



NEXT STEP™

One System - Any Fiber Application



wirewerks
NETWORK INNOVATIONS

TABLE OF CONTENTS

NextSTEP Technology

› NextSTEP Technology Environments

› NextSTEP Technology Key Benefits

NextSTEP Technology - Market & Applications

› NextSTEP Technology Applications

NextSTEP Technology - System Elements

NextSTEP Technology - Sub-Systems

› NextSTEP Patch Panels and Enclosures

› NextSTEP Fiber Modules

› NextSTEP Cable Management Accessories

About Wirewerks

3

3

3

4

5

6

8

8

12

18

19

NextSTEP TECHNOLOGY

As the name implies, NextSTEP Technology represents the logical ‘next step’ in the evolution of fiber management systems.

NextSTEP Technology delivers more **capacity**, more **performance**, more **flexibility**, more **reliability**, and more **savings**; but don’t be confused, NextSTEP is much more than just ‘more’ of the traditional attributes used to define today’s fiber management systems. NextSTEP Technology adds real innovation to the power of ‘more’ – innovative new capabilities and new functionality that enable innovative new solutions to traditional fiber management challenges.

The unique combination of ‘more capabilities’ and ‘new innovations’ is what makes NextSTEP Technology the evolutionary ‘next step’ in fiber management systems. We invite you to learn more about NextSTEP Technology, and to -

‘Take the NextSTEP in fiber management solutions’.

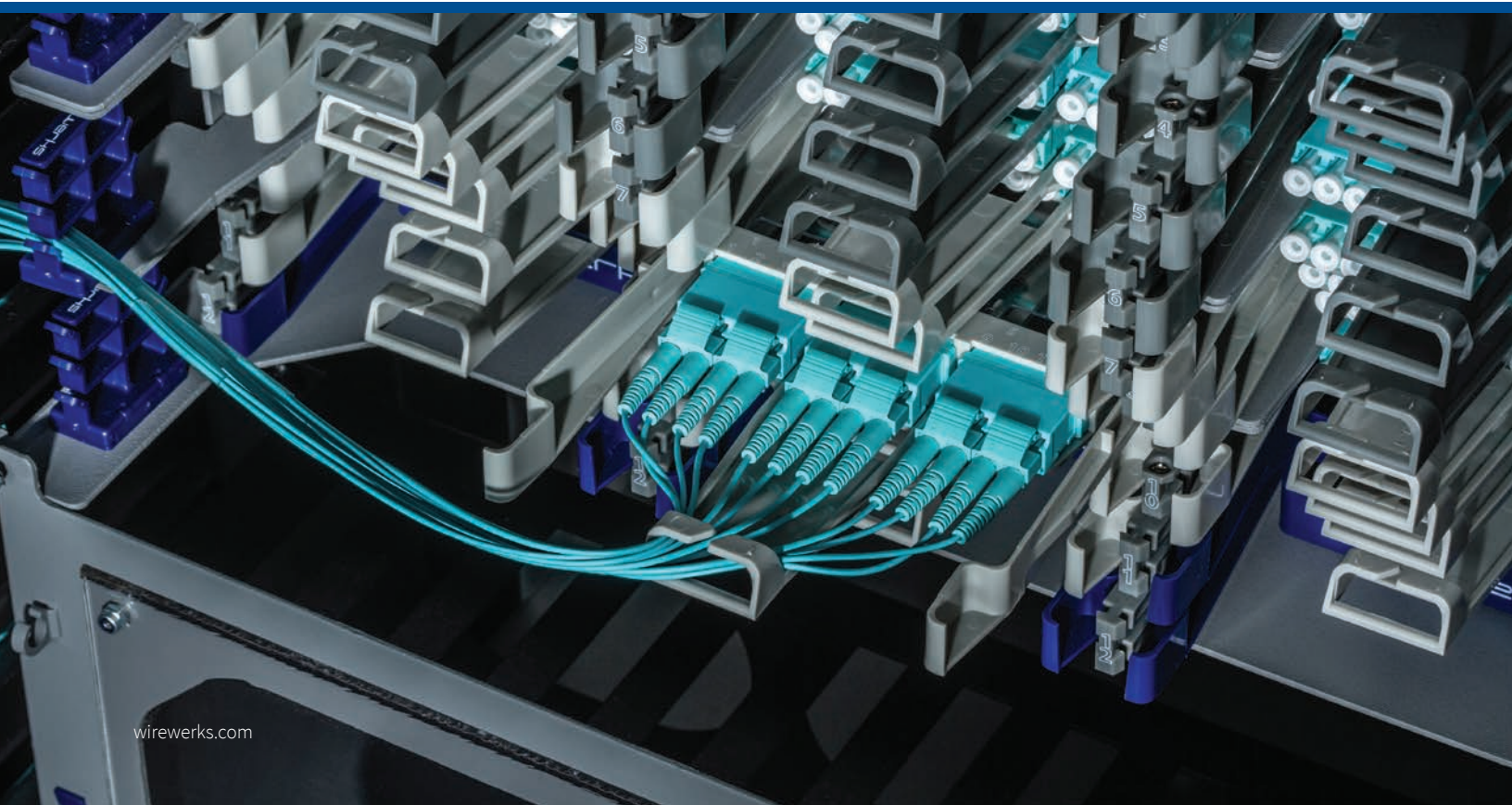
NextSTEP Technology Environments

Conceived and precision engineered for:

