

Physical Infrastructure Management PanView iQ™ (PViQ™) System Hardware



PANDUIT®

building a smarter,
unified business foundation
Connect. Manage. Automate.



“Because we are concerned about access to our network, audit ability, and the capacity to detect unauthorized connectivity as it relates to both patient info security and HIPAA guidelines, we have chosen Panduit to offer a complete end-to-end physical-to-logical software representation of our data center and infrastructure that will enhance our overall ability to deliver the highest levels of protection for health information privacy.”

Kevin Lane,
VP and CIO, Silver Cross Hospital

Leverage the Information Needed to Make Meaningful Operational Decisions

Research shows that half of all network problems arise from issues in the physical infrastructure. Yet the physical infrastructure is largely overlooked. Without real-time monitoring and visibility into dense physical layer connectivity and related data center infrastructure information, enterprises are vulnerable to a number of risks such as unnecessary downtime and underutilized resources.

Panduit provides complete visibility of the data center and extended enterprise through intelligent devices, software-based automation, pre-defined dashboards and reports, change management, and related documentation that integrates with higher-level network management and service desk platforms. This combined approach helps optimize data center operations as enterprises embark on server virtualization, and private and cloud computing initiatives.

Panduit's SmartZone™ Software is an enterprise class, data center infrastructure management (DCIM) platform that combines connectivity management data and dashboards with asset tracking, allocation, and utilization information, enabling you to reclaim and repurpose IT assets effectively. SmartZone™ Software centralizes the collection and visual representation of a rich set of asset attributes, such as connectivity, space/port availability, and power/environmentals, to ensure that your physical infrastructure supports mission-critical applications, and enables effective optimization of your data center's space, power, and cooling resources.

The SmartZone™ Software Suite offers visibility into:

- Process documentation of IT assets, moves, adds, and changes (MACs)
- Power consumption, temperature, and humidity measurement of active equipment
- Centralized monitoring of IT assets through a single platform
- Underutilized assets and resources
- Unauthorized patch field changes
- Potential physical network security breaches
- Root cause analysis of physical network problems
- Capacity limits

Panduit's modular approach to delivering DCIM functionality enables you to customize the solution to meet the needs of your organization both now and in the future. Process-driven integration with your current network management and service desk platforms delivers a streamlined interface to support management of IT assets with related attributes and physical infrastructure components of your data center and extended enterprise.

For more information on the SmartZone™ Software Suite visit www.panduit.com.

Unified Physical Infrastructure



PViQ™ System Hardware

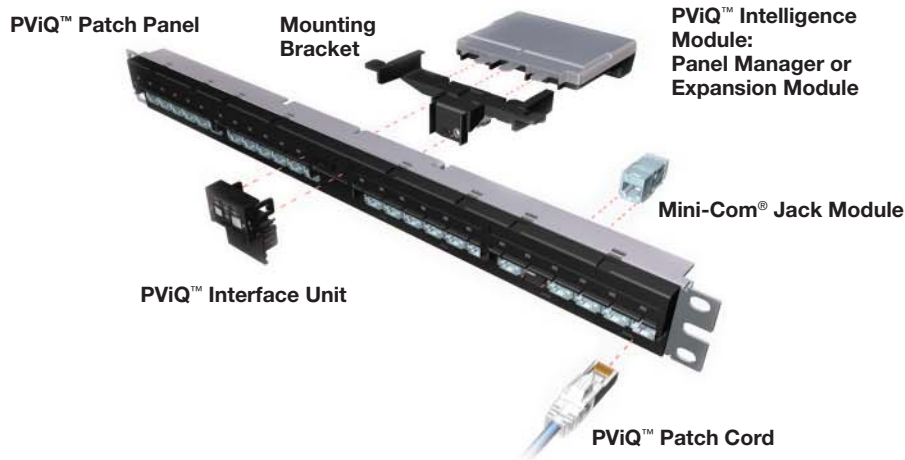
As part of the SmartZone™ Solutions portfolio, Panduit's PViQ™ System Hardware combines industry-leading innovation of intelligent cabinet devices with complete system management through the SmartZone™ Software Suite. This combination of active patch panels, cabling, power distribution units, and environmental sensors provides you with a complete data center solution. Information about these devices can be accessed on site or remotely through a web-based interface to troubleshoot and execute on physical infrastructure changes for greater efficiency and cost savings.

