Solutions to Manage, Protect, and Showcase Your Network Investment

WORLD LEADER IN CABLE MANAGEMENT RACK SYSTEMS

PANDUIT is a Technology Developer Partner for Storage Networking Hardware
PANDUIT Cable Management Rack Systems provide a complete system solution to manage, protect, and showcase equipment and structured cabling investments.

PANDUIT Rack Systems Provide:

Management of Network Cabling
Industry experience and quality engineering of PANDUIT solutions result in superior products designed for optimum cable management. PANDUIT products help effortlessly route and organize cable for ease of installation and future maintenance.

Protection for Reliable System Performance
As new technologies emerge, network cabling performance is pushed to the limit. Today's complex systems depend on robust cable management for increased reliability. PANDUIT racks and cable management systems are designed for maximum performance and protection of network cabling, resulting in ultimate system reliability.

A Showcase for Network Technology
PANDUIT rack systems control and conceal cable pathways to enhance system appearance. Well-organized cable management makes any telecom room or data center a showplace and demonstrates your commitment to technology.

Why settle for anything less?

For full PANDUIT product offering, request PANDUIT® Pan-Net® Network Solutions Catalog, SA- NCCB46.
Racks
PANDUIT rack systems allow complete flexibility for a wide range of cable and equipment combinations and are designed to maximize cable access.

Vertical Cable Managers
Vertical cable managers allow increased cable density for maximum space utilization and organization. This provides a cost-effective solution with easy cable access and ultimate cable protection.

Horizontal Cable Managers
PANDUIT offers a variety of horizontal cable managers to provide additional pathways for increased management and control of copper and fiber patch cords.

Patch Panels
PANDUIT offers a complete selection of standard, angled, high density and powered patch panels to fit each unique application. Modular designs accommodate a full range of media types and performance levels to provide flexibility and scalability for changing network requirements.

Fiber Enclosures
OPTICOM® Rack Mount Fiber Enclosures provide a high-capacity, high-density connection point with optimum management and protection of fiber cable.

Network Grounding Systems
PANDUIT® STRUCTUREDGROUND™ System for Data Center Grounding provides a high quality, visually verifiable, and dedicated grounding path to ensure highest network system performance and protect network equipment and personnel.

Raised Floor Grommet
PANDUIT raised floor grommet reduces bypass airflow around cables that penetrate the raised floor, thereby reducing energy costs and improving network reliability.
PATCHRUNNER™ Vertical Cable Management Rack System manages high density network equipment and patch panels in up to half the number of racks required by traditional cable management systems.

- Curved cable management fingers support cables as they transition to the vertical pathway eliminating the need for horizontal managers.
- Fingers align with rack spaces simplifying cable routing.
- Large finger openings accommodate up to 48 Category 6 cables.
- Individual fingers can be removed without the use of a tool for routing of large cable bundles.
- Slack management spools organize and manage patch cord slack allowing standardization of patch cords.
- Angled patch panels promote proper bend radius control.
- Rugged full-length dual hinged doors open 180° for complete access to pathway.

See pages 5 and 6 for more on The Maximum Density Solution.
The Ultimate Cable Management Solution for Data Centers and Telecommunications Rooms

**PATCHRUNNER™ Solution Benefits**

Reduce real estate costs with innovative patented angled modular patch panels and space saving vertical cable managers. These products work together to provide up to quadruple the density, reducing costs in data centers and telecommunications rooms.

- Angled high density modular patch panels provide 48 ports in one rack space
- Bend radius fingers on vertical cable managers eliminate the need for horizontal cable managers

Ensure network reliability with a complete solution that protects cables from strain, maintains data integrity, and delivers reliable network performance.

- Angled modular patch panel design promotes proper bend radius of patch cords as they are routed into the vertical pathway
- Bend radius fingers on vertical cable managers support the cables as they transition to the vertical pathway to ensure data integrity

Achieve flexible system design with angled modular patch panels and adaptable vertical cable managers.

