NORDEN®

DATA CENTRE SOLUTION

SOLUTION DOCUMENT

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Data is today's asset, and the solutions to store it are equally important. Under no circumstances can one compromise even the slightest bit when building a system that keeps the data precise and safe. Data Centre Solutions play a crucial role in the process of storing and managing data. In essence, data centre solutions provide access to technologically advanced physical facilities used to store and process all relevant data. When data and infrastructure are virtualized, having such solutions is pivotal for resources to make their data accessible with protection.

Structured cabling is an essential component of the data centre, helping organizations and businesses keep their wiring infrastructure organized and flexible. A structured cabling system employs a series of patch panels, trunk cables, and pre-terminated solutions to connect hardware ports to a patch panel at the top of the rack. The structured cabling system comprises six key elements: horizontal cabling, backbone cabling, a work area, a telecommunications room, an equipment room, and an entrance facility.

Data Centre Cable Standards

The primary data centre cable standards used are:

ANSI/TIA-942 - A Infrastructure Standard for Data Centres - These standards deal with infrastructure, site location, architectural, electrical, mechanical, safety, and security concerns for telecommunications infrastructure in data centres and computer rooms.

ANSI/BICSI 002 - 2019 Data Centre Design and Implementation Best Practices-This standard contains criteria and advice on the best ways to execute a design to meet demands in the data centre.

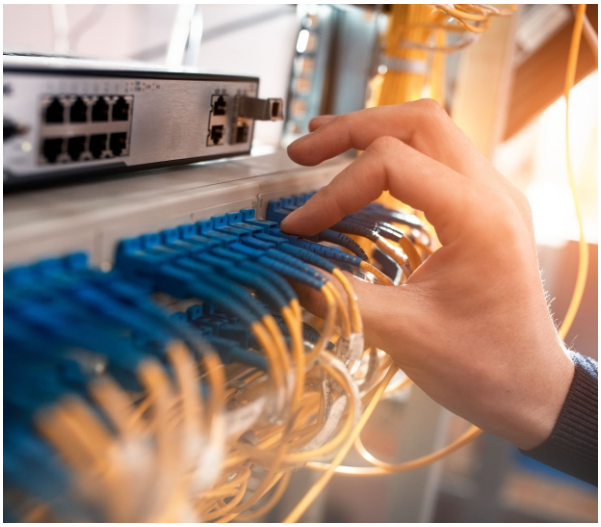
EN 50173 - 5 Information Technology- Generic Cabling Systems -This standard specifies requirements for cabling within data centres to support emerging and existing applications.

ISO/IEC 24764 Information Technology- Generic Cabling Systems for Data Centres – Based on TIA-942 and EN 50173-5, this international standard defines balanced copper and optical cabling systems for use in the data centre.

SOLUTION

Norden was tasked with designing a panel that could accommodate all LC, SC, MTP, LC, and SC Splice distribution frame with maximum capacity of 10376 splices to fulfil a requirement for the data centre. We supplied a variety of solutions that fulfilled their demands, which consisted of Fibre Solutions, Ribbon Cables, Pre-Terminated Solutions, High-Density Modular Fibre Optic Panels, Hybrid Patch Panels, MTP/MPO Trunk Cables, Ribbon Fibre Optic Distribution Frames, Intelligent Power Distribution Units and Copper Solutions (Cat 8).

Fibre Optic Cables are used in data centres for their high data transmission rate, low attenuation, reduced bulk, low distortion over long-distance transmission, and low electromagnetic interference.Fibre cables offer several advantages, including durability, bend radius flexibility, and low signal loss characteristics. In data centre environments, two common types of fibre solutions used are Ribbon Fibre Optic Cables and Tight Buffer Fibre Optic Cables. Ribbon Fibre Cables are high-quality optical cables designed for mass fusion splicing. They can accommodate up to 1728 cores. Ribbon Fibre Cables facilitate quick network installation and rapid restoration in case of cable damage. Tight-Buffer Fibre Optic Cables are specifically designed for indoor applications such as floor distribution interconnection and equipment connections. They are built to be sturdy, highly resistant to moisture, and capable of routing across multiple bends. Tight-Buffer Fibre Optic Cables have a capacity of up to 144 fibres and are ideal for various indoor data centre uses.



