

**Copper Cabling
Systems**

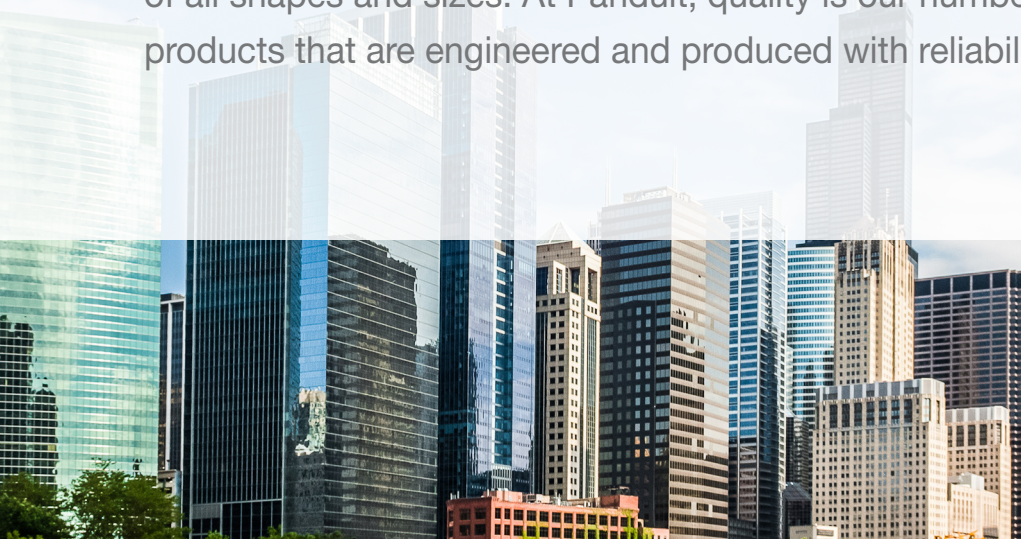


**Innovative Connectivity Solutions
for Maximum Performance**



Panduit® Copper Cabling Systems

Panduit offers a range of copper cabling solutions to fit the needs of all types of applications. From trading floors to operating rooms, classrooms to store fronts, Panduit's copper systems provide the infrastructure needed to support networks of all shapes and sizes. At Panduit, quality is our number one concern, resulting in products that are engineered and produced with reliability and durability in mind.



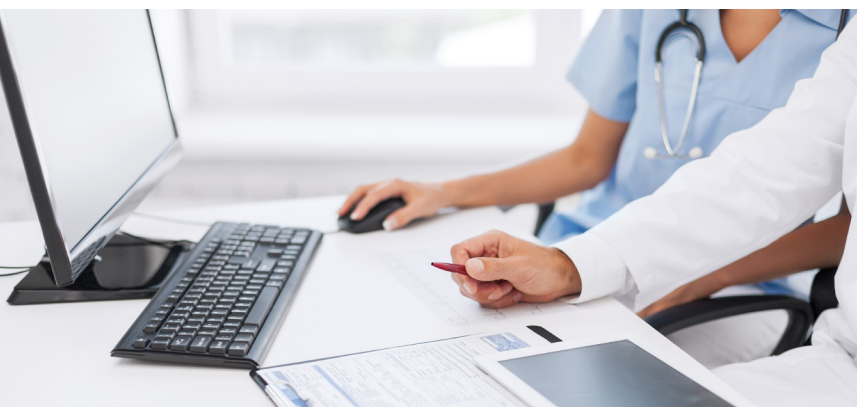
Innovations in Structured Cabling From Panduit

- Industry's first tool-less jack for ease of installation and better performance
- 500+ patents on network infrastructure
- Invented cable management to improve organization, air flow, and aesthetics
- Pioneered 28AWG cabling to help reduce footprint
- Hundreds of millions of jacks installed globally

Applications Supported by Copper Cabling

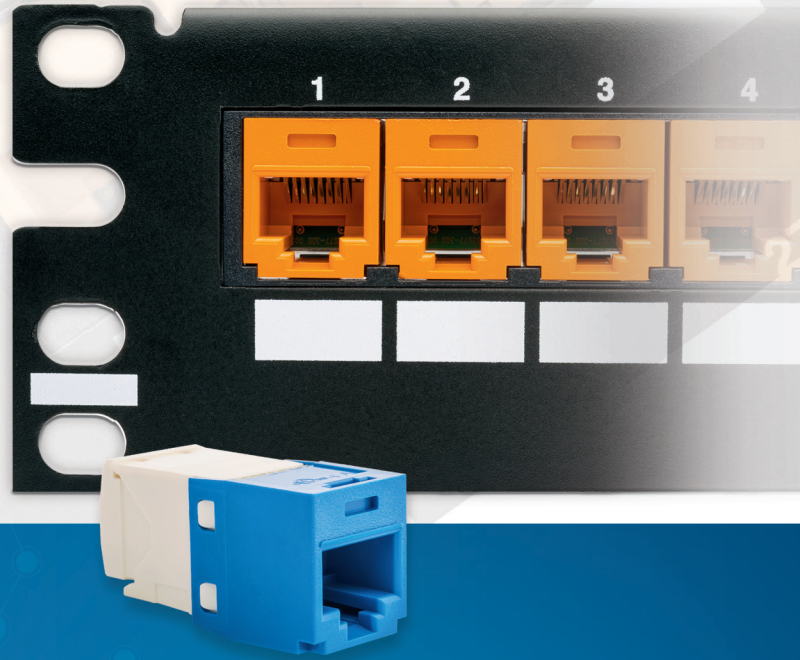
- Power over Ethernet
- Wireless connectivity
- Intelligent lighting
- Security cameras
- Audio/visual, including HDBaseT*
- Building automation systems

*HDBaseT is a registered trademark of Valens Semiconductor Ltd.



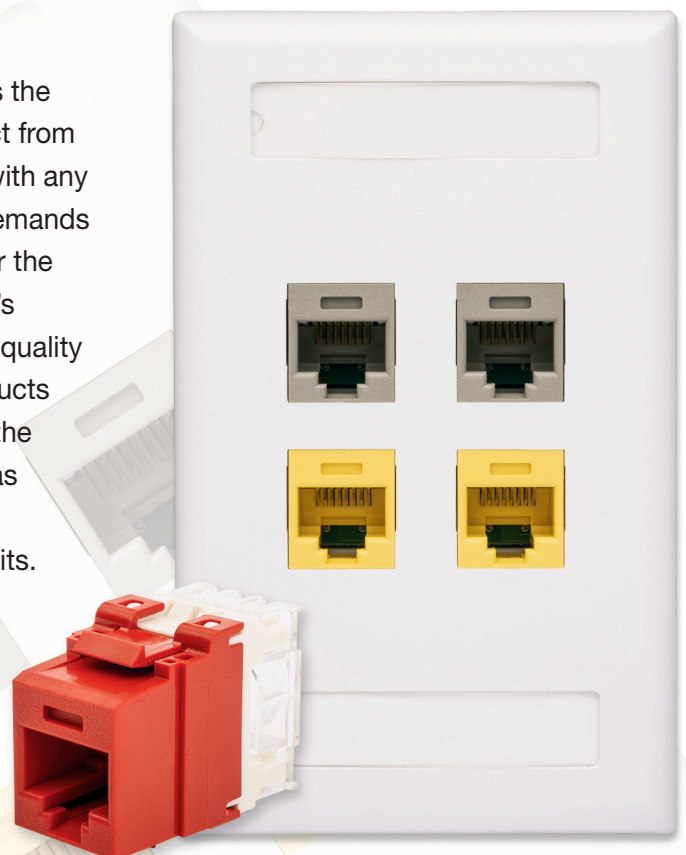
Mini-Com[®] Cabling System

For the most demanding applications, the Panduit[®] Mini-Com Copper Cabling System is designed to provide the most innovative features and the lowest cost of ownership over the life of your network. We strive to provide the perfect solution for any application, which means offering custom cable assemblies, a wide range of colors and lengths, and a large selection of patch panel and faceplate types to suit your needs. If network performance is critical to helping you achieve your business goals, choose the Mini-Com Copper Cabling System for unsurpassed performance, quality, and innovation to accommodate the latest technologies.