- Modular patch panels accept MINI-Com® Copper, Fiber, and Coax Modules providing complete modularity for mixed media applications and future upgrades
- Slack management spools on vertical cable managers can be repositioned to organize and manage cables providing maximum design flexibility
- Inter-rack pathways can be positioned at the top and/or bottom of the rack minimizing the need to route cables under the floor or overhead

Designed to reduce real estate costs, maximize reliability, and provide flexible system design, MINI-Com® Angled Modular Patch Panels and PATCHRUNNER™ Vertical Cable Managers deliver a complete solution for data centers and telecommunications rooms.
PANDUIT Cable Management Solutions
Traditional vs. High-Density

To illustrate the type of savings that can be achieved in a 960-port application, a comparison of a traditional vs. high-density cable management solution demonstrates a more efficient use of space and the cost savings realized.

### Reduce System Layout Width by 36%

<table>
<thead>
<tr>
<th></th>
<th>Traditional Layout</th>
<th>Qty.</th>
<th>Width</th>
<th>High-Density Layout</th>
<th>Qty.</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard EIA channel racks</td>
<td>4</td>
<td>20.31</td>
<td>515.8</td>
<td>Standard EIA channel racks</td>
<td>2</td>
<td>515.8</td>
</tr>
<tr>
<td>4&quot; vertical managers</td>
<td>2</td>
<td>4.24</td>
<td>107.7</td>
<td>PRV12 vertical managers</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>6&quot; vertical managers</td>
<td>3</td>
<td>5.87</td>
<td>149.1</td>
<td>PRV8 vertical managers</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>2 RU horizontal managers</td>
<td>20</td>
<td>N/A</td>
<td></td>
<td>PRD12 hinged doors</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>CPP48WBL 48-port modular patch panels</td>
<td>20</td>
<td>N/A</td>
<td></td>
<td>CPPLA48WBL 48-port angled modular patch panels</td>
<td>20</td>
<td>N/A</td>
</tr>
<tr>
<td>Total (not including jack modules)</td>
<td>49</td>
<td>107.3</td>
<td>2725.9</td>
<td>Total (not including jack modules)</td>
<td>28</td>
<td>68.6</td>
</tr>
</tbody>
</table>

### Traditional Footprint*

<table>
<thead>
<tr>
<th></th>
<th>4&quot; Manager</th>
<th>6&quot; Manager</th>
<th>6&quot; Manager</th>
<th>6&quot; Manager</th>
<th>4&quot; Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of Rack Layout</td>
<td>107.3&quot; (2725.9mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### High Density Footprint*

<table>
<thead>
<tr>
<th></th>
<th>PRV8</th>
<th>PRV12</th>
<th>PRV8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of Rack Layout</td>
<td>68.6&quot; (1742.4mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reduce System Layout Width by 36%

Reduce Square Footage and Real Estate Costs Up to 23%

<table>
<thead>
<tr>
<th></th>
<th>Traditional</th>
<th>High-Density</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of parts</strong></td>
<td>49</td>
<td>28</td>
<td>Reduce installation time with 43% fewer system components to manage</td>
</tr>
<tr>
<td><strong>Layout width</strong></td>
<td>107.3&quot;</td>
<td>68.6&quot;</td>
<td>36% narrower profile is ideal for space constrained applications</td>
</tr>
<tr>
<td></td>
<td>(2725.9mm)</td>
<td>(1742.4mm)</td>
<td></td>
</tr>
<tr>
<td><strong>Square footage</strong></td>
<td>11.2 ft.²</td>
<td>8.6 ft.²</td>
<td>Smaller footprint saves 23% floor space</td>
</tr>
<tr>
<td></td>
<td>(1.04m²)</td>
<td>(0.80m²)</td>
<td></td>
</tr>
<tr>
<td><strong>Real estate cost</strong></td>
<td>$4,480</td>
<td>$3,440</td>
<td>Resulting space savings reduces real estate costs 23%</td>
</tr>
</tbody>
</table>

*Representative application, actual configurations may vary.
**Based on $400/ft.² annually.
**Capacity Chart**

