

The sheer depth of functionality included throughout our range of rack PDUs brings flexibility and choice.

Manage Power on Your Terms

With a variety of monitoring options including per outlet, with switch and switch per outlet controls to choose from, there are extensive options available to satisfy the vast majority of 'off the shelf' monitoring requirements.

To extend choice and flexibility, Panduit supports rack PDU customization options, from unique assembly designs to customized engineering and tooling... all to meet your exact project requirements.



Maximize Existing Resource Investment with Intelligent Inline Meters

Panduit offers additional intelligence solutions for data centers that need to maximize the performance of existing basic rack PDUs:

- **Clamp Meters** - SmartZone™ Clamp Meters capture basic power consumption data from basic rack PDUs by attaching the clamp meter casing directly over a live power cable, without service interruption
- **Zero RU Inline Meters** - SmartZone™ Zero-RU Inline Meters capture aggregate power from basic PDUs by quickly installing between rack PDUs power plugs and their primary power source with minimal downtime
- **1RU Inline Meters** - SmartZone™ 1RU Inline Meters are rack mountable meters that capture aggregate power from two individual basic PDUs

Inline meters are also a perfect option to monitor freestanding equipment such as mainframes or storage cabinets.

Simple Solutions for Small Data Centers

Panduit offers Simple SmartZone™ Rack Energy Kits to data centers with 30 or fewer racks or cabinets that want to integrate basic power and environmental monitoring capabilities. These kits include all hardware, software and accessories necessary to monitor and capture operational data such as current and historical views of power and temperature, alerts and notifications, and documentation and reports.

Regardless of the size or complexity of the data center, Panduit can help design, build and operate a power solution that will lead to enhanced operational efficiencies, reduce OpEx and increase resiliency of facilities.



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