PViQ™ Connectivity Hardware

PViQ™ System Hardware for Connectivity Management includes intelligent patch panels, fiber trays, modules, and cabling to provide continuous real-time patch field monitoring and visibility of physical infrastructure connectivity for enhanced system reliability and security and capacity management.

PViQ™ Patch Panels

PViQ™ Patch Panels have been developed with functionality, scalability, and consideration for rack space efficiency. The innovative patch panel design gives IT Managers the option to phase installations (installing passive connectivity now and upgrading to a fully managed system at a later time) and to quickly swap out modules for upgrades or repairs without disrupting cabling or data traffic through the panels.



PViQ™ Fiber Trays

PViQ™ Fiber Trays provide real-time physical layer management to the fiber channels in the network. These fiber trays provide the capability to map and monitor the fiber channels to efficiently manage resources and substantially reduce network operations cost. They provide the capability to automate network documentation and maintenance procedures for the physical layer, which in turn supports improved reliability, security, and increased overall network management efficiency.



PViQ™ Enhanced Interconnect Patch Cords

The interconnect patching capability allows for accurate connections and disconnections between PViQ™ Patch Panels and specified switch ports through visual verification of change orders as defined through the SmartZone™ Software Suite.

The higher density of connection points on network equipment creates risk when changes are required. Identification of proper switch ports is imperative to ensure business continuity so that applications and services are not improperly connected or mistakenly taken out of service. The speed and accuracy of connecting to the correct switch port is increased through guided visual notification.

Building upon the functionality of the basic PViQ™ Interconnect Patch Cords, the new PViQ™ Enhanced Interconnect Patch Cords implement an industry-first design which integrates LEDs directly into the patch cord plug, providing visual verification of accurate patching and tracing activities.

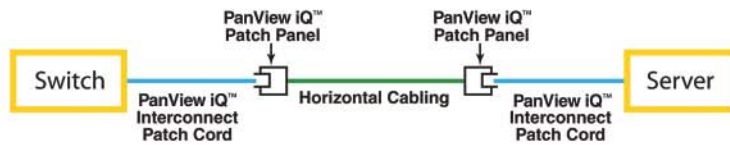
Accurate Network Switch Port Connections: PViQ™ Enhanced Interconnect Patch Cords visually indicate and verify accurate insertion at the switch port, ensuring that the right services and networking capabilities are provided for this connection.

Visual Traceability: PViQ™ Enhanced Interconnect Patch Cords enable port tracing between PViQ™ Patch Panels and network switches via local access or remote management. This innovative capability allows for direct mapping and verification of end-to-end patch field connection points.

Guided Disconnects: The PViQ™ System Hardware guides removal of PViQ™ Enhanced Interconnect Patch Cords from both the switch and corresponding patch panel to reduce risk and enable secure disconnects reducing the potential for service disruption to peripheral ports.

Interconnect Configurations

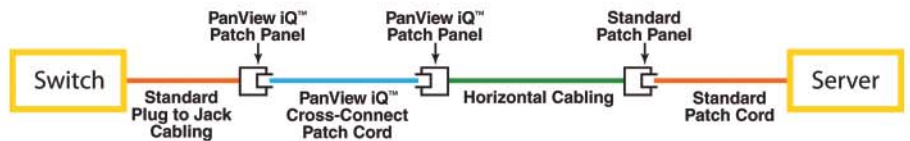
The interconnect configuration is ideal for data centers with limited space areas that have lower reconfiguration requirements and utilize higher density connections than other computing areas. The new PViQ™ System Hardware interconnect capability provides the assurance of accurate switch port provisioning and patch field documentation when monitored through the SmartZone™ Software Suite. This revolutionary design requires no additional cables, appliances, or obstructive overlays on network equipment which can interfere with port connections.