<table>
<thead>
<tr>
<th>Part Number*</th>
<th>Front Channel</th>
<th>Rear Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>w/ Slack Spool</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cable Capacity**</td>
<td>No Slack Spool</td>
</tr>
<tr>
<td></td>
<td>Cat. 6</td>
<td>Cat. 6A</td>
</tr>
<tr>
<td>PRV6 (front/rear)</td>
<td>28.2 201 130</td>
<td>37.8 269 175</td>
</tr>
<tr>
<td>PRV8 (front/rear)</td>
<td>44.7 318 207</td>
<td>54.3 387 251</td>
</tr>
<tr>
<td>PRV10 (front/rear)</td>
<td>61.1 435 283</td>
<td>70.7 504 328</td>
</tr>
<tr>
<td>PRV12 (front/rear)</td>
<td>77.6 553 359</td>
<td>87.2 621 404</td>
</tr>
</tbody>
</table>

**Front Channel**

- **PRV6 (front/rear)**: Channel Area (In.²) 28.2, 201, 130
- **PRV8 (front/rear)**: Channel Area (In.²) 44.7, 318, 207
- **PRV10 (front/rear)**: Channel Area (In.²) 61.1, 435, 283
- **PRV12 (front/rear)**: Channel Area (In.²) 77.6, 553, 359
- **PRV15 (front/rear)**: Channel Area (In.²) 102.3, 729, 474

**Rear Channel**

- **PRV6 (front/rear)**: Channel Area (In.²) 37.8, 269, 175
- **PRV8 (front/rear)**: Channel Area (In.²) 54.3, 387, 251
- **PRV10 (front/rear)**: Channel Area (In.²) 70.7, 504, 328
- **PRV12 (front/rear)**: Channel Area (In.²) 87.2, 621, 404
- **PRV15 (front/rear)**: Channel Area (In.²) 111.9, 797, 518

*For part numbers that fit in 6’ rack, add “96” to end of part number.
‡ = .25” diameter; ^ = .31” diameter
**Capacities are based upon a fill rate of 35% to accommodate proper cable routing techniques.
**NetRunner™ Vertical Cable Management Rack System**

*NetRunner™ Vertical Cable Management Rack System provides a medium density solution that manages, protects, and showcases network cabling in telecommunication rooms and data centers.*

**NetRunner™ Vertical Cable Management Rack System**

- Bend radius fingers align with rack spaces to support cables as they transition to the vertical pathway
- Large finger openings accommodate up to 24 Category 6 cables
- Dual hinged covers open 110° to the left or right to provide complete access to the cables inside the vertical pathway
- Integral cable retainers on the end of each finger help contain cables within each rack unit
- Snap-on cable retainers can be placed on fingers to help retain cables in channel during installation and maintenance

**Standard EIA Rack System**

- Grounding washers provide a fully bonded structure to simplify the grounding process
- Printed rack space identification allows quick and easy location of printed rack mounted equipment
- UL listed for 1000 lbs. load rating to accommodate large networking equipment

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**Floor Footprint for WMPV45E and WMPVHC45E**

![Floor Footprint Diagram](image)
NetRunner™ Rack System Roadmap
The New Standard in Cable Management

1. Standard EIA Rack
   19" x 7’, 45 Rack Units (RU)
   CMR19X84

2. NetRunner™ Vertical Managers
   WMPVHC45E - 6” wide (shown)
   WMPV45E - 4” wide
   WMPVHCBE - Center Mount Bracket Kit

3. NetRunner™ Rack Top Trough
   WMPA45ERTW

4. NetRunner™ End Panel
   WMPVHC45EP - use with WMPVHC45E (shown)
   WMPV45EP - use with WMPV45E

5. PatchLink™ Horizontal Cable Manager
   WMPH2E - 2 RU

6. Open-Access™ Horizontal Cable Manager
   CMPH2 - 2 RU

NetManager™ High Capacity Horizontal Cable Manager
NM2 - Front and Rear 2 RU

Capacity Chart

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Front Channel</th>
<th>Rear Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Channel Area (In.²)</td>
<td>Cat. 6 (.25&quot; Dia.)</td>
</tr>
<tr>
<td>WMPV45E (front/rear)</td>
<td>18.5</td>
<td>131</td>
</tr>
<tr>
<td>WMPVF45E (front only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMPVHC45E (front/rear)</td>
<td>34.5</td>
<td>245</td>
</tr>
<tr>
<td>WMPVHC45E (front only)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Capacities are based upon a fill rate of 35% to accommodate proper cable routing techniques.
NetFrame® Cable Management Rack System

