Harsh Environments Require Unique Solutions
A Unified Approach to Operating in Harsh Environments.

Oil rigs, mines, wind farms, and industrial manufacturing facilities are often located in remote, unsheltered areas where they face extreme climatic conditions. Frigid cold, UV rays, drenching rain, salt spray and gusty winds are some of the extremes in which these operations must be designed, deployed and maintained while delivering long-term reliability and avoiding costly equipment repair and replacement.

Environmental extremes are not the only factors that create harsh environments. Indoor harsh conditions abound throughout plant and processing facilities, including high vibration, chemical vapors, galvanic corrosion and radiation that can also result in significant equipment wear-and-tear. In industrial applications, these are all variables that can interrupt production, cause downtime, and create safety hazards.

These harsh environments, in combination with technological advancements in machinery, control, and communication systems, are placing increased demands on physical infrastructures which significantly increases operational risks. To optimize operational reliability, next-generation systems architecture must address both the physical and logical layers. Such innovative infrastructure solutions are necessary to deliver greater systems availability, reliability, on-site safety and uptime in harsh environments.
Maximize Performance and Productivity
Mitigate Risk in Mission-Critical Operations

Expertise across the entire spectrum of electrical and network infrastructure design, deployment and maintenance is required for optimum plant and processing facility operations. A comprehensive approach to the physical infrastructure better meets the full range of needs for improved operational efficiency.

The operational challenges of harsh environments, and advances in Internet Protocol on the manufacturing floor, require infrastructure designed for highest performance. A point of failure within any one system impacts the performance of the overall physical infrastructure, and creates risk. A unified approach to physical infrastructure recognizes the interdependencies of multiple systems, such as power, control, and communication, across the industrial landscape and helps avoid related risks. Panduit Harsh Environment Solutions are based on the principles of the Unified Physical Infrastructure™ approach to deliver comprehensive, robust, and integrated solutions with the following benefits:

- **Maximize performance** with rugged systems and components that deliver high reliability and long service life in harsh environments, as well as reduce installation and maintenance costs
- **Enhance workplace safety** by protecting personnel and capital assets with comprehensive, intuitive safety systems that are regulation compliant
- **Extend the reach of cabling infrastructures** to all field devices, creating seamless integration of industrial and data communications networks
- **Improve visibility and control** through remote monitoring of information related to cabling and network infrastructure
- **Aid compliance** with solutions that meet the utmost demanding industry specifications, including NAVSEA, MIL Spec, and Telecordia
Panduit’s Unified Physical Infrastructure: A Guiding Vision

For a Smarter, Unified Business Foundation

The growing interdependence of systems and applications, and the increased demands that they place on physical infrastructures, requires the integration of traditionally disparate and proprietary systems. This trend is dramatically changing infrastructure design, management strategies and effective synchronization of critical systems, opening the door for seamless convergence and interoperability of all core business systems.

Panduit provides flexible, end-to-end solutions for the physical infrastructure that drive operational and financial advantages, allowing businesses to minimize risk and heighten agility. Tailored by industry and customized by application, Panduit solutions span the core systems necessary to transform a business, from data center and operations to next generation intelligent buildings and industrial networks.

Panduit has developed the industry’s most comprehensive and holistic approach to a Unified Physical Infrastructure and can help enterprises align, converge and optimize critical systems – communication, computing, control, power and security – to build a smarter, unified business foundation.

This approach enables the use of an open standards-based, service-oriented architecture framework and is designed to deliver tangible infrastructure and business process improvements for increased functionality, interoperability and manageability of mission critical operations across the enterprise.

Key Benefits

- Leverage real-time information to enhance visibility, security, safety and compliance across the enterprise
- Reduce infrastructure and systems complexities while increasing functionality and manageability of mission critical capabilities
- Achieve flexibility through deployment of a platform-agnostic, open standards-based architecture
- Improve productivity and customer satisfaction by delivering higher levels of availability and reliability
- Converge and optimize critical systems, leveraging and reusing existing assets/investments for maximum ROI
- Drive tangible infrastructure and business process improvements while reducing operational costs and mitigating risk
- Create a sustainable infrastructure for securing energy efficiencies and establishing global best practices

Unified Physical Infrastructure

communication computing control power security
Tackling Harsh Environments with a Unified Approach

As the industrial landscape extends operations in remote locations, and as existing facilities age, companies need solutions that enable the infrastructure to perform at the highest levels. In the case of harsh environments, these solutions must withstand extreme conditions, offer high reliability and enhance worker safety.

Panduit’s Harsh Environment Solutions minimize risk by delivering proven performance in the most extreme applications and by aligning critical systems to support the delivery of reliable power, control and communication systems across a facility.

Panduit leads the industry with the most comprehensive electrical and networking product portfolio, including industry leading installation tooling, for the physical infrastructure. With application expertise in harsh environments and convergence on the manufacturing floor, best practice methodologies, and end-to-end support, Panduit helps our customers improve productivity and lower operational costs.

**Improve Efficiencies** – Unified solutions approach to enable convergence across power, control and communication systems, as well as between manufacturing and enterprise systems for improved workflow efficiencies; application expertise helps simplify complex networking deployment in new and existing facilities.

**Mitigate Safety Risk** – Comprehensive systems and programs for enhanced workplace safety to protect personnel equipment, and infrastructure; aiding in compliance with industry standards to reduce safety incidents and related costs while contributing to productivity.

**Maximize Uptime** – Customized, durable solutions engineered for superior reliability and extended service life in mission-critical applications; proven performance through extensive R&D, internal testing, and compliance with industry standards.