When network elements such as switches need to be reconfigured, the PanView IQ™ System provides LED guidance to ensure proper switch port allocation/de-allocation. Network elements such as servers can also be monitored at the physical layer to ensure proper connectivity. With the PViQ™ System Hardware, both ends of the switch-server relationship are monitored via the SmartZone™ Software Suite, which leads to quicker problem resolution and rapid service/application restoration.

Cross-Connect Configurations

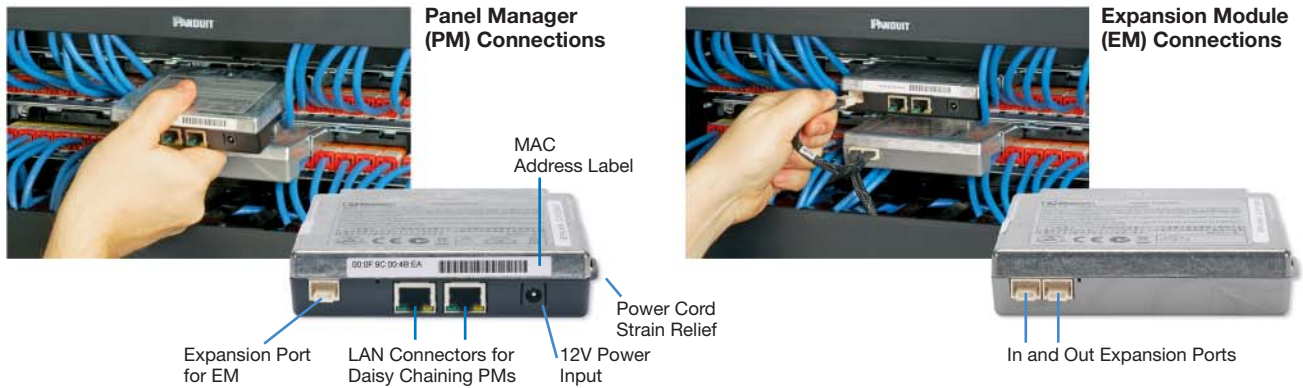
A cross-connect configuration is warranted in data centers where frequent Moves, Adds, Changes and application reconfigurations necessitate flexible and easily accessible patching connectivity.



In cross-connect configurations, the highest density network element (such as the high-speed switch) is permanently cabled through the back of a PViQ™ Patch Panel with modular jacks. PViQ™ Patch Cords are then connected between the front of that panel and the remote PViQ™ Patch Panel cabled via horizontal runs to remote cabinets, typically containing other network elements (e.g., servers) or endpoint equipment (e.g., computers, IP phones, security equipment, etc.).

PViQ™ Intelligence Modules

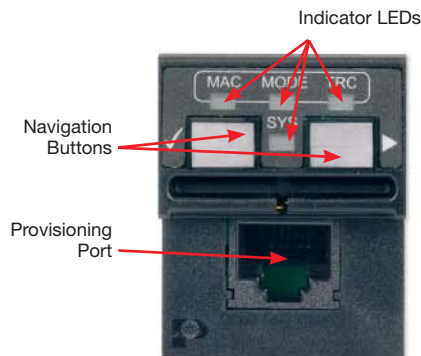
Panel Manager (PM) – The PViQ™ Panel Manager is designed to consolidate patch field scanning and management functions into a single, removable module. It contains an embedded web interface for remote management and access to connectivity information.



Expansion Manager (EM) – The PViQ™ Expansion Module cost effectively expands the scanning and management capabilities of the PViQ™ Panel Manager to additional patch panels.

PViQ™ Interface Units

- Secure Mode** – Visually and audibly alerts users when any changes are made
- Trace Mode** – Visually verifies patch field connectivity at both ends of the patch cord
- Maintenance Mode** – Enables locally and remotely performed diagnostic services
- Learn Mode** – Allows ad hoc patching changes to be automatically updated in the database



Interface unit shown for PViQ™ Panel Manager (PM). Interface unit for PViQ™ Expansion Manager (EM) does not contain provisioning port.