- › Data Centers and SANs
- › Colo Data Centers and SANs
- › Colo Telecom Hubs
- › Micro Data Centers and Edge Computing
- › Enterprise Data Centers and SANs
- › Enterprise LANs, POLANs
- › Telcos
- › MSOs
- › ISPs
- › Broadband Networks

NextSTEP Technology Key Benefits

- › Scalable, adaptable fiber management system with comprehensive fiber media and connectivity options
- › Ultra high-density, with superior manageability at the same time
- › Fiber Modules fit all chassis and enclosures, in any combination, in any shelf (slot) position
- › All Fiber Modules install/remove from front or rear of all chassis and enclosures without special tools
- › Designed for rapid MACs with no disruption to co-resident fiber groups
- › Supports pre-terminated cable assemblies, field terminated connectors, fusion splicing, and plug-and-play configurations
- › Precision engineered for superior reliability, increased MTBF, and reduced MTTR
- › Quality manufactured for extended operational lifespan and increased ROI
- › Ready for 40/100G and 400G parallel networks



MARKETS & APPLICATIONS

Wirewerks’ NextSTEP Technology fiber management system is a complete family of fully integrated enclosures, slide-in fiber modules and fiber management accessories that combine in virtually endless combinations to provide customized, optimized solutions for your unique fiber management applications in your unique fiber networking environments.

The NextSTEP system is complimented by Wirewerks’ complete line of superior quality optical fiber cables, connectivity and accessories. The feature-rich NextSTEP system, the breadth of our optical fiber networking product portfolio, and the depth of our optical networking expertise all combine to provide our customers with innovative, effective solutions for the fiber management challenges found across a broad spectrum of applications spanning many vertical markets.

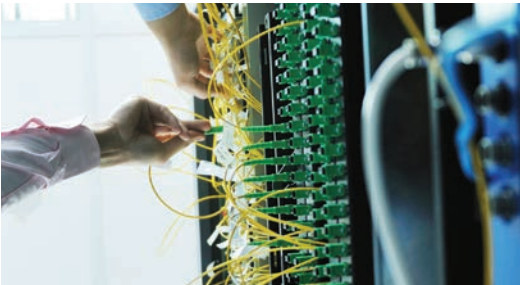
High-density NextSTEP systems can manage up to 4,608 fibers in 4U rack space while solving the accessibility issues often encountered in typical high-density systems by offering complete front and rear panel access along with an industry-exclusive ‘stepped’ positioning of the modules within patch panels for easier physical and visual access. NextSTEP’s tool-free slide-in modules and innovative cable management features simplify and expedite installation and maintenance routines, saving time and reducing costs.

The inherent scalability, flexibility and reliability of NextSTEP solutions, combined with 40GbE/100GbE MPO/MTP connectivity options, provide a clear path to growth and next generation Ethernet protocols and data rates.



Data Centers

In today’s context, the term Data Center refers to both a vertical market and a horizontal application. Commercial data centers, enterprise data centers, colo data centers, mini/edge data centers and other data center types/classes/categories are all variations on the theme, each with their own attributes and challenges in fiber management.



Enterprise LANs

In Enterprise LANs, NextSTEP solutions are cost-effective in both small and large configurations, meaning one technology for fiber management across the entire network, thereby simplifying support and reducing costs. The wide variety of NextSTEP modules and their ability to mix in any combination in the backbone of an Enterprise LAN provides the growth and flexibility that Network Managers need to manage inevitable change while protecting their network investment.



Telco, MSO and Broadband Networks

In Telco, MSO and Broadband Networks, NextSTEP solutions offer the ability to house any combination of splice trays, patch modules, WDMs and splitters. NextSTEP rack-mount patch panels, wall mount enclosures, and fiber modules can support all passive optical interconnects typically found in Central Office, MSO, Broadband and Wireless Broadband environments as well as FTTx/FTTh applications in the field.

NextSTEP Technology Applications

NextSTEP Technology represents the next evolutionary step in fiber management systems, bringing new levels of functionality, flexibility, manageability, and future-proofing to virtually all fiber networking applications.

The **Three Laws of Networking** state:

- 1. Networks never get smaller
- 2. Networks never go slower
- 3. Networks never remain the same

The laws are clear; your fiber management system needs to embrace, not just accommodate, inevitable change - while minimizing costs, downtime and disruption in the process.