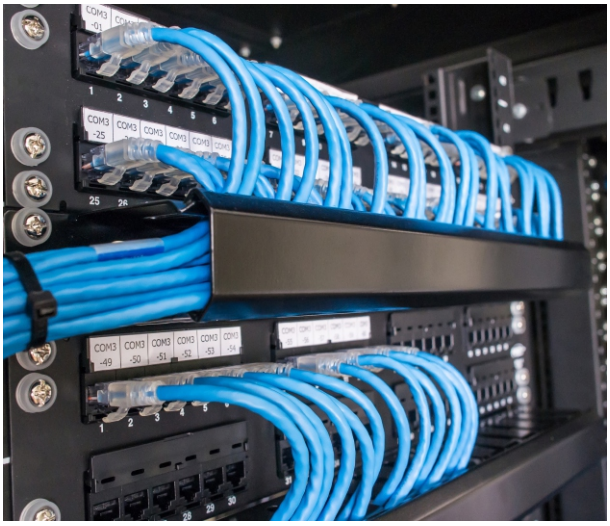
The High-Density Modular Fibre Optic Panel is designed to streamline cabling deployment, optimizing space utilization while enhancing port density, flexibility, and adjustability. These cassettes come in LC, SC, and MTP variations. They are easily removable for field termination, allowing adaptability to installation requirements.The panel's enclosure capacity can be adjusted as needed, further saving space by maximizing rack space utilization and minimizing floor space.

Fibre Patch Panels are widely used in data centres for their ease of fibre installation, flexibility, and manageability. Hybrid Patch Panels with pre-terminated solutions offer the convenience of switchable connections for both copper and fibre. These panels can be custom configured with modules, adapter plates, and pre-terminated solutions, making them ideal for data centres. They provide fast installation and help conserve rack space by enabling the patching of both copper and fibre in a single panel.

MTP/MPO Trunk Multifibre Cable assemblies play a crucial role in large-capacity and high-density data centre environments by reducing the time required for reconfiguration and network installation. Additionally, they contribute to cost reduction. MPO and MTP feature pre-terminated connections, enabling speeds of up to 400G with a 16-fibre MTP.

Intelligent IP-PDUs can sense changes in power consumption, overload conditions, and environmental factors in IT equipment within the server room. This capability facilitates analysis and enables appropriate adjustments and optimizations to the power supply of the server room. The unique hot-swap design allows the controller to be replaced or upgraded without shutting down the power to the rack. These PDUs offer upgradeable and scalable output modules that customers can customize according to their needs, categorized into the A, B, C, and D series.

The A Series provides real-time input and circuit-level power monitoring, rack-level temperature and humidity monitoring, and door/smoke/water status monitoring. The B Series includes all the features of the A Series, with the addition of outlet-level power and energy metering. The C Series encompasses all the features of the A Series, along with remote outlet on/off switching and power on/off sequencing capability. The D Series combines all the features of the B Series with remote outlet on/off switching and power on/off sequencing capability.



Copper solutions are predominantly utilized for shorter distances, such as connections within the same rack. They contribute to better thermal design and low power consumption. Cat8 represents the most modern and fastest Ethernet cable standard available. In data centres and server rooms, Cat8 Ethernet is employed for switch-to-switch communications. These cables surpass Category 8/Class II specifications and are specifically designed to support networking applications up to 40 Gbps, tested in the 2000 MHz frequency range. Cat8 incorporates PoE technology, contributing to space savings in server rooms by simplifying installation. Cat 8 accessories include a tool-less shielded keystone jack, a shielded patch panel with 24 ports, patch cords, and RJ45 toolless connectors.

Norden focuses on crafting data centres that are adaptable and future-ready, emphasizing increased sustainability and scalability. Our future goals include enhanced security, intelligent sensing, instant alerts, and a robust management system.

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www.nordencommunication.com

HEAD QUARTERS

Norden Communication UK Ltd.
18th & 19th Floor, 100 Bishopsgate,
London EC2N 4AG ,
United Kingdom
Tel : +44 (0) 2045405070
E-mail : business@nordencommunication.com
www.nordencommunication.com

MIDDLE EAST & AFRICA

Norden Communication Middle East FZE
P.O. Box. 341072
Dubai Silicon Oasis
Dubai, UAE
Tel : +971 4 3926391
Fax : +971 4 3926395
E-mail : sales@nordencommunication.ae