NetKey[®] Cabling System

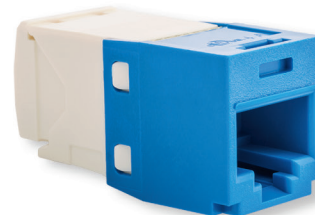
The Panduit Keystone Copper Cabling System delivers the quality and trusted performance you've come to expect from Panduit with an industry-compatible footprint for use with any keystone opening. Designed to support the network demands of our daily lives, the NetKey Product Family is ideal for the classroom, conference room, office building, or doctor's office. With component-compliant jacks and the same quality measures as our Mini-Com Product Line, NetKey Products provide the performance and durability you need with the flexibility to integrate with specialty applications such as audio/visual systems, office furniture with integrated connectivity, designer faceplates, and brownfield retrofits.



Mini-Com® Copper Cabling System – Unshielded

Category 6A utilizes MaTriX technology to provide end-to-end integrated alien crosstalk suppression

Jack features optional integrated shutter for protection against dust and debris



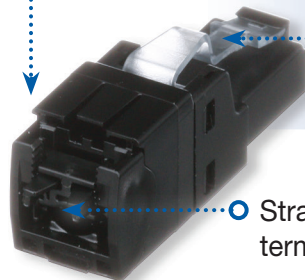
100% production tested for quality performance

Connector rated to 65C for optimal PoE++ performance

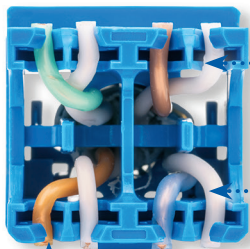
2-piece construction for easy installation

Easily connect cabling directly to end device

Connectivity rated to 2500 mating cycles with integrated arc suppression for longest-lasting performance, even running PoE++



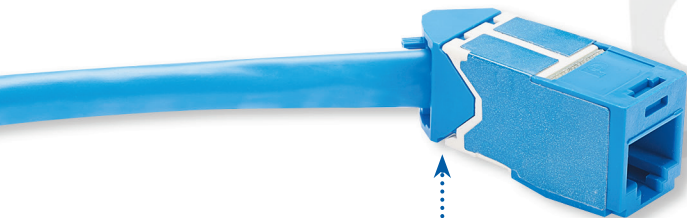
Straight or angled termination options



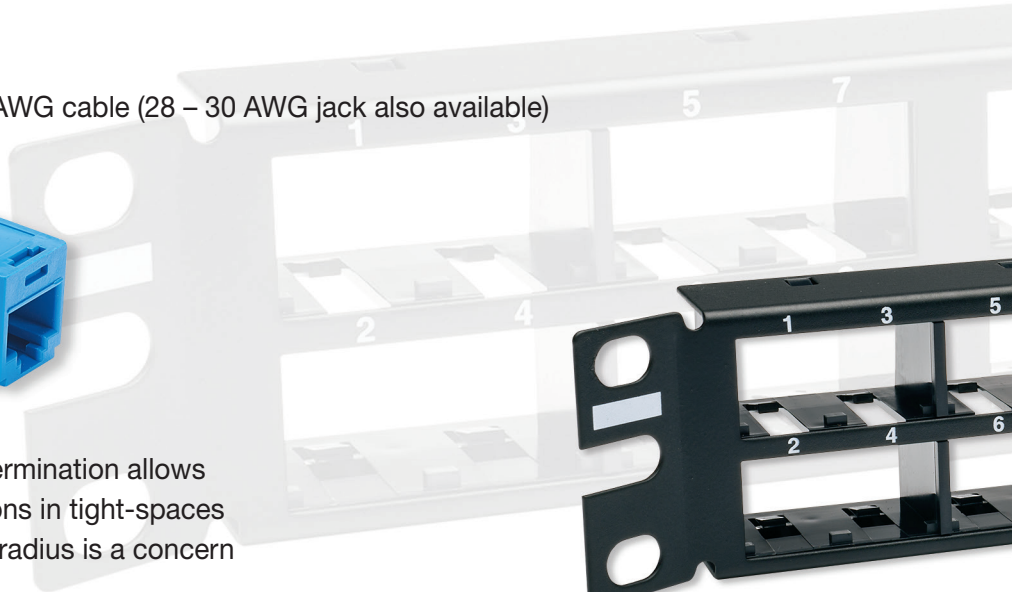
Tool-less termination maintains conductor twist to the point of termination for reliable performance and provides the industry's highest performing and fastest termination

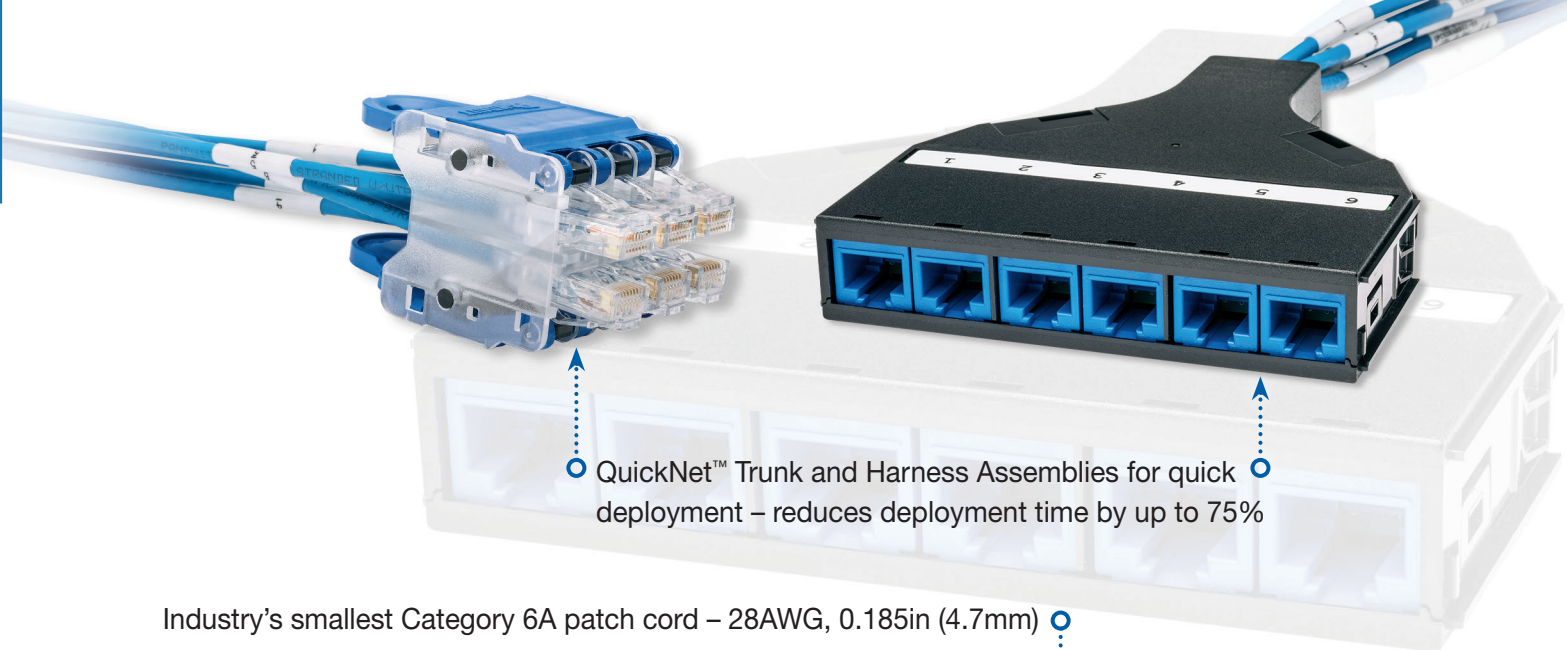
Reterminate up to 20 times

Terminates 22 – 26 AWG cable (28 – 30 AWG jack also available)