NextSTEP Technology addresses the impact of the ‘Three Laws’ in your fiber networks by offering the industry’s widest selection of fiber management and connectivity modules, all compatible with any NextSTEP enclosure, in any mix-and-match combination.

The future is now - Stay a step ahead with NextSTEP Technology fiber management solutions.



NextSTEP TECHNOLOGY - SYSTEM ELEMENTS

- 1
NS 1U 'Light' Rack Mount
Fully populated with 12 Patch Modules
(see page 9)

2
NS 4U Rack Mount (open door)
Fully populated with 24 Patch Modules and 24 MPO Adapter Strip Modules
(see page 9)

3
NS Fiber Splice Tray
12F/24F with magnetic splice sleeve holders
(see page 14)

4
NS Ribbon Fiber Splice Tray
Up to 2 - 12F ribbon cables
(see page 14)

5
NS 1U 'Standard' Rack Mount
Empty; 12-slot 'Stepped' Shelf design
(see page 9)

6
NS 4U Rack Mount (open door)
Empty; 48-slot 'Stepped' Shelf design (see page 9)

7
NS 1U 'Light' Rack Mount
12 LC/APC Distribution Modules supporting 144F
(see page 9)

8
NS 1U 'Standard' Rack Mount
12 LC/APC Distribution Modules supporting 144F
(see page 9)

9
NS 4U Rack Mount
24 LC/APC Distribution Modules supporting 288F with 24 open slots for expansion (see page 9)

10
NS 1x32 Reach-Out Splitter Module
1 or 2 input fibers - up to 32 output fibers (see page 15)

11
NS Blank Adapter Module
Fills open slots in NS Patch Panels
(see page 17)

12
NS Patch Module
Pre-term, field-term or fusion splicing with 12 LC/6 SC ports per module
(see page 12)

Not Shown
Patch Panels: NS Wall Mount Patch Panel (see page 11), NS MINUS 1U Rack Mount (see page 10)
Modules: NS Distribution Module (see page 13), NS MPO Adapter Strip Module (see page 13), NS FLEX Module (see page 16), NS CWDM Module (see page 15)

NextSTEP TECHNOLOGY - SUB-SYSTEMS

NextSTEP Patch Panels and Enclosures

NextSTEP Patch Panels are available as high-density 1U or 4U Rack Mount chassis, or as a compact high-capacity Wall Mount enclosure.

- › All panels feature NextSTEP’s industry exclusive ‘stepped’ shelf design that makes it easier and faster to install, service and support NextSTEP systems, especially in high fiber count, high-density configurations
- › All NextSTEP panels accept all NextSTEP Fiber Modules, in any combination, in any shelf position
- › All panels allow tool-less, slide-in/slide-out module insertion/removal from the front or rear of the panel, making initial deployment, subsequent MACs and maintenance activities simple, fast and cost-effective

NextSTEP Patch Panels are suitable for **virtually any fiber management application** regardless of network size, network topology, installation environment, fiber type, or fiber termination methodology.

NextSTEP 1U High Density Rack Mount Patch Panels are available in three models, allowing customers to control costs by selecting the model that matches their needs. The NextSTEP 1U’s modular design means that models may be quickly and easily field-upgraded as required - extending operational lifespan, reducing spares inventories, and increasing ROI.

- › Accepts up to 12 NextSTEP Fiber Modules, supporting up to 144F/288F/1,152F in Patch or Distribution/Splice Tray/MPO Adapter Modules
- › Choose from three models to obtain the required features while controlling costs:
 - Standard** model includes front and rear covers, front and rear management bars and our industry-exclusive CableTree magnetic cable management accessories
 - Light** model includes front and rear management bars and CableTree™ magnetic cable management accessories
 - Lean** model is ideal for splice bay applications; covers, management bars and CableTree™ accessories are not included

NextSTEP 4U High Density Rack Mount Patch Panels accept up to forty-eight NextSTEP Fiber Modules, supporting (for example) up to 576F in Patch or Distribution Modules, up to 1,152F in Splice Tray Modules, and up to 4,608F using MPO Adapter Strip Modules.

- › Stepped shelf design improves visual and physical access to Modules, fibers and cable management
- › Supports all fiber installation and termination methods for application flexibility
- › Integrated cable management, routing and strain relief features, plus fourteen CableTree magnetic cable management accessories included with each chassis



NextSTEP^{MINUS} 1U Rack Mount Patch Panel is a hybrid patch panel that combines NextSTEP fiber management modules and third-party Active Equipment in the same 1U of rack space. The ^{MINUS}1U Rack Mount Patch Panel saves 1U of rack space in all applications and, indeed, actually ‘creates’ or frees-up 1U of rack space in full racks.

