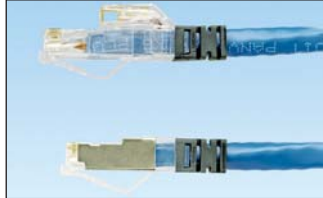# PanView iQ™ Patch Cords

- PanView iQ™ Interconnect Patch Cords support connectivity between shielded non-PanView iQ™ enabled ports (e.g., switches with shielded jacks, servers with shielded jacks, etc.) and PanView iQ™ Panel Ports

- PanView iQ™ Cross-Connect Patch Cords manage and map the patch field between two PanView iQ™ Patch Panels

- All PanView iQ™ Patch Cords permit PanView iQ™ Panels to detect single-ended connections
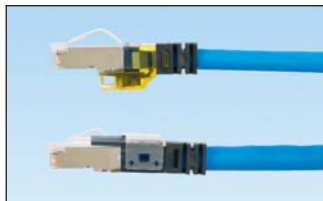
PVQ-BIU6C3BU

Part Number	Part Description	Length Ft.	Length m	Cable Color	Std. Pkg. Qty.	Std. Ctn. Qty.
Copper Interconnect Patch Cords – Basic						
PVQ-BIU6C3BU*	Category 6 UTP interconnect patch cord for use with PanView iQ™ patch panel, Communications (CM) rated.	3	—	Blue	1	10
PVQ-BIU6C1MBU^	Category 6 UTP interconnect patch cord for use with PanView iQ™ patch panel, Communications (CM) rated.	—	1	Blue	1	10
PVQ-BIU6L1MBU^	Category 6 UTP interconnect patch cord for use with PanView iQ™ patch panel, Low Smoke Zero Halogen (LSZH) rated.	—	1	Blue	1	10

Additional lengths and colors available:

*For lengths of 5, 7, 10, 14, or 20 feet, change the length designation in the part number to the desired length. For standard cable color other than BU (Blue), replace BU in the part number with GR (Green). For example, the part number for a green, 5-foot patch cord is PVQ-BIU6C5GR.

^For lengths of 2, 3, 5, or 10 meters, change the length designation in the part number to the desired length. For standard cable color other than BU (Blue), replace BU with WH (White). For example, the part number for a white 2-meter patch cord is PVQ-BIU6L2MWH.

Contact Panduit Customer Service for lead times and for non-standard lengths and colors.

PVQ-ES6X3BU

Part Number	Part Description	Length Ft.	Length m	Cable Color	Std. Pkg. Qty.	Std. Ctn. Qty.
Copper Interconnect Patch Cords – Enhanced						
PVQ-EU6AC3BU*	10Gig™ UTP Enhanced Interconnect Patch Cord for use with PanView iQ™ Patch Panel, Communications (CM rated).	3	—	Blue	1	10
PVQ-EU6AC1MBU^	10Gig™ UTP Enhanced Interconnect Patch Cord for use with PanView iQ™ Patch Panel, Communications (CM rated).	—	1	Blue	1	10
PVQ-ES6X3BU*	10Gig™ STP Enhanced Interconnect Patch Cord for use with PanView iQ™ Patch Panel, dual rated.	3	—	Blue	1	10
PVQ-ES6X1MBU^	10Gig™ STP Enhanced Interconnect Patch Cord for use with PanView iQ™ Patch Panel, dual rated.	—	1	Blue	1	10

Additional lengths and colors available:

*For lengths of 5, 7, 10, 14, or 20 feet, change the length designation in the part number to the desired length. For standard cable color other than BU (Blue), replace BU in the part number with WH (White). For example, the part number for a white, 5-foot patch cord is PVQ-EU6AC5WH.

^For lengths of 2, 3, 5, or 10 meters, change the length designation in the part number to the desired length. For standard cable color other than BU (Blue), replace BU with WH (White). For example, the part number for a white 2-meter patch cord is PVQ-ES6X2MWH.

Contact Panduit Customer Service for lead times and for non-standard lengths and colors.

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PanView iQ™ Patch Cords (continued)

PVQXPE10LQM

Part Number	Part Description	Length^		Std. Pkg. Qty.	Std. Ctn. Qty.
		Ft.	m		
Fiber Interconnect Patch Cords					
PVQXPE10LQM00.5	PanView iQ duplex LC to duplex standard LC, OM3, fiber interconnect patch cord, plenum rated, 1.6mm jacketed cable.	—	0.5	1	10
PVQZPE10LQM00.5	PanView iQ duplex LC to duplex standard LC, OM4, fiber interconnect patch cord, plenum rated, 1.6mm jacketed cable.	—	0.5	1	10
PVQ9PE10LQM00.5	PanView iQ duplex LC to duplex standard LC, OS1/OS2, fiber interconnect patch cord, plenum rated, 1.6mm jacketed cable.	—	0.5	1	10

^Available in lengths up to 10 meters, in 1/2-meter increments. To order another length, replace 0.5 with desired length.