45-degree termination allows for installations in tight-spaces where bend radius is a concern





QuickNet™ Trunk and Harness Assemblies for quick deployment – reduces deployment time by up to 75%

Industry's smallest Category 6A patch cord – 28AWG, 0.185in (4.7mm)



100% production tested for quality performance

Tangle free latch prevents cables from snagging



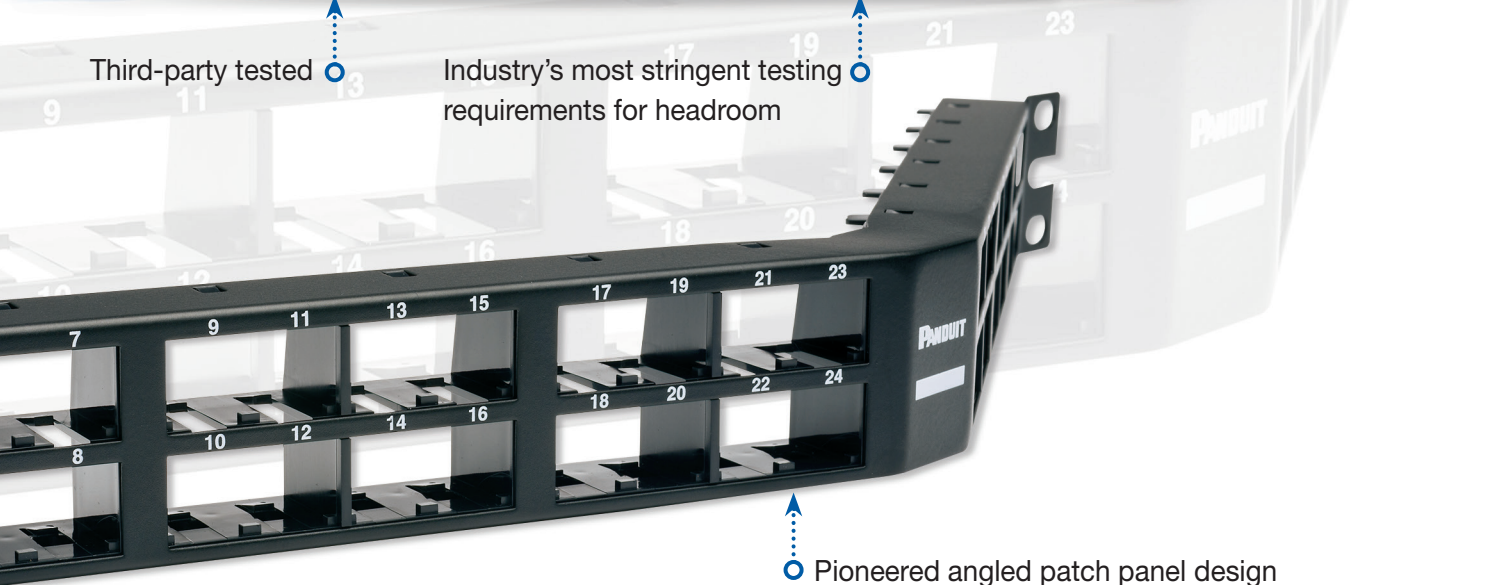
Category 6A, Vari-MaTriX foil provides best-in-class immunity to external noise while optimizing alien crosstalk and PoE performance with the industry's smallest Category 6A cable diameter.