The ^{MINUS}1U Rack Mount Patch Panel is available with an optional wall mount conversion kit and comes in two models:

1. The **Switch Specific Model** comes with mounting brackets custom-engineered for a specific brand/model of switch. Custom brackets are currently available for Cisco, Alcatel and Canoga-Perkins products with more under development – Contact Wirewerks with your needs
 2. The **Universal Tray Model** comes with an integrated tray that accepts virtually any brand/model of 1U switch
- › Combines fiber management and active equipment in the same 1U of rack space
 - › Saves or actually ‘creates’ 1U of valuable rack space
 - › Fully compatible with all NextSTEP Fiber Modules



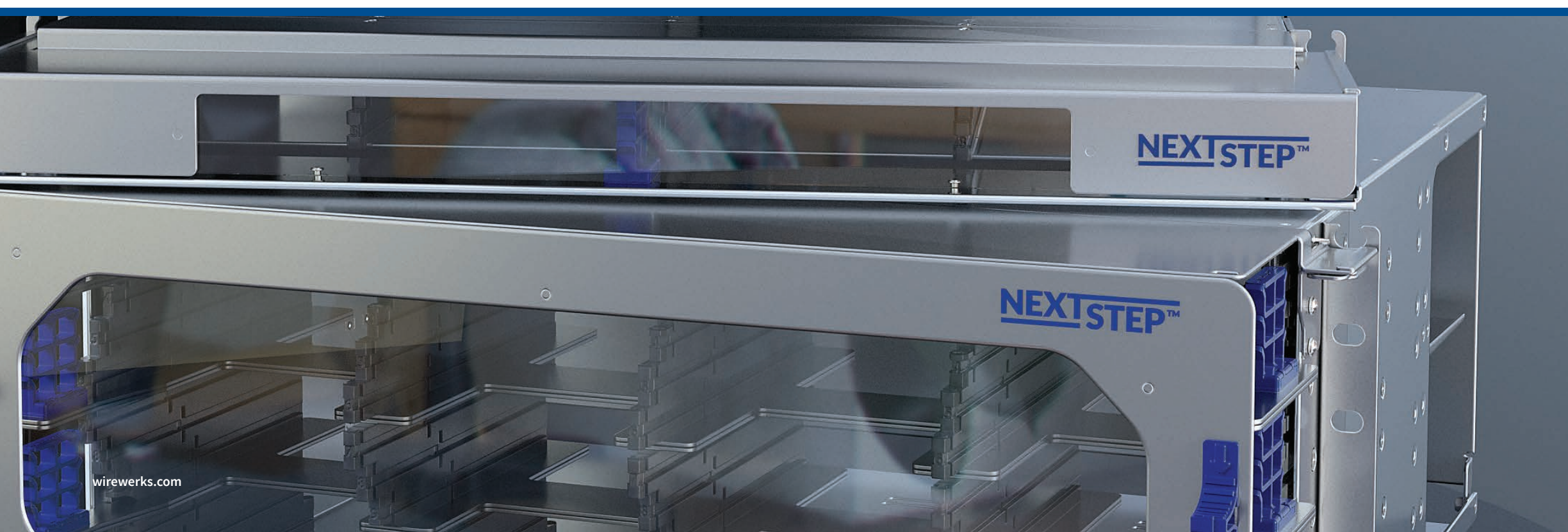
NextSTEP^{MINUS} 1U Patch Panel
Universal Tray Model