PVUTPSPC*BBUY

PVSTP6X*MBBU

| Part Number	Part Description	Length^		Std. Pkg. Qty.	Std. Ctn. Qty.
		Ft.	m		
Cross-Connect Patch Cords					
PVUTPSPC3BBUY	Category 6 UTP patch cord for use with modular patch panel.	3	—	1	10
PVUTPSPC1MBBUY	Category 6 UTP patch cord for use with modular patch panel.	—	1	1	10
PVSTP6X1MBBU	Category 6A, STP modular 10Gig™ Patch Cord.	—	1	1	10
PVUTP6X1MBBU	Category 6A, UTP modular 10Gig™ Patch Cord.	—	1	1	10
PVF9L10-10M0.5Y	Singlemode LSZH LC-LC patch cord.	—	1	1	10
PVFXL10-10M0.5Y	Multimode LSZH OM3 LC-LC patch cord.	—	1	1	10

^Additional lengths available: PVUTPSPC3BBUY also available in lengths of 5, 7, 9, 14, and 20 feet. PVUTPSPC1MBBUY also available in lengths of 2, 3, 5, 7, and 10 meters. PVSTP6X1MBBU also available in lengths of 2, 3, 5, and 10 meters. PVF9L10-10M0.5Y and PVFXL10-10M0.5Y also available in 1/2-meter increments up to 10 meters.
Contact Panduit Customer Service for lead times.
Consult www.panduit.com/pim for additional colors and lengths available.
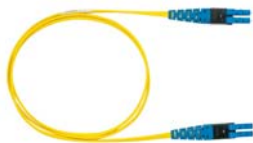
PVF9L10-10M*Y

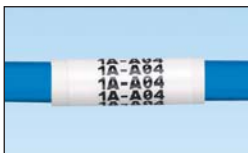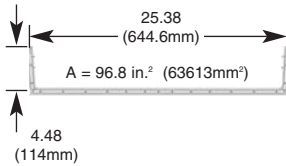## Labels for PanView iQ™ Patch Cords

Suggested Label Solutions for TIA/EIA-606-A Compliance				
Patch Cord Part Number	Laser/Ink Jet Desktop Printer Label	TDP43ME Thermal Transfer Desktop Printer Label	PanTher™ LS8E Hand-Held Printer Label	Cougar™ LS9 Hand-Held Printer Label
All Patch Cords on Page I.10 and I.11	S100X150YAJ	S100X150VATY	S100X150VAC	T100X000CBC-BK

For complete labeling solutions and product information, reference charts on pages O.1 – O.25.

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PANDUIT®

PHYSICAL INFRASTRUCTURE SYSTEMS

24x4 FiberRunner® Routing System

Cable Fills for 24x4 FiberRunner® Routing System

The maximum amounts may vary according to the cable fill installation methods, straightness of cables, etc.

25.38 (644.6mm)

A = 96.8 in.² (63613mm²)

4.48 (114mm)

24x4 FiberRunner® Cable Routing System								
Fill/Pile Up	Internal Area (in²)	Diameter 1.6mm 0.063"	Diameter 2.0mm 0.079"	Diameter 3.0mm 0.118"	Fiber Optic Ribbon Interconnect Cable Diameter 5.20mm 0.205"	Category 6A (SD) Diameter 6.1mm 0.240"	Category 6A Diameter 7.6mm 0.300"	Category 6 Diameter 6.1mm 0.240"
40% Fill								
2" Pile Up	48.1	6174	3951	1756	583	425	272	425
3" Pile Up	72.4	9293	5947	2643	877	640	410	640
4" Pile Up	98.6	12656	8099	3600	1195	872	558	872
50% Fill								
2" Pile Up	48.1	7718	4939	2195	729	532	340	532
3" Pile Up	72.4	11616	7434	3304	1097	800	512	800
4" Pile Up	98.6	15820	10124	4500	1494	1090	697	1090
60% Fill								
2" Pile Up	48.1	9261	5927	2634	874	638	408	638
3" Pile Up	72.4	13940	8921	3965	1316	960	615	960
4" Pile Up	98.6	18984	12149	5400	1792	1308	837	1308

Channel cutting instructions: For optimum results, use a miter box and saw. For larger quantities use a plastic cutting saw blade for clean, burr-free cuts. Recommend: Carbide 80T and 100T; .090" thickness, .125" kerf.