Category 6A cable is rated to 90C



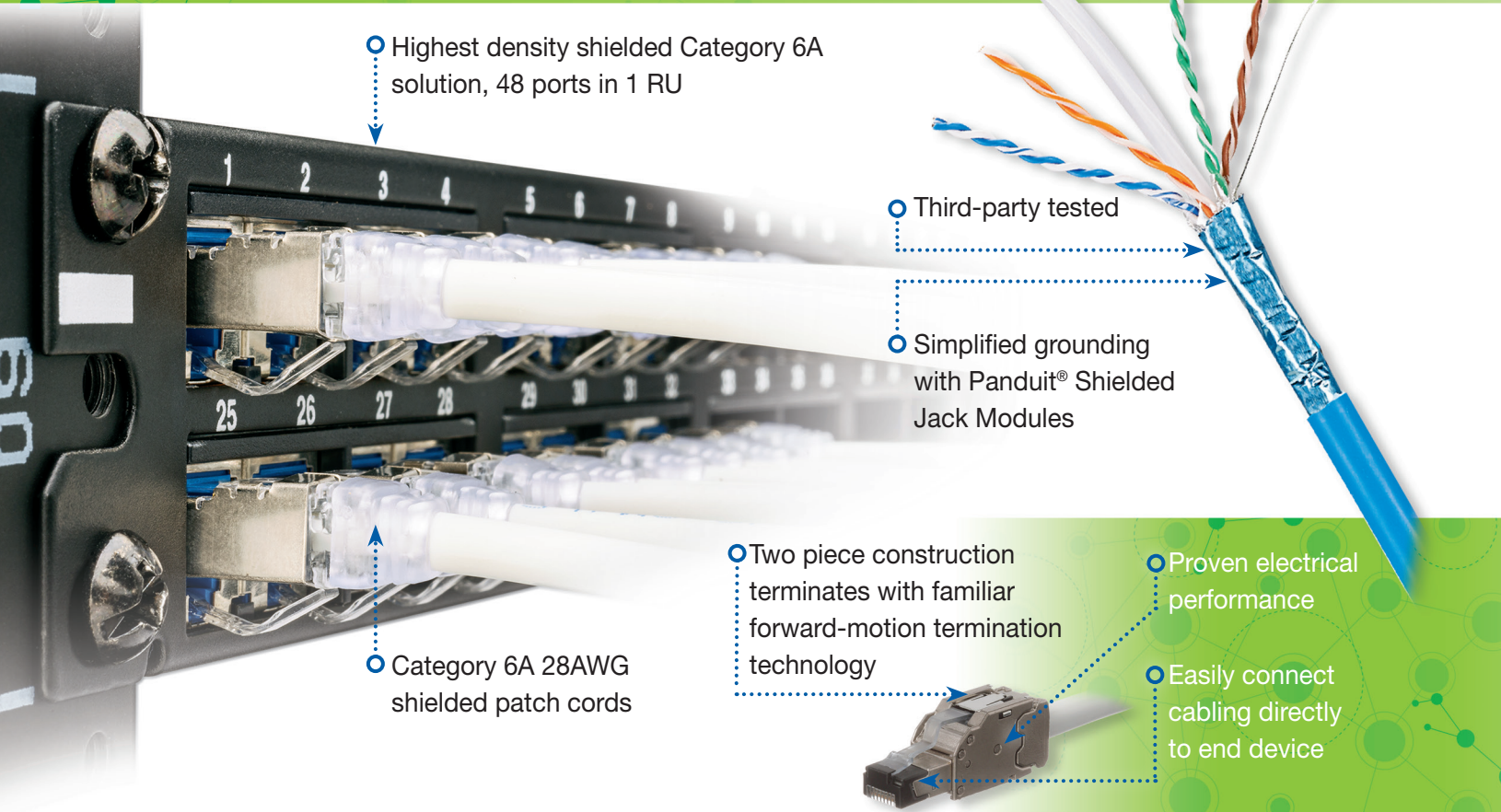
Third-party tested

Industry's most stringent testing requirements for headroom



Pioneered angled patch panel design

Mini-Com[®] Copper Cabling System – Shielded



○ Highest density shielded Category 6A solution, 48 ports in 1 RU

○ Third-party tested

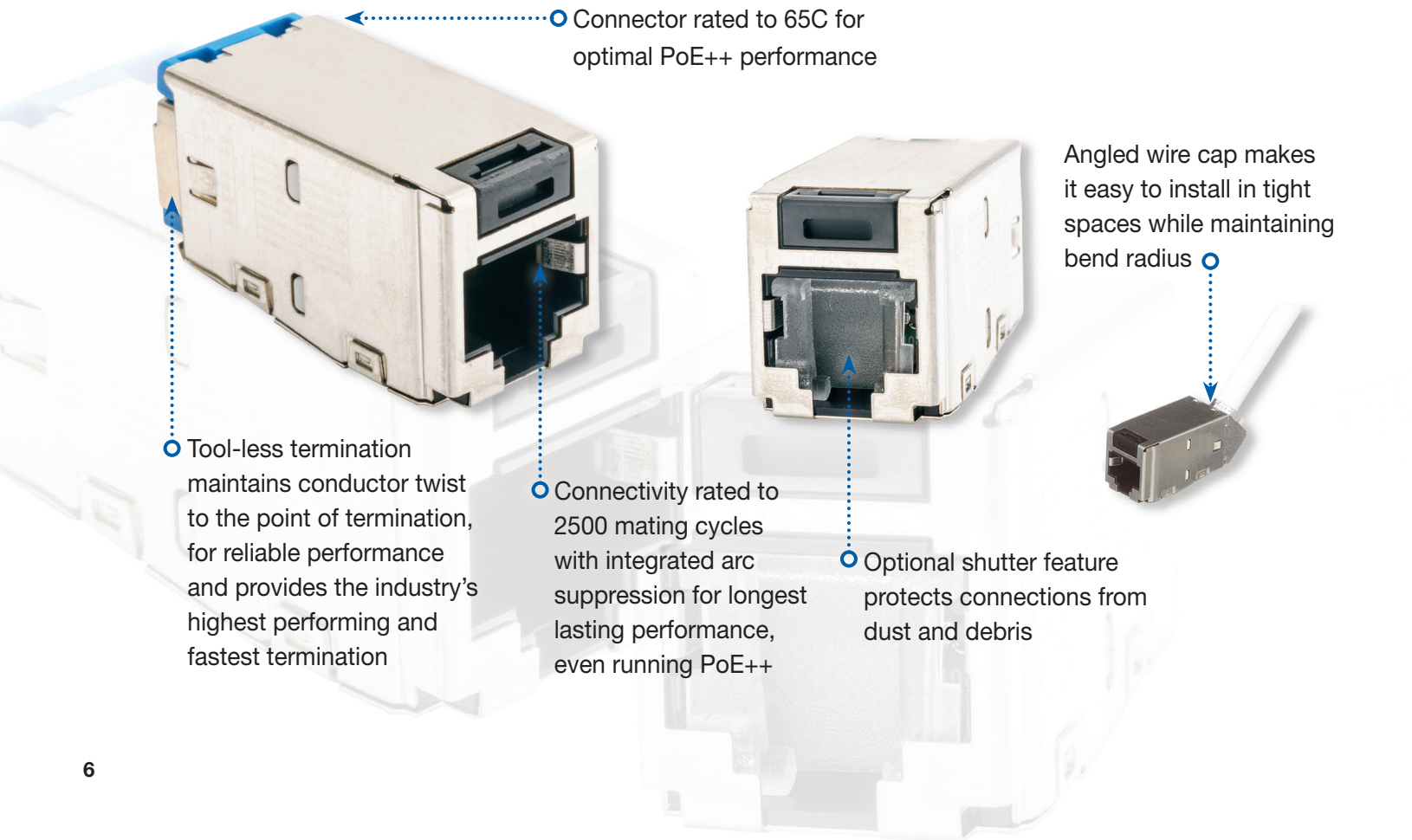
○ Simplified grounding with Panduit[®] Shielded Jack Modules

○ Category 6A 28AWG shielded patch cords

○ Two piece construction terminates with familiar forward-motion termination technology

○ Proven electrical performance

○ Easily connect cabling directly to end device



○ Connector rated to 65C for optimal PoE++ performance

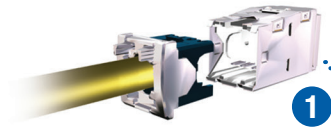
Angled wire cap makes it easy to install in tight spaces while maintaining bend radius ○

○ Tool-less termination maintains conductor twist to the point of termination, for reliable performance and provides the industry's highest performing and fastest termination

○ Connectivity rated to 2500 mating cycles with integrated arc suppression for longest lasting performance, even running PoE++

○ Optional shutter feature protects connections from dust and debris

Grounding Made Easy



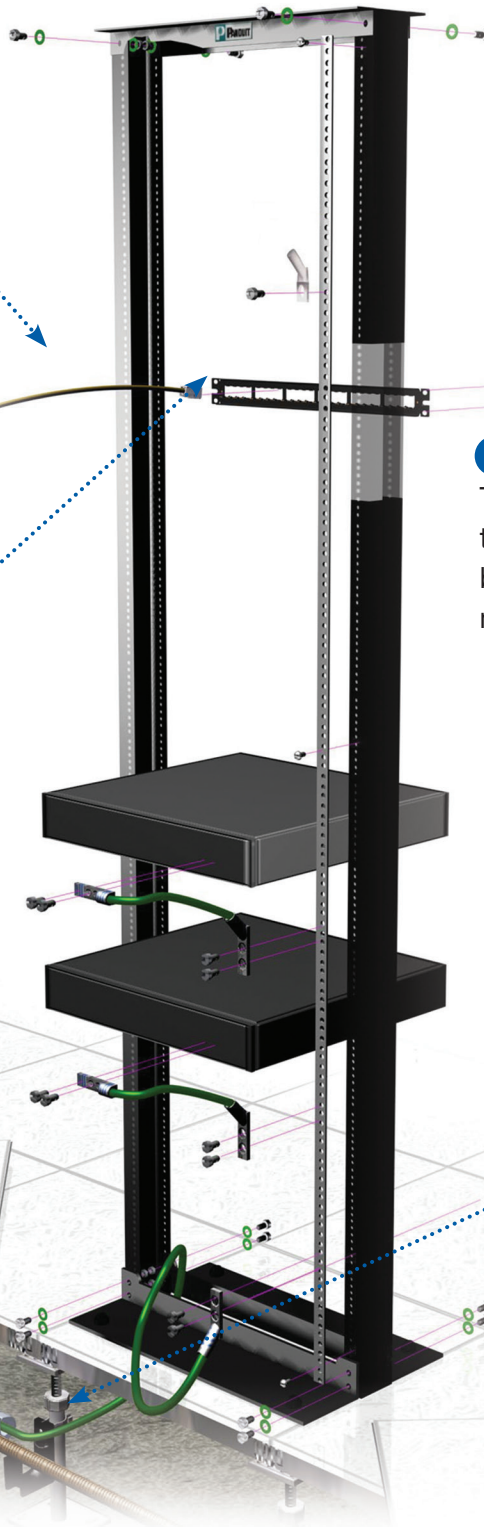
1

Jack module with integral shield and grounding tab provides 360° conductive path for proper grounding.