Power and Environmental Hardware

Panduit supports power and environmental management through intelligent power distribution units (PDUs) and sensors. These elements transfer information directly to the SmartZone™ Software Suite, providing visibility of physical infrastructure power consumption, temperature, and humidity levels for enhanced system reliability and operational efficiencies.

Panduit Power Distribution Units (PDUs) – Safely and efficiently manage and distribute power to multiple devices through a single power connector to enhance scalability of network build outs.

Through integration with the SmartZone™ Software Suite, these PDUs send power and temperature readings to allow:

- Automated documentation and visualization of power utilization and environmental conditions
- Recognition and notification of faults or power disruptions
- Identification of available related capacity



Environmental Sensors – Environmental Sensors are available as externally placed sensors to measure and trend environmental conditions such as temperature and humidity levels, at the cabinet level. These intelligent sensors transmit real-time environmental information, providing notification of exceeded thresholds to quickly identify and resolve issues, identify hot and cold spots in the data center and automate collection of real-time and accurate environmental information.

These sensors send cabinet-level information to the SmartZone™ Software to allow:

- Automated documentation and visualization of temperature and humidity levels
- Recognition and notification of exceeded temperature thresholds and/or other environmental-specific concerns
- Trending analysis to uncover developing thermal issues that may impact optimal performance and efficiency



Part of Panduit's End-To-End Intelligent Data Center Solutions

Physical Infrastructure Management PanView iQ™ (PViQ™) System Hardware is a critical part of Panduit's Intelligent Data Center Solutions, which embody the next wave of systems integration and risk management by aligning and harmonizing critical systems to support the delivery of secure, energy-efficient, always-on, real-time data and services.

The five key pillars of Panduit's Intelligent Data Center Solution include:

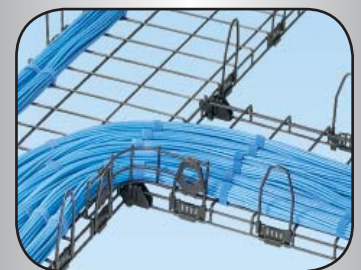
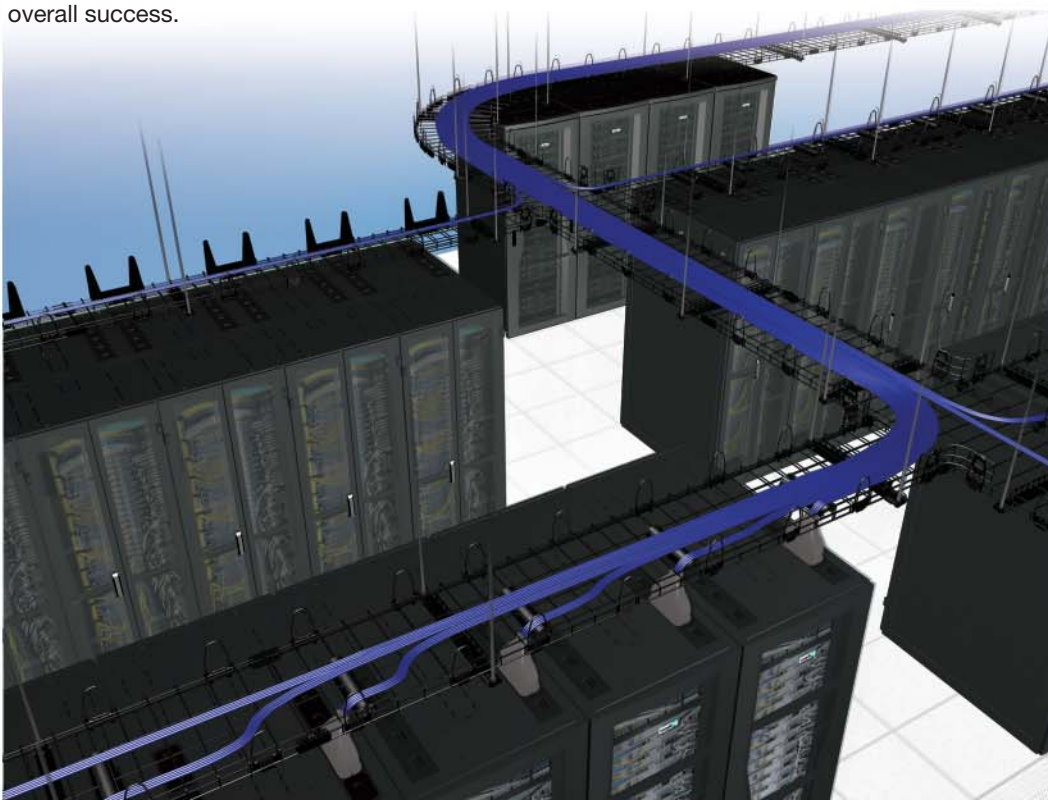
Data Center Advisory Services – offering expertise to provide a reliable and scalable physical infrastructure that delivers operational flexibility to reduce costs, improve scalability, and meet future requirements by laying a strong foundation for migration to next generation solutions, mitigating risks surrounding consolidation and virtualization, and achieving greater energy and real-estate efficiency.