**Ease of Installation, Maintenance and Repair** – Industry leading tooling improves productivity and reliability of installations, and reduces project timelines; simplify troubleshooting and reduce mean time to repair with effective, comprehensive systems for infrastructure identification and management.

Visit www.panduit.com/harsh
Connect. Manage. Automate

Panduit's Comprehensive Harsh Environment Solutions

Based on the principles of a Unified Physical Infrastructure™ approach, Panduit is the industry’s only single source supplier of complete physical infrastructure solutions for harsh environments.

**Connectivity and Cabling** – End-to-end copper and fiber cabling systems that offer ease of deployment and proven performance to ensure availability, reliability, and scalability of mission critical systems, including high speed data transport and industrial networking.

**Grounding/Bonding** – A comprehensive, rugged and simple to install solution providing a visually verifiable and dedicated grounding path to maintain system performance, improve reliability, and protect both personnel and equipment.

**Power Connections** – A wide variety of power connectors, terminals, and ferrules that offer superior electrical performance in the toughest environments and industry leading tooling for faster, more consistent installations.

**Safety** – Extensive line of safety signage and lockout/tagout devices that enable worker and equipment protection, minimize opportunity for human error and aid in standards compliance.

**Stainless Steel Systems** – With the strength of steel, this system provides a durable method of bundling, identifying and fastening cable used in indoor and outdoor applications where severe and harsh conditions jeopardize reliability, productivity, and safety.

**Labeling and Identification** – Comprehensive, customizable solutions including hand-held and desktop printers, software, on-site marking tools, and a full line of labeling that enables efficient infrastructure management while reducing mean time to repair.

**Wire and Cable Management** – Strong and durable solutions for cable routing, bundling, and protecting that reduce installation time while providing for quick maintenance when required.

**Routing** – Manage and protect communication, computing and/or power cables in panels, under floors, and through overhead channels to ensure system performance, reliability, and scalability.

**Enclosures** – Zone and data center enclosures for active or passive equipment in support of manufacturing operations. Rated enclosures for industrial networking applications, as well as enclosures for business wide WiFi.

**Physical Infrastructure Management** – Software platform delivers visibility and control for monitoring, managing, and automating of networks through asset identification and tracking to the physical layer integrated with intelligent hardware.
The Panduit Difference
Realize Benefits Across the Enterprise.

Panduit is the leading provider of physical infrastructure solutions with a broad, integrated portfolio of products. Extensive, ongoing R&D delivers innovations for harsh environments ranging from field installations to the control room to the data center. For example, Panduit physical infrastructure solutions include easy-to-install, all weather grounding systems for top rated performance; space savings control panel systems for improved manageability; cabinet and cable management systems engineered for energy savings; and universal lockout devices for all energy sources to protect employees.

Panduit provides the ability to align the physical infrastructure to the logical systems infrastructure by creating reference architectures that are mapped to industry-wide best practices. In combination with extensive harsh environment expertise and proven durability and reliability, Panduit solutions help our customers maximize return on investment and lower operating expense.

All of Panduit's solutions meet or surpass rigorous quality management standards to assure compliance with industry requirements. Our unique, robust, partner ecosystem also offers a lifecycle of services for innovative modeling, predictable execution, and operational excellence.

This comprehensive approach to infrastructure design, deployment, and management allows benefits to be realized across the entire enterprise.
Real-World Solutions to Ensure the Success of Our Customers

With a proven reputation for excellence and technology innovation, a robust ecosystem of global partners, and long-term alliances with top industry leaders, Panduit is a valuable, trusted partner offering strategic vision and real-world solutions to ensure the success of our customers.

Innovative Technology Leadership

Panduit is an industry leader in developing innovative technology solutions that meet the rapidly evolving needs of our customers around the world. Our commitment to continued leadership is supported by significant ongoing investment, dedicated manufacturing facilities, strategic technology alliances, and collaborative R&D with other industry leaders.

Global Business & Commitment

Panduit’s ongoing commitment to excellence and our technology alliances with key industry leaders such as Cisco Systems, EMC, Emerson, IBM, etc., enables our highly skilled and knowledgeable global sales, systems engineering, and technical support teams to engage with critical customer challenges that range from initial problem determination all the way to resolution. Local specialists, trained to global standards and competencies, provide consistent regional support that brings value to local business. Our global value chain, which combines manufacturing, distribution, and service, provides prompt responses to customer-related issues, and streamlines procurement and delivery to any global destination.

Best-in-Class Partner Ecosystem

Panduit employs a consultative approach to identify customer needs and engage appropriate partners in a collaborative fashion to serve our customers. Panduit’s robust ecosystem of architects, consultants, engineers, designers, systems integrators, contractors, and distributors offer a full portfolio of lifecycle services. Our partners are trained on relevant services to Plan & Design, Build & Deploy, and Maintain & Operate to deliver predictable and measurable results.

Worldwide Alliances

Panduit has established long-term strategic alliances with top global industry leaders such as Cisco Systems, EMC, HP, IBM, Liebert, and Rockwell Automation to develop and integrate innovative, holistic solutions for our customers. We continually invest in relationships and resources for solving our customers’ greatest business challenges.

Eco-Sustainability & Global Citizenship

With a long-standing commitment to environmental excellence, Panduit continually develops and implements solutions designed to protect, replenish, and restore the world in which we live and operate. This commitment is demonstrated by Panduit’s LEED-certified new world headquarters and future green building plans using its own revolutionary Unified Physical Infrastructure® vision to enable convergence of critical systems for driving sustainability.