2

Contact between the module grounding tab and patch panel latch provide bond necessary for grounding.



3

The patch panel is bonded to the rack using thread-forming bonding screws that provide metal to metal contact.

4

The entire system is bonded to a common grounding point located in the floor, using Panduit® StructuredGround™ Common Bonding Network (CBN) Jumper Kit.

- Integrated grounding and bonding provides an easy to install shielded cabling system

NetKey® Keystone Copper Cabling System

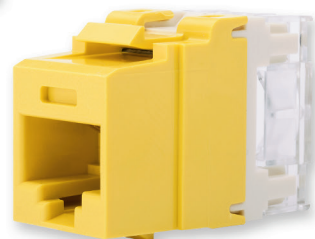
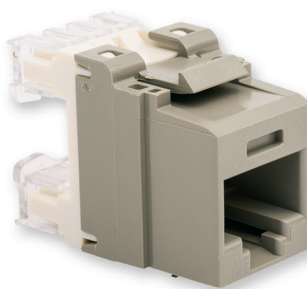
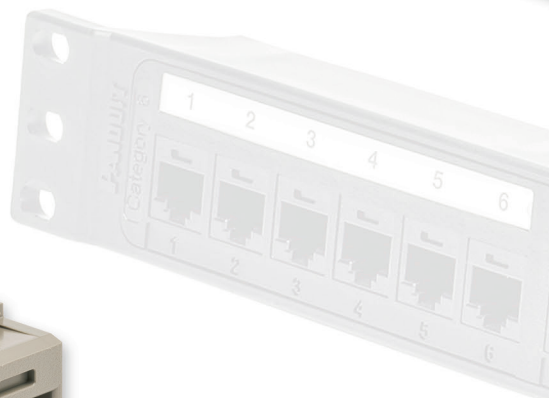
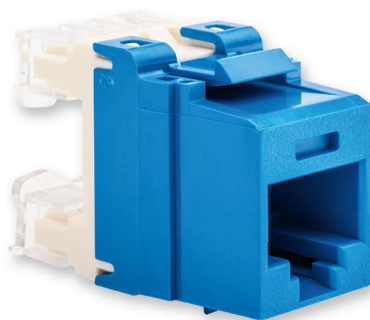
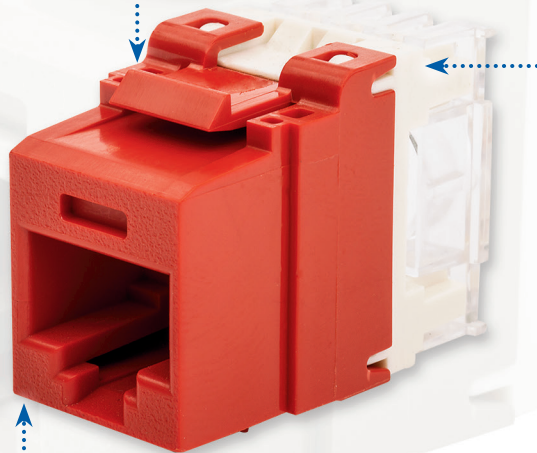
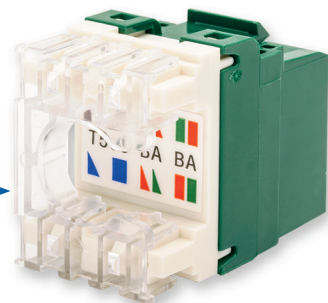
○ Third-party tested, component-compliant connectivity for reliable performance