The above cable diameters represent the nominal Panduit cable diameter per performance level.
For specific cable fill information based on specific part numbers, please contact Panduit customer service.

24x4 FiberRunner® Routing System – Channel and Cover

- Robust, large capacity 24x4 system ideal for use with large cable counts
- QuikLock™ Couplers and Brackets reduce system installation time dramatically
- Channel, covers, fittings and other non-metallic system components made from V-0 flame class rated material
- Compatible with all sizes of Panduit® FiberRunner® and Routing Systems, cable management, and racks

FR24X4

FRCV24

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
FR24X4YL10	Used to carry cables horizontally throughout the system. Use QuikLock™ Coupler FRBC24X4YL to attach channel and/or fittings.	10	20
24x4 Snap-On Cover			
FRCV24YL10	Optional snap-on cover for channel FR24X4YL10. Supplied in four 30" long pieces.	10	—

For other colors replace YL (Yellow) with OR (Orange) or BL (Black).
Order number of feet required, in multiples of standard 10' length increments.

24x4 FiberRunner® QuikLock™ Coupler

- Pre-assembled to provide fast mechanical assembly of components
- No tools required for installation; bolts loosen for component disassembly
- For other standard colors replace suffix YL (Yellow) with OR (Orange) or BL (Black)

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
FRBC24X4YL	Pre-assembled coupler quickly joins two sections of channel and/or fittings. Mechanically attaches without tightening bolts. Bolts release using 3/8" nut driver to allow coupler to be removed if necessary.	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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24x4 FiberRunner® System Fittings

• Minimum 3" (76.2mm) bend radius control fittings
• Protect against signal loss and performance degradation
• Assemble using FRBC QuikLock™ Couplers

FRH4524X4

FRH45CV24

FRT24X4W12

FRTCV24W12

FRFWC24X4

FRFWCCV24

FRFWC24X4W12

FRFWCCV24W12

FREC24X4

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
24x4 Horizontal 45° Angle Fitting				
FRH4524X4YL	Attaches to 24x4 channel and/or fittings to create a 45° horizontal turn from a straight horizontal run.	(2 pcs.) FRBC24X4YL	1	—
Cover for 24x4 Horizontal 45° Angle Fitting				
FRH45CV24YL	Optional cover for the horizontal 45° angle fitting FRH4524X4YL. Snap-on feature allows cover to be installed and removed with no tools required.	—	1	—
24x4 Horizontal Tee with 12x4 Exit				
FRT24X4W12YL	Attaches to 24x4 channel and/or fittings to create a 90° horizontal branch with a 12x4 exit from straight horizontal run. Accepts optional split cover FRTCV24W12YL.	(2 pcs.) FRBC24X4YL (1 pc.) FRBC12X4YL	1	—
Cover for 24x4 Horizontal Tee with 12x4 Exit				
FRTCV24W12YL	Optional cover for the horizontal tee fitting FRT24X4W12YL. Snap-on feature allows cover to be installed and removed with no tools required.	—	1	—
24x4 Four-Way Cross Fitting				
FRFWC24X4YL	Attaches to 24x4 channel and/or fittings to create a horizontal four way cross intersection with two 24x4 exits. Accepts optional split cover FRFWCCV24YL.	(4 pcs.) FRBC24X4YL	1	—
24x4 FiberRunner® Four-Way Cross Cover				
FRFWCCV24YL	Optional cover for the four way cross fitting FRFWC24X4YL. Snap-on feature allows cover to be installed and removed with no tools required.	—	1	—
24x4 Four-Way Cross Fitting with 12x4 exits				
FRFWC24X4W12YL	Attaches to a 24x4 channel and/or fittings to create a horizontal four way cross intersection with two 12x4 exits. Accepts optional split cover FRFWCCV24W12YL.	(2 pcs.) FRBC24X4YL (2 pcs.) FRBC12X4YL	1	—
Cover for 24x4 Four-Way Cross Fitting with 12x4 Exits				
FRFWCCV24W12YL	Optional cover for the four way cross fitting FRFWC24X4W12YL. Cover can be installed and removed with no tools required.	—	1	—
24x4 End Cap Fitting				
FREC24X4YL	Used for closing off open ends of the channel or fittings. No coupler required. Push-on installation.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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24x4 FiberRunner ® System Fittings (continued)