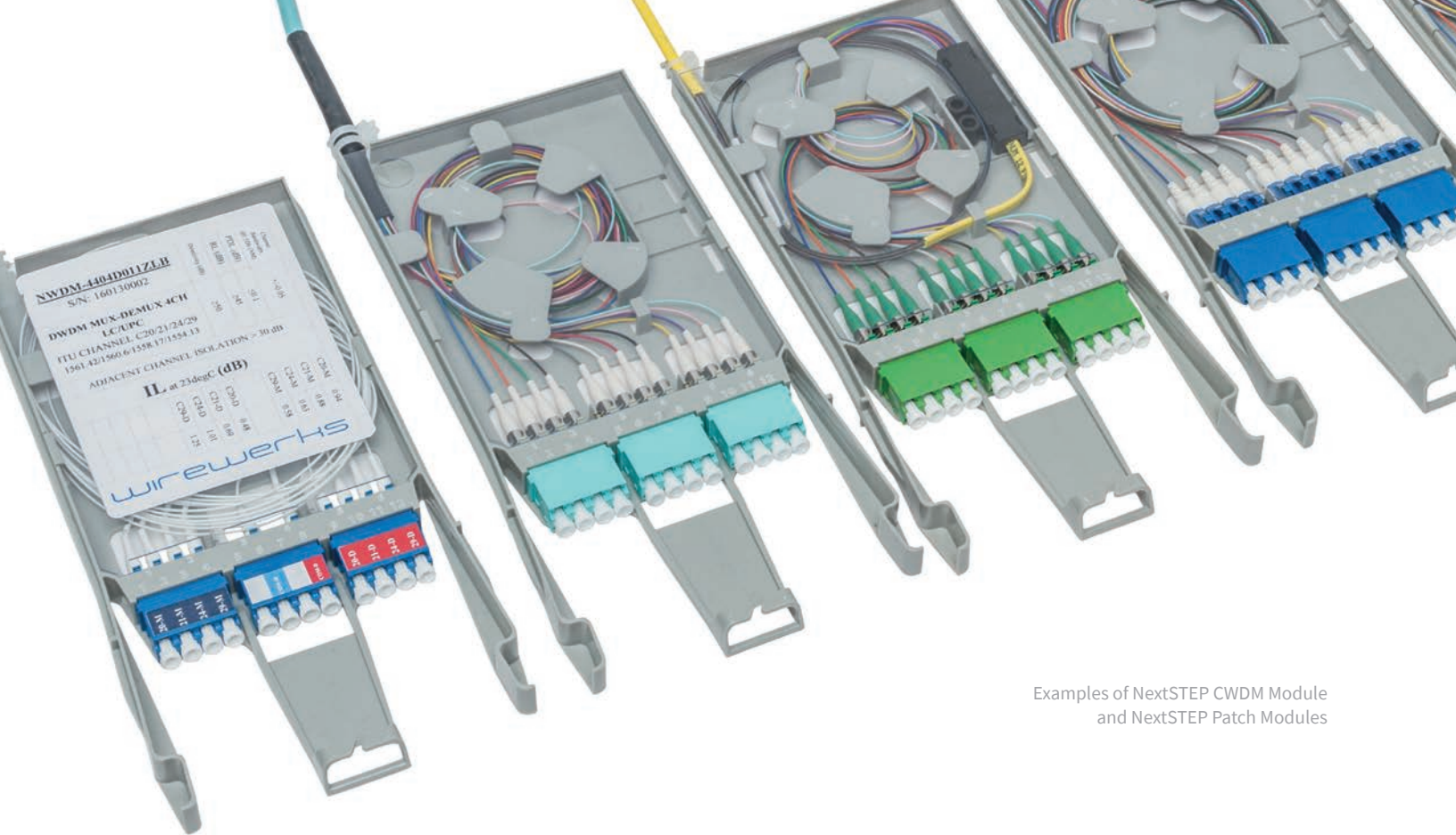
NextSTEP Wall Mount Enclosure offers the compact dimensions, small footprint and high fiber capacity that maximizes wall space and reduces costs. The Wall Mount Enclosure features a bottom hinged door and top or bottom cable entries that allow flexible cable routing options and space-saving side-by-side installation. Wall Mount Enclosures accept up to six NextSTEP Fiber Modules in any combination, supporting (for example) up to 72F with Patch or Distribution Modules, or up to 144F with Splice Tray Modules.

- › Lockable door
- › Rubber door seal, top entry cable glands, bottom entry foam or brush inserts provide ingress protection in harsh environments
- › Integrated cable management, routing and strain relief features, plus eight CableBundle magnetic cable management accessories included with each enclosure



NextSTEP Wall Mount
Patch Panel





Examples of NextSTEP CWDM Module and NextSTEP Patch Modules

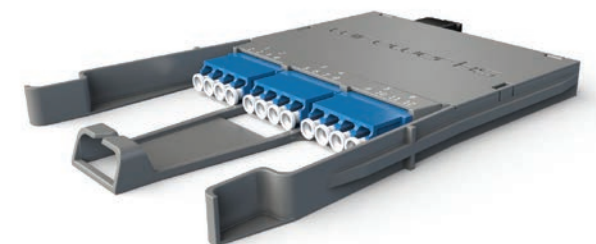
NextSTEP Fiber Modules

NextSTEP Patch Modules create connections between network media/assemblies and active equipment ports. Unique in the industry, NextSTEP Patch Modules combine the functionality of a fusion-splice tray and an LC/SC adapter strip in the same module. Patch Modules support pre-terminated assemblies, field-terminable connectors or fusion splicing for maximum application and installation flexibility.

Patch Modules include an integrated splice sleeve holder that uses magnets to hold splice sleeves in place; eliminating performance stealing ‘micro-bends’ that may occur when press-fitting new splices into rigid plastic or foam-style splice sleeve holders.

- › Low Insertion Loss (IL) to minimize impact on loss budgets
- › 12 LC/6 SC ports per module: up to 144F in 1U; 576F in 4U; or 72F in wall mount applications
- › Complete choice of fiber type, core/cladding size, ferrule material and end-face polish to suit any application and installation environment
- › Supports pre-terminated assemblies, field-terminated connectors and fusion splicing
- › Industry-exclusive magnetic splice sleeve holder eliminates performance impairing micro-bends
- › Integrated cable routing, slack management, bend-radius protection and strain-relief in each module

NextSTEP Distribution Modules are high-density factory-terminated sealed cassettes, ideal for use in ‘plug-and-play’ optical networks. Each Distribution Module provides 12 LC connectors at the front of the module connected to 1 male or female MPO connector at the rear of the module via a high quality MPO to single fiber fan-out within the cassette. Distribution Modules are factory terminated, tested and sealed, and are available in all standard fiber types and core sizes.