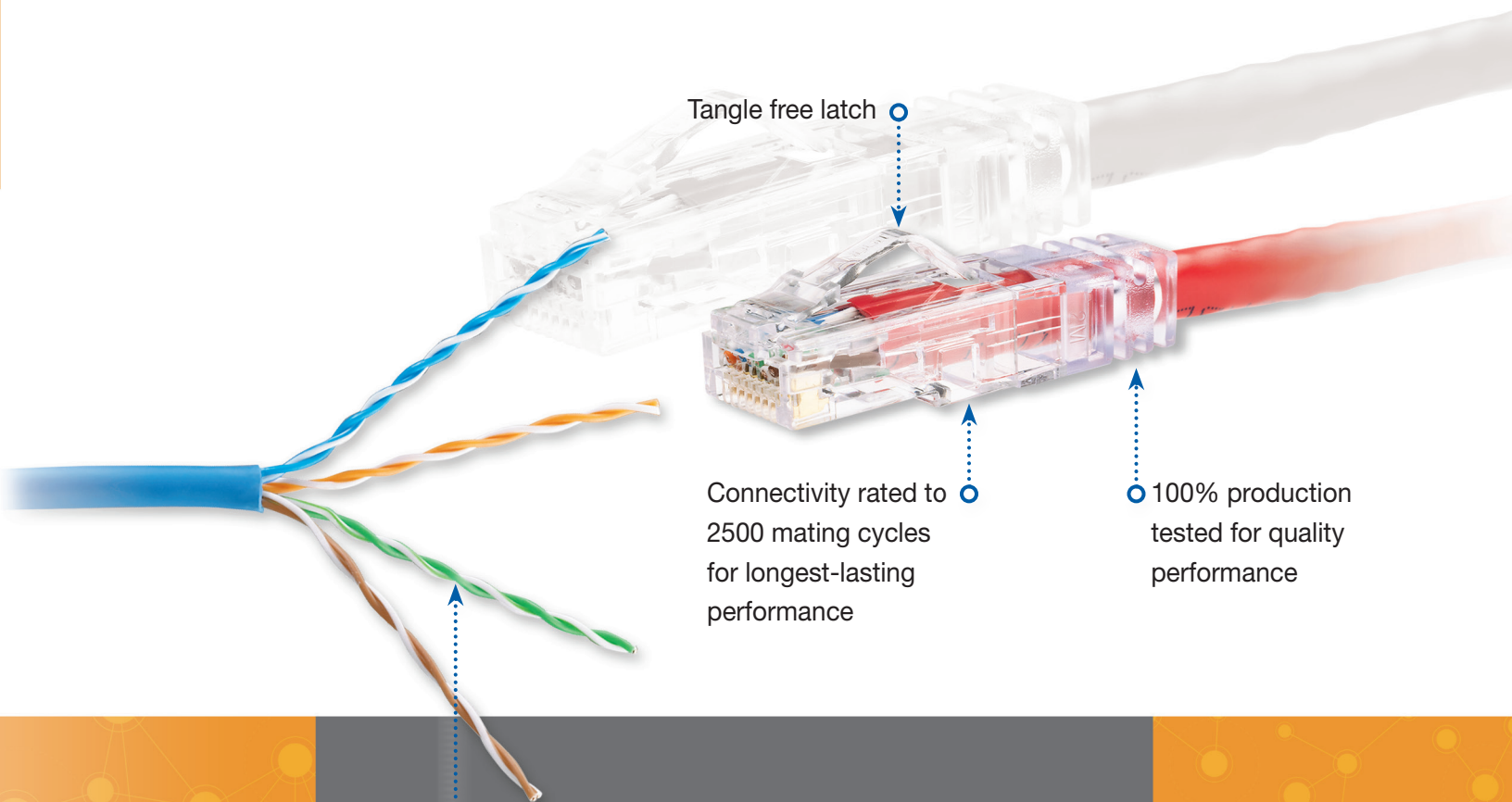
Familiar 110-punchdown termination ○

○ Industry's most stringent testing requirements for Category 6 headroom

○ 100% production tested for quality performance

○ Keystone footprint for compatibility with any keystone opening



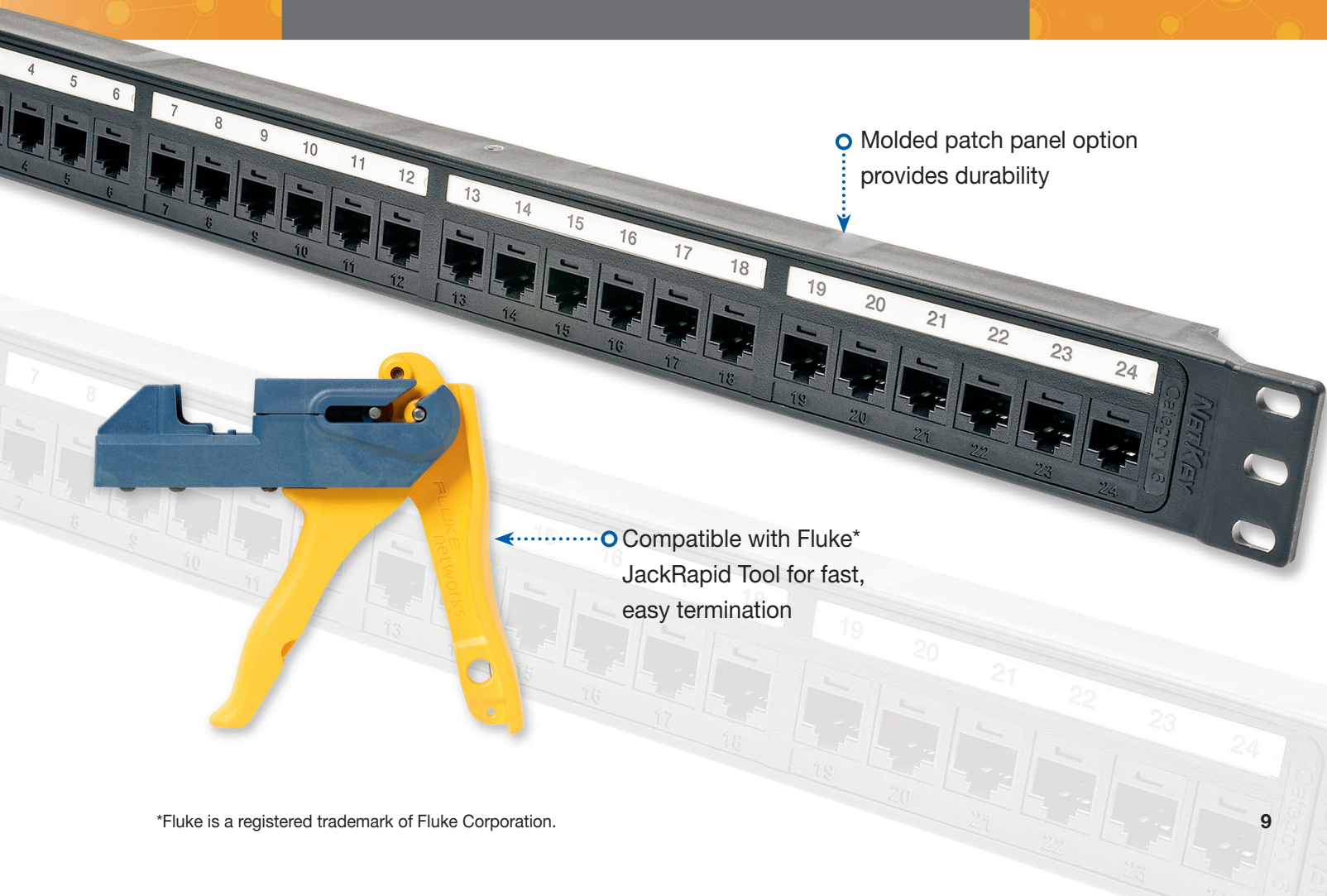


Tangle free latch

Connectivity rated to 2500 mating cycles for longest-lasting performance

100% production tested for quality performance

Available as an end-to-end Panduit® Solution for easy order and delivery



Molded patch panel option provides durability

Compatible with Fluke* JackRapid Tool for fast, easy termination

*Fluke is a registered trademark of Fluke Corporation.

Industry-Leading Category 6A Solution

Vari-MaTriX Technology

- Discontinuous metallic foil used on cable and connectors
- Offers optimal PoE performance
- Benefits of unshielded and shielded combined
- Industry's smallest diameter cable (0.250") for ideal fill ratio
- Variable-length foil delivers optimal alien crosstalk and immunity to external noise



Industry's Leading Headroom Performance

- Installed performance using real world testers
- True worst-case scenarios, with 48 1 RU panels and 6 around 1 for 100 meters
- Minimum channel length of 5 meters

Designed for Next Generation Applications

- 100BASE-T, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, 10GBASE-T
- Wireless access points 802.11ac
- Power over Ethernet 802.3af, 802.3at, and 802.3bt
- HDBaseT*

*HDBaseT is a registered trademark of Valens Semiconductor Ltd.

Guaranteed Channel Headroom

| Electrical Value | TIA Category 6A | ISO Class E _A |
|------------------|-----------------|--------------------------|
| Insertion Loss | 3% | 3% |
| NEXT | 3.5 dB | 2.5 dB |
| PSNEXT | 5 dB | 4 dB |
| PSACR-F | 10 dB | 10 dB |
| Return Loss | 3 dB | 3 dB |
| PSACR-N | 6.5 dB | 6.5 dB |
| PSANEXT | 2 dB | 2 dB |
| PSAACR-F | 10 dB | 10 dB |

*Electrical values are above specified standards and consist of worst pair margin per ANSI/TIA-568-C.2 Category 6A and ISO 11801 Class E_A standards.

Designed for Next Generation Power over Ethernet

The unique Panduit® Category 6A Vari-MaTriX system provides the industry's best cabling solution to support the PoE++ 802.3bt standard for power levels up to 100 watts.

Cable

- Vari-MaTriX foil provides optimal heat dissipation
- Industry's highest operating temperature – 90°C
- Industry's largest bundle sizes
- Longest allowed cable runs in hotter temperatures
- LP ratings of 0.7A (plenum) and 0.5A (riser)

Connectors

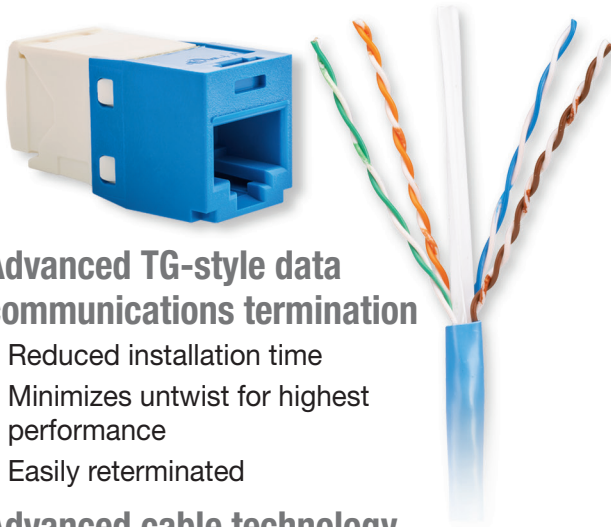
- Integrated arc suppression technology
- Rated to 2,500 live PoE++ connections
- Industry's highest operating temperature – 65°C
- Deliver PoE++ over 24AWG to 28AWG patch cords