Intelligent Software and Intelligent Hardware Appliances – providing complete data center infrastructure management (DCIM) through monitoring and management of critical physical layer resources (including IT asset tracking, allocation, and utilization), power usage, available space for expansion, and connectivity.

Energy-Efficient Cabinets – offering modular designs that improve cooling conservation for greater thermal management and deliver accessibility, flexibility, and effective space utilization.

High Speed Data Transport (HSDT) Copper and Fiber Cabling Systems – offering ease of deployment and proven performance to ensure availability, reliability, and scalability of mission-critical systems.

Physical Infrastructure Foundation – includes all critical systems, such as pathways, zone cabling, routing, grounding, labeling and identification, and more, that support a smart data center and ensure reliability, agility, and security to drive business advantages and overall success.



The versatile Panduit® Wyr-Grid® Cable Tray System is engineered to route and support high densities of data and power cables.

Panduit's full range of overhead and underfloor cable routing systems manage and protect fiber optic and copper cabling systems, as well as power cabling, to enhance reliability and flexibility in the data center.

Real-World Solutions

*With a proven reputation for excellence and innovation, Panduit and our partners work with you to overcome challenges and implement real-world solutions that create a competitive business advantage. Panduit offers the broadest range of solutions, from data centers and intelligent buildings to manufacturing operations, to help you build a **smarter, unified business foundation**.*



Technology Leadership

Panduit develops innovative physical infrastructure solutions that meet the rapidly changing needs of our clients, from hardware and software to advisory services. This commitment is supported by investment in advanced research, solutions-focused product development, world-class manufacturing, and collaboration with customers at the forefront of technology.



Partner Ecosystem

Our best-in-class partner ecosystem offers a comprehensive portfolio of services that span the project lifecycle, from planning and design to delivery, deployment, maintenance, and operation. Panduit business partners – distributors, and certified architects, consultants, engineers, designers, system integrators, and contractors – are qualified to help you achieve your objectives and realize predictable and measurable results.



Strategic Alliances

Panduit cultivates long-term strategic alliances with industry leaders, including Cisco Systems, EMC, IBM, and Rockwell Automation, to develop, optimize, and validate solutions for our customers. This investment in people and resources helps solve our customers' greatest business challenges.



Global Business Commitment

Panduit is committed to delivering a consistently high level of quality and service the world over. With a presence in more than 100 countries, local Panduit sales representatives and technical specialists offer guidance and support that bring value to your business. Our global supply chain, which includes manufacturing, customer service, logistics, and distribution partners, provides prompt response to your inquiries and streamlines delivery to any worldwide destination.



Sustainability

With a commitment to environmental sustainability, Panduit develops and implements solutions that protect, replenish, and restore the world in which we live. This commitment is demonstrated by Panduit's LEED Gold certified World Headquarters, leveraging the Unified Physical InfrastructureSM approach to enable convergence of critical building systems to drive energy efficiency and ongoing operational improvement.

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