- Patented cable management rack is UL listed for 1500 lbs. load rating to accommodate large networking equipment
- Vertical cable management options for mid-to-high-density cabling applications are simple to install and can be configured to meet individual needs
- Fully bonded structure with a single point ground contact simplifies the grounding process
- Rack features 19” or 23” EIA mounting
- Pass through holes on front and side of channels provide convenient patching from front to back or between racks
- Full length dual and single hinged doors provide an aesthetic finish and easy access to the vertical pathway
- 6” deep vertical channel with unequal flange design provides access to cable pathway
- Top channel provides pathway for cable or ladder rack up to 18” wide

Floor Footprint for two NFR84, NFEP, and NFBRFK

<table>
<thead>
<tr>
<th>A</th>
<th>End Cable Pathway</th>
<th>Area = 23.7 square inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Center Cable Pathway</td>
<td>Area = 41.6 square inches</td>
</tr>
</tbody>
</table>
**NetFrame® Rack System Roadmap**

The Modular Rack Solution

1. **NetFrame® Equipment Rack**
   19" x 86", 45 Rack Units (RU)
   *NFR84*

2. **NetFrame® Vertical Management Kit**
   *NFBRFK*

3. **NetFrame® Dual Hinged Doors**
   - *NFD884* – 8” wide (shown)
   - *NFD1284* – 12” wide

4. **NetFrame® Single Hinged Door**
   - *NFD484* – 4” wide (shown)

5. **NetFrame® End Panel**
   *NFEP*

6. **NetFrame® Ladder Rack Support Bracket**, for parallel and perpendicular attachment of ladder rack
   *NFLRB*

7. **High Capacity Cable Manager**
   - *NCMHAEF4* – 4 RU (shown)
   - *NCMHAEF2* – 2 RU

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**Capacity Chart**

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Part Number</th>
<th>Channel Area (in.²)</th>
<th>Front Channel Cable Capacity*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Cat. 6</td>
<td>Cat. 6A</td>
</tr>
<tr>
<td>A (End)</td>
<td>NFR84, NFEP, NFBRFK</td>
<td>23.7</td>
<td>168</td>
</tr>
<tr>
<td>B (Center)</td>
<td>(2) NFR84, NFBRFK</td>
<td>41.6</td>
<td>296</td>
</tr>
</tbody>
</table>

*Note: Capacities are based upon a fill rate of 35% to accommodate proper cable routing techniques.*
4 Post Rack System supports deep networking equipment. The rack combines the stability of a cabinet with the accessibility of an open rack to provide maximum flexibility.

- Front and rear equipment mounting rails can be adjusted after the rack is secured to the floor
- UL listed for 2000 lbs. load rating to accommodate large networking equipment
- Open frame provides easy access and improved heat dissipation
- Rear rail design provides clear ventilation path for side ventilated switches
- Printed rack space identification on equipment mounting rails
- Fully bonded structure with a single point ground contact simplifies the grounding process
- **PATCHRUNNER™** and **NetRUNNER™** Vertical Cable Managers mount directly to any of the corner posts
- Optional top trough with waterfall creates pathway above rack

**Floor Footprint for CMR4P84**

- **Base angle outside mounting**
  - Height: 39.50 (1003.3mm)
  - Width: 23.25 (590.6mm)
  - Depth: 42.00 (1066.8mm)
- **Base angle inside mounting**
  - Height: 30.21 (767.3mm)
  - Width: 16.00 (406.4mm)
  - Depth: 23.25 (590.6mm)
4 Post Rack System Roadmap

Maximum Stability for Servers and Equipment

1. 4 Post Rack, 19" x 7'
   45 Rack Units (RU)
   CMR4P84
   19" x 8'
   52 Rack Units (RU)
   CMR4P96

2. PATCHRUNNER™ Dual Hinge Door
   Available in 6", 8", 10", 12" and 15" widths for both 7' and 8' racks

3. PATCHRUNNER™ Vertical Manager
   Available in 6", 8", 10", 12" and 15" widths for both 7' and 8' racks

4. 4 Post Rack Shelf
   23" deep (shown)
   NF4PSHLF19X23
   32" deep shelf
   NF4PSHLF19

NEW! Optional Top Trough with Waterfall
   CMR4PWMF

For part number and cable capacity, refer to PATCHRUNNER™ chart on page 7