Highest Quality Category 6 Solutions

The Highest Quality Category 6 Offering

- Mini-Com® and NetKey® Products built to the same quality standards
- All products held to the same stringent quality standards
- Jacks, patch cords, and cable are component compliant
- Supports PoE, PoE+, and PoE++
- Robust construction

Enhanced Category 6 System



Advanced TG-style data communications termination

- Reduced installation time
- Minimizes untwist for highest performance
- Easily reterminated

Advanced cable technology with 550 MHz cable bandwidth

Industry leading Category 6 headroom

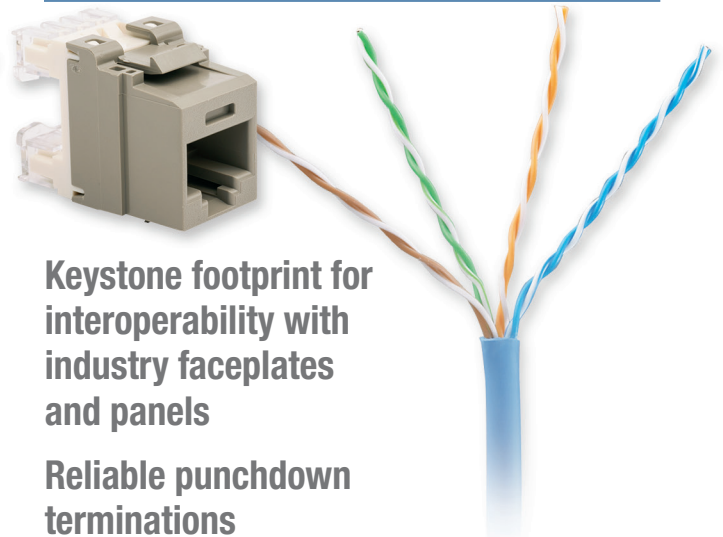
- Extra margin protects cable from installation and usage
- Supports 10GBASE-T over limited distances
- Minimum channel length of 5 meters
- Channel performance guaranteed with CJ688TG** jack and PUP/PUR6004 cable

Custom assemblies and parts available

| Guaranteed Channel Headroom | |
|-----------------------------|-----------|
| Electrical Value | Enhanced* |
| Insertion Loss | 5% |
| NEXT | 6.0 dB |
| PSNEXT | 7.5 dB |
| Return Loss | 3.0 dB |
| ACR-N | 7.0 dB |
| PSACR-N | 9.0 dB |
| ACR-F | 7.0 dB |
| PSACR-F | 9.0 dB |

*Electrical values are above specified standards and consist of worst pair margin per ANSI/TIA-568-C.2 Category 6 and ISO 11801 Class E standards.

Keystone Category 6 System



Keystone footprint for interoperability with industry faceplates and panels

Reliable punchdown terminations

Quality cable technology with 350 MHz cable bandwidth

Superior Category 6 headroom

- Protects from standard usage and installation
- Minimum channel length of 9 meters
- Channel performance guaranteed with NK688M** jack and PUP/PUR6C04 cable

| Guaranteed Channel Headroom | |
|-----------------------------|----------|
| Electrical Value | NetKey®* |
| Insertion Loss | 3% |
| NEXT | 3.0 dB |
| PSNEXT | 3.0 dB |
| Return Loss | 2.0 dB |
| ACR-N | 3.0 dB |
| PSACR-N | 4.0 dB |
| ACR-F | 4.0 dB |
| PSACR-F | 6.0 dB |

*Electrical values are above specified standards and consist of worst pair margin per ANSI/TIA-568-C.2 Category 6 and ISO 11801 Class E standards.

Mini-Com® Unshielded System Components



| Mini-Com® Jack Modules | Category 5e | Category 6 | Category 6A |
|--------------------------------|-------------|-------------|-------------|
| Standard Jack Modules | CJ5E88TG** | CJ688TG** | CJ6X88TG** |
| Shuttered Jack Modules | CJH5E88TG** | CJH688TG** | CJH6X88TG** |
| 45° Up/Down Angled Wire Cap | CJUDCAPRD-C | CJUDCAPWH-C | CJUDCAPBU-C |
| 45° Left/Right Angled Wire Cap | CJLRCAPRD-C | CJLRCAPWH-C | CJLRCAPBU-C |

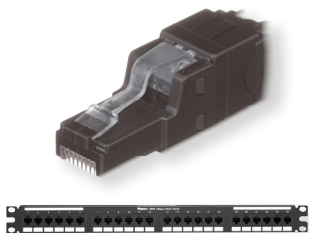
Bulk Packs: Standard jack modules available in bulk packs, which package jacks in a single box with no bag.
 Add -24 after part number for packs of 24.
 Add -C after part number for packs of 100.
 ** = Color.



IW = Off White, EI = Electric Ivory, IG = International Gray, BL = Black, BU = Blue, GR = Green, RD = Red, OR = Orange, VL = Violet, YL = Yellow, WH = White.

Note: Colors shown may differ slightly from actual jack colors.

Copper Cabling System Ordering Guide



| Field Terminable Plugs | Straight | Angled |
|--|-----------|-------------|
| Modular Plug (Compatible with Category 5e, 6 and 6A) | FP6X88MTG | FPUD6X88MTG |

| Punchdown Patch Panels | Category 5e | Category 6 | Category 6A |
|------------------------|--------------|-------------|--------------|
| 24-Port Flat | DP245E88TGY | DP24688TGY | DP246X88TGY |
| 24-Port Angled | DPA245E88TGY | DPA24688TGY | DPA246X88TGY |
| 48-Port Flat | DP485E88TGY | DP48688TGY | DP486X88TGY |
| 48-Port Angled | DPA485E88TGY | DPA48688TGY | DPA486X88TGY |



| Patch Cords | Category 5e | Category 6 | Category 6A |
|----------------------|-------------|------------|-------------|
| Standard Patch Cords | UTPCH*^Y | UTPSP*^Y | UTP6ASD*^A |
| 28AWG Patch Cords | UTP28CH*^A | UTP28SP*^A | UTP28X*^A |

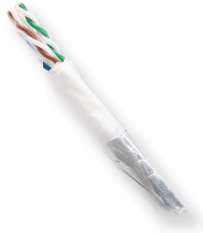
* = Length in feet
 1 – 20 feet (every 1 ft.)
 20 – 50 feet (every 5 ft.)

^ = 2 character color code.



Off White (default, no designation needed), BL = Black, BU = Blue, GR = Green, RD = Red, OR = Orange, VL = Violet, YL = Yellow, GY = Gray.
 Note: Colors shown may differ slightly from actual cable colors.

Mini-Com[®] Unshielded System Components



| Cable | Category 5e | Category 6 | Category 6A |
|---------------------|---------------------|--------------------|---------------------|
| Plenum Copper Cable | PUP5504BU-UY | PUP6004BU-W | PUP6AV04BU-G |
| Riser Copper Cable | PUR5504BU-UY | PUR6004BU-W | PUR6AV04BU-G |

Also available in WH as standard, contact Panduit customer service for more color options.