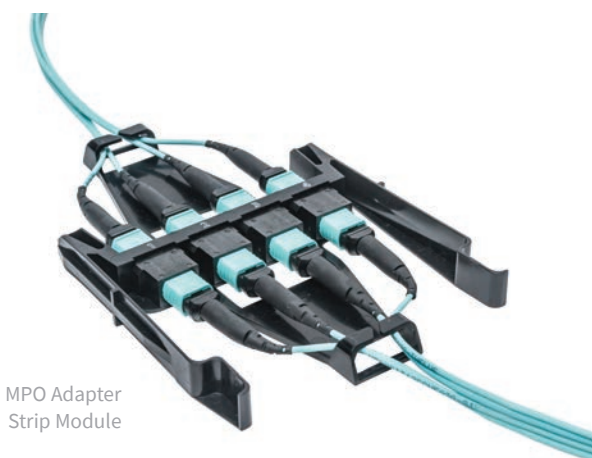
NextSTEP Distribution Module

- › 12 LC distribution ports - 1 male/female MPO port via a high quality MPO to single fiber fan-out within the sealed cassette
- › Low Insertion Loss (IL) to minimize impact on loss budgets
- › Factory assembled and tested for guaranteed performance and reliability in the field
- › 12F per module; up to 144F/576F in 1U/4U Rack Mount Chassis
- › Integrated fiber management and strain-relief in each module
- › Precision engineered and manufactured from high-impact ABS thermoplastic for strength and durability

NextSTEP MPO Adapter Strip Modules are pass-through patch modules with a single row of four MPO adapters, intended for the high-density and/or plug-and-play applications favoured in today’s Data Centers, SANs and similar environments. Backbone trunks connect at the rear of the adapters, allowing various options at the front including end-to-end links with patch cables or cable harnesses, or as a cross-connect in the MDA. MPO Adapter Strip Modules and MPO connector technology support parallel optic transmission technologies and provide a clear migration path to 40/100G data rates and protocols.

Each Adapter Strip Module supports four 12- or 24-fiber MPO connectors for up to 96 fibers per Module and up to 1,152F/4,608F in NextSTEP 1U/4U Rack Mount Chassis.

- › Integrated cable management features work seamlessly with the advanced cable management features engineered into NextSTEP Patch Panels
- › Faster, easier installations, MACs, and maintenance in Data Centers and SANs



NextSTEP MPO Adapter Strip Module

“NextSTEP Technology reflects real innovation from the Wirewerks R&D group and they have made sure that quality, functionality and performance are built into every component of the system.”

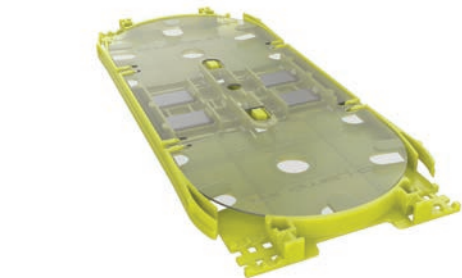
- VP Business Development, Leading Distributor

NextSTEP Splice Tray Modules are available in two models, one for **single fiber splicing** applications and one for **ribbon fiber splicing** applications.

- › Both Splice Trays are fully compatible with all NextSTEP Patch Panels and support up to 288F/1,152F in the 1U/4U Rack Mount Chassis, and up to 144F in Wall Mount Enclosures
- › Both Splice Trays are precision manufactured from high-impact yellow thermoplastic for strength and durability. The high-contrast yellow color improves visibility and reduces eyestrain, making installations and maintenance easier and faster with better results. Integrated tabs, routing features and cable-tie attachment points control bend radius and provide strain-relief; and both Splice Trays allow cable entry at all 4 corners for maximum installation flexibility

NextSTEP Fiber Splice Tray is available in either 12F or 24F models for loose-tube or tight-buffered fiber. Splices are secured within the tray by one or two 12-fiber snap-in ‘splice sleeve holders’, and each ‘splice sleeve holder’ also accommodates one PLC fiber splitter. Splices are secured in-place magnetically without having to press-fit new splices into rigid holders or clips - eliminating performance robbing ‘micro-bends’ that may occur as a result. The 12F Splice Tray easily upgrades to 24F capacity by adding a second snap-in ‘splice sleeve holder’, and Splice Trays ship complete with 12 or 24 high quality splice sleeves, cable ties, and a clear plastic tray cover to protect and contain fibers within the tray.