The proper labeling, strain relief, and network security will enhance the functionality of your network. Consider these solutions:

- RJ45 lock-in device: PSL-DCPLRX
- RJ45 blockout device: PSL-DCJB
- Strain relief bar: SRB19D5BL

See www.panduit.com for additional offerings in network security and strain relief, and for our complete offering of cable management accessories and identification products.



| Modular Patch Panels | Flat | Angled |
|--|--------------------|---------------------|
| Flush Mount Modular Patch Panels, 24-port, 1 RU | CPP24FMWBLY | CPPA24FMWBLY |
| Flush Mount Modular Patch Panels, 48-port, 2 RU | CPP48FMWBLY | CPPA48FMWBLY |
| High Density Flush Mount Modular Panels, 48-port, 1 RU | CPP48HDWBLY | CPPA48HDWBLY |



| Mini-Com Faceplates | 1-Port | 2-Port | 4-Port |
|--|---------------|-----------------|------------------|
| Furniture Faceplate | — | — | CFFP4BL |
| Furniture Faceplate with Labeling | — | — | CFFPL4BL |
| Furniture Faceplate, Herman Miller | — | — | CFFPHM4BL |
| Classic Faceplate Single Gang | CFP1** | CFP2** | CFP4** |
| Classic Faceplate Single Gang with Label | — | CFPL2**Y | CFPL4**Y |

** Colors available: EI (Electric Ivory), IW (Off White), WH (White).

Mini-Com® Shielded System Components



| Mini-Com Jack Modules | Category 5e | Category 6 | Category 6A |
|------------------------|---------------|--------------|---------------|
| Standard Jack Modules | CJS5E88TG**Y | CJS688TG**Y | CJS6X88TG**Y |
| Shuttered Jack Modules | CJSH5E88TG**Y | CJSH688TG**Y | CJSH6X88TG**Y |
| Angled Jack Modules | CJS#5E88TG**Y | CJS#688TG**Y | CJS#6X88TG**Y |

Bulk Packs: Standard jack modules available in bulk packs, which package jacks in a single box with no bag. Add -24 after part number for packs of 24.

** = Color; # = LR for left/right angle; UD for Up/Down angle.



No designation = Black, BU = Blue, GR = Green, RD = Red, VL = Violet, YL = Yellow.

Note: Colors shown may differ slightly from actual jack colors.



| Field Terminable Plugs | Straight |
|------------------------|------------|
| Modular Plug | FPS6X88MTG |

(Compatible with Category 5e, 6 and 6A)



| Patch Cords | Category 6/6A |
|---|---------------|
| Category 6A Standard Patch Cords (26 AWG) | STP6X*M^ |
| Category 6A 28 AWG Patch Cords | STP28X*M^ |

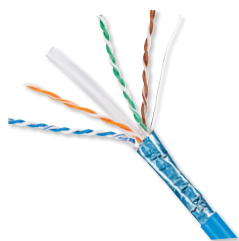
* = Length in meters available in:
0.2, 0.5, 0.5 to 5m (every 0.5m)
6 to 15m (every 1m), 20m

^ = 2 character cable color code.



IG = International Gray, BL = Black, BU = Blue, GR = Green, RD = Red, OR = Orange, VL = Violet, YL = Yellow.

Notes: Colors shown may differ slightly from actual cable colors.



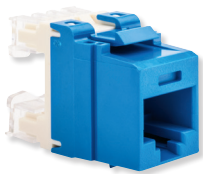
| Cable | Category 5e | Category 6A |
|----------------------------|--------------|--------------|
| Plenum Copper Cable, F/UTP | PFP5504BU-UY | PFP6X04BU-UG |
| Riser Copper Cable, F/UTP | PFR5504BU-UY | PFR6X04BU-CG |

Also available in WH as standard, contact Panduit customer service for more color options.



| Modular Patch Panels | Flat | Angled |
|--|----------|-----------|
| Flush Mount Modular Patch Panels, 24-port, 1 RU | CP24BLY | CPA24BLY |
| Flush Mount Modular Patch Panels, 48-port, 2 RU | CP48BLY | CPA48BLY |
| High Density Flush Mount Modular Panels, 48-port, 1 RU | CP48HDBL | CPA48HDBL |

NetKey® System Components



| Keystone Jack Modules | Category 5e | Category 6 | Category 6A |
|---------------------------------|-------------|------------|-------------|
| NetKey Punchdown Jack Modules^% | NKP5E88MBU | NK688MBU | NK6X88MBU |

^Add -Q to end of part number for box of 25 jacks.

% = Color. Replace BU in part number with any color shown.



IW = Off White, EI = Electric Ivory, IG = International Gray, BL = Black, BU = Blue, GR = Green, RD = Red, OR = Orange, VL = Violet, YL = Yellow, WH = White.

Note: Colors shown may differ slightly from actual jack colors.



| NetKey Punchdown Patch Panels | Category 5e | Category 6 | Category 6A |
|-------------------------------|-------------|------------|-------------|
| 24-Port Flat | NK5EPPG24Y | NK6PPG24Y | NK6XPPG24Y |
| 24-Port Angled | NKA5EPPG24Y | NKA6PPG24Y | NKA6XPPG24Y |
| 48-Port Flat | NK5EPPG48Y | NK6PPG48Y | NK6XPPG48Y |
| 48-Port Angled | NKA5EPPG48Y | NKA6PPG48Y | NKA6XPPG48Y |



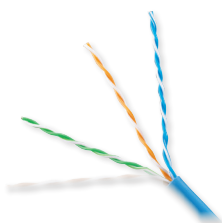
| NetKey Patch Cords | Category 5e | Category 6 | Category 6A |
|--------------------|-------------|------------|-------------|
| Patch Cords* | NK5EPCXXBUY | NK6PCXXBUY | NK6APCXXBU |

*Replace BU in part number with any color shown. Replace XX in part number with length designation: 3, 5, 7, 10, 14, or 20 feet. For lengths other than listed, see www.panduit.com.



Available colors: Off White (default, no designation needed), BL = Black, BU = Blue, GR = Green, RD = Red, YL = Yellow.

Note: Colors shown may differ slightly from actual cable colors.



| Copper Cable | Category 5e | Category 6 | Category 6A |
|-----------------------------------|-------------|-------------|---------------|
| Panduit Plenum Copper Cable | PUP5C04BU-U | PUP6C04BU-U | PUP6AS04BU-G |
| General Cable Plenum Copper Cable | 5131278E | 7131800 | 7141819 |
| Panduit Riser Copper Cable | PUR5C04BU-U | PUR6C04BU-U | PUR6AM04BU-CG |
| General Cable Riser Copper Cable | 5133299E | 7133800 | 7133786 |

Standard colors: Blue and White. Replace BU in part number with WH for White. Contact Customer Service for additional colors.



| Keystone Modular Patch Panels | 24-Port Flat | 24-Port Angled | 48-Port Flat | 48-Port Angled |
|----------------------------------|--------------|----------------|--------------|----------------|
| Flush Mount Modular Patch Panels | NKPP24FMY | NKPPA24FMY | NKPP48FMY | NKPPA48FMY |
| Molded Modular Patch Panels | NKPP24P | — | NKPP48P | — |



| Keystone Faceplate Frames+ | 2-Port | 4-Port |
|--|-----------|------------|
| NetKey Classic Faceplates with labels | NK2FIWY | NK4FIWY |
| NetKey Classic Faceplates with no labels | NK2FNIW | NK4FNIW |
| NetKey Furniture Faceplate | — | NK4MFBL |
| NetKey Surface Mount Boxes | NK2BXIW-A | NK4BXIW-AY |

Colors: Replace IW (Off White) in part number with WH (White) or EI (Electric Ivory).

Please see www.panduit.com/NetKey for additional information on the complete NetKey Line.



PANDUIT®

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