NextSTEP Ribbon Fiber Splice Tray supports one or two 12F ribbon cables for up to 24F per tray. The ribbon cable mass-splice sleeve is mounted ‘on edge’ into either of two ‘ribbon slack wheels’ integrated into the tray. Each slack wheel manages up to 6’ of slack per ribbon cable within the tray itself. The ‘on edge’ orientation of the ribbon cables means that the cables spool neatly around the slack wheels and never crossover or twist within the tray. Proper bend radius control and strain-relief are assured at all times.

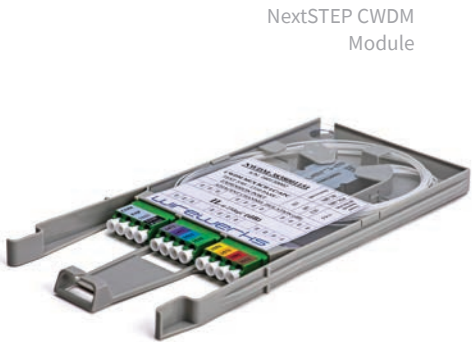


NextSTEP Fiber Splice Tray



NextSTEP Ribbon Fiber Splice Tray

NextSTEP CWDM Modules are bidirectional passive wave division multiplexers used to divide the optical wavelength of a single fiber into multiple discrete channels. This allows multiple services/users to operate over a single fiber, providing network growth without adding additional fiber media.



- › Available in 4/8/10 channel configurations, in industry-standard channel wavelength combinations or custom wavelength combinations on request
- › Optional Expansion Port and/or TAP Port
- › All ports are located at the front of the Module for easy front panel access
- › Superior performance through high channel isolation, low insertion loss (IL) and an epoxy-free optical path
- › Fully factory tested and inspected for guaranteed performance and reliability in the field
- › Telcordia GR-1221-Core qualified components
- › Based on proven thin-film filter (TFF) technology

NextSTEP Reach-Out Splitter Modules allow one or two optical fibers to serve multiple end-points (typically individual customers) in passive optical networks (PONs) supporting point-to-multipoint network designs such as residential/MDU FTTH applications. Reach-Out Splitter Modules provide the superior performance, reliability and density required in today’s high-port count broadband FTTH applications.

NextSTEP™ Reach-Out Splitter Modules are available in a wide choice of configurations with 1 or 2 input fibers and up to 32 output fibers. Both input and output fibers may be specified by fiber type, fiber length, connector type and end-face polish to satisfy a wide range of design and installation variables.

- › High-performance PLC splitters
- › Premium quality bend insensitive fiber (BIF)
- › Reliable SC or LC connectors
- › Low insertion loss, low polarization dependent loss, and high port-to-port uniformity and mechanical stability
- › Factory-assembled and fully tested with test results



NextSTEP FLEX Modules provide the rapid deployment, simplicity and performance benefits of pre-terminated fiber solutions without needing to measure exact cable lengths or wait for delivery of pre-terminated assemblies from a supplier. Each FLEX Module includes an on-board spool with 15 meters of 24F cable or 30 meters of 12F cable, extendable up to 500 meters when used in conjunction with a Wirewerks Open Spool.

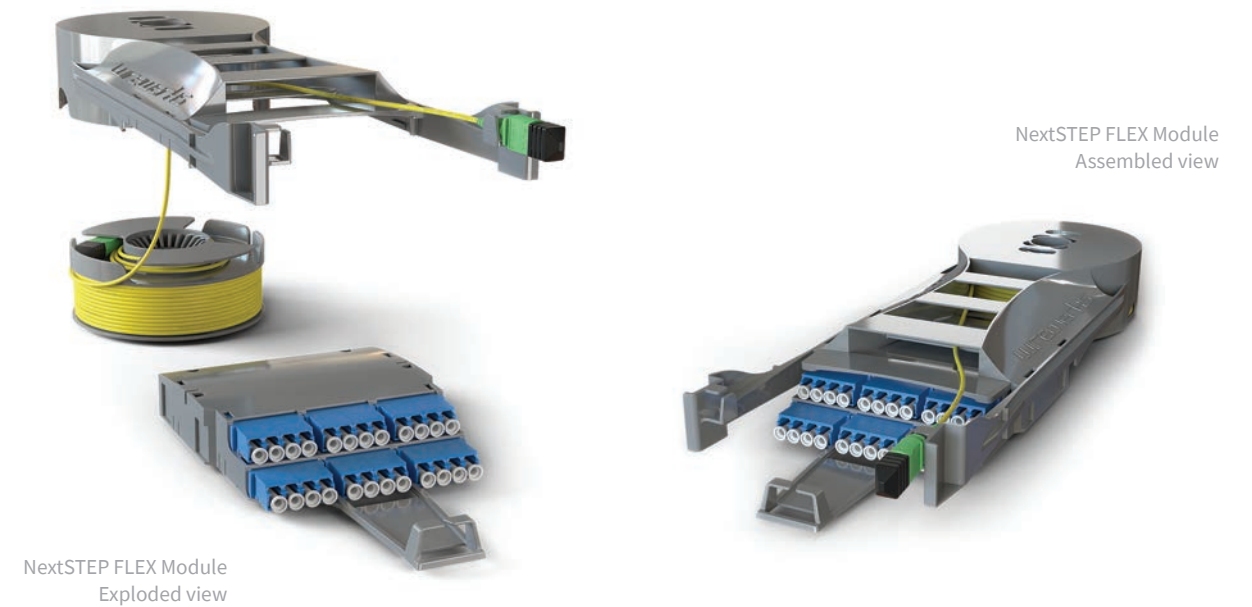
FLEX Modules are composed of three components:

FLEX Base: A high-impact plastic housing that holds the Flex Spool and Flex Cassette components. The Flex Base is fully compatible with all NextSTEP Patch Panels and Wall Mount enclosures.

FLEX Cassette: Available in either 12F SC-MPO or 24F LC-MPO configurations.

FLEX Spool: Available in either 12F LC or SC configurations with 30 meters of cable, or 24F LC configuration with 15 meters of cable. Maximum cable length may be extended to 500 meters by mounting the FLEX Module Reel to the inside end of a standard reel.

- › Rapid deployment in data centers, LANs, colo suites and other applications
- › Variable length cable spool eliminates need to measure on-site or from drawings/floor plans
- › Pre-terminated FLEX Module Reels and FLEX LC/SC Cassettes eliminates field terminations and need for advanced training
- › Interchangeable FLEX Module components minimizes stocking levels and reduces inventory costs



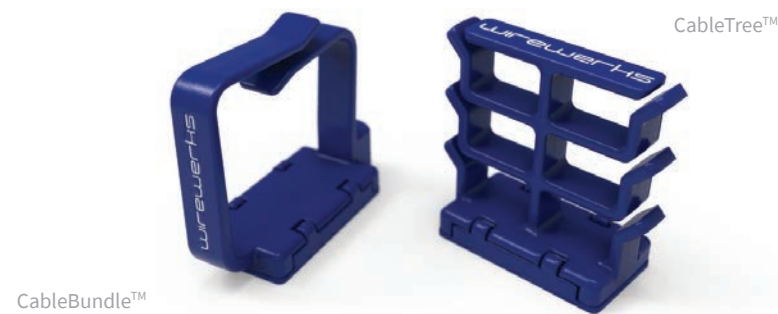
NextSTEP Blank Adapter Modules are designed to fill open shelf slots in NextSTEP Patch Panels, reducing hot and cold air exchange between aisles in Data Center environments. NextSTEP chassis equipped with Blank Adapter Modules contribute to reductions in energy consumption and lower utility costs for Data Center operators.

- › Durable, high-impact ABS thermoplastic
- › Integrated storage compartment for dust caps, labels and accessories right at their point-of-use



“Like a Swiss Army Knife, NextSTEP provides all the tools that you need for effective fiber management in one integrated package.”

- Operations Manager, Major Corporate Data Center



NextSTEP Cable Management Accessories

CableTree™ and CableBundle™ Magnetic Cable Management Accessories are innovative cable management accessories that provide the most flexible routing, management and strain-relief capabilities in the industry today. CableTree and CableBundle managers utilize magnetic mounts, making them endlessly reusable and infinitely repositionable within any NextSTEP Patch Panels. Technicians can attach these devices to any metallic surface in the rack, cabinet or bay to control fibers during installation and maintenance activities, and then easily reposition them for optimal routing and strain-relief in the final configuration of the chassis or enclosure.

- › Magnetic mounts are precision engineered to release if tension exceeds threshold, providing strain-relief and fiber protection
- › CableTree manages up to 72 fibers in groups of 12 fibers
- › CableBundle manages multiple multi-fiber cables or cable assemblies



ABOUT WIREWERKS

Your trusted Partner for IP Network Solutions

Wirewerks is an industry leader in the development and manufacturing of high-performance optical fiber and copper structured cabling systems.

Wirewerks solutions have served our customers' network infrastructure needs since 1991. Today, our customer-base spans virtually all vertical markets and our product portfolio brings proven solutions to a wide variety of networking applications, from the desktop to the data center, and almost everything in-between.

Quality, Innovation, and Integrity are the cornerstones of our business and the qualities that have driven our success and continuous growth over the past three decades.

Wirewerks is *relentlessly* customer-focused and entirely committed to complete customer satisfaction. From pre-sale project planning, to documentation and technical support, to custom product development, we work in partnership with our customers to deliver the best networking solutions and the best value in the industry today.

Contact Wirewerks
for Additional Information and Support

NextSTEP Technology publications are available at www.wirewerks.com
or by calling the Wirewerks Customer Support Center at 1-888-993-4237.



wirewerks

19144 Avenue Cruickshank
Baie-d'Urfé, QC H9X 3P1

sales@wirewerks.com

T 1 888 993-4237 | F 1 888 893-4237 | www.wirewerks.com