FRIV4524X4

FROV4524X4

FROV45CV24

FRRF2412

FRRF2412CV

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
24x4 Inside Vertical 45° Fitting and Cover				
FRIV4524X4YL	Attaches to 24x4 channel and/or fittings to create a 45° upward angle from a straight horizontal run. Used with outside vertical 45° angle fitting FROV4524X4YL to change level of a straight horizontal run. Includes cover.	(2 pcs.) FRBC24X4YL	1	—
24x4 Outside Vertical 45° Fitting				
FROV4524X4YL	Attaches to 24x4 channel and/or fittings to create a 45° downward angle from a straight horizontal run. Used with inside vertical 45° angle fitting FRIV4524X4YL to change level of a horizontal run.	(2 pcs.) FRBC24X4YL	1	—
Cover for 24x4 Outside Vertical 45° Angle Fitting				
FROV45CV24YL	Optional cover for the outside vertical 45° angle fitting FROV4524X4YL. Snap-on feature allows cover to be installed and removed with no tools required.	—	1	—
Reducer from 24x4 FiberRunner ® to 12x4 FiberRunner ®				
FRRF2412YL	Attaches any 24x4 FiberRunner ® Fitting or Channel to any 12x4 FiberRunner ® Fitting or Channel.	(1 pc.) FRBC24X4YL (1 pc.) FRBC12X4YL	1	—
Cover for 24x4 to 12x4 FiberRunner ® Reducer Fitting				
FRRF2412CVYL	Optional cover for the reducer from 24x4 FiberRunner ® to 12x4 FiberRunner ® FRRF2412YL. Snap-on feature allows cover to be installed and removed with no tools required.	—	1	—

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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24x4 FiberRunner® System Spillouts

- Spill-overs allow safe transition from horizontal to vertical runs
- 2" (50.8mm) bend radius control
- Transition to channel, slotted channel, and corrugated loom tubing
- Spill-over junction fittings can be retro-fitted to existing horizontal runs

FRSPJ2X2

FTR2X2

FIDT2X2

FRHD2KT

TRC2HDBL

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Spill-Over Junction with 2x2 Exit				
FRSPJ2X2YL	Assembles onto 4x4, 6x4, 12x4, or 24x4 FiberRunner® Channel, spilling over the side into a 2x2 vertical exit. Requires coupler to attach 2x2 FiberRunner® and fittings to the vertical exit. Mounts directly to existing installation with no alteration required. Mounting hardware provided for secure attachment.	(1 pc.) FBC2X2YL	1	—
3-Sided BRC Trumpet Spillout for 2x2 Exit				
FTR2X2YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from a spill-over junction with a 2x2 exit or from 2x2 Fiber-Duct™ Channel.	(1 pc.) FBC2X2YL	1	5
1-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FIDT2X2YL	Used to route cable into one piece of 1.5" (38mm) diameter split corrugated tubing. Used with a spill-over junction with a 2x2 exit, 2x2 Fiber-Duct™ Fittings, and the 2x2 FiberRunner® Hinged Channel. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FBC2X2YL	1	5
2x2 Hinged Duct Vertical Cable Manager Kit				
FRHD2KTYL	Provides secure, accessible route for cables spilling out from a vertical tee or spill-over junction to rack mounted equipment. Kit includes 6' length of 2x2 FiberRunner® Hinged Channel H2X2YL6, 6' length of 2x2 snap-on hinged cover HC2YL6, four adjustable "Z" brackets FZBA1.5X4, one FiberRunner® 2x2 End Cap FHDEC2X2YL, six hinged duct 2" wire retainers WR2H-C, and all required mounting hardware. Attaches to 2x2 vertical tee exit or spill-over junction with a 2x2 exit with a 2x2 QuikLock™ Coupler FBC2X2YL. Also attaches directly to 4x4 or 6x4 vertical tee exits with low profile reducer FRLPR42BL.	—	1	—
2x2 FiberRunner® Bend Radius Control Trumpet				
TRC2HDBL	Bend radius control trumpet for exiting at the sidewall of 2" wall heights of type H hinged cover wiring duct channels. Maintains 1" (25.4mm) bend radius control. Black color only.	—	1	10

For other colors replace suffix YL (Yellow) with OR (Orange), BL (Black), or LG (Light Gray).

24x4 FiberRunner® System Spillouts (continued)

FRSPJ4X4

FRTR4X4

FRIDT4X4
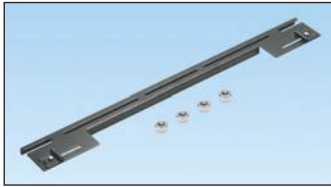
FRHD4KT

TRC4HDBL

FRTR24X4

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Spill-Over Junction with 4x4 Exit				
FRSPJ4X4YL	Assembles onto 4x4, 6x4, 12x4, or 24x4 FiberRunner® Channel, spilling over the side into a 4x4 vertical exit. Requires coupler to attach 4x4 FiberRunner® Channel and fittings to the vertical exit. Mounts directly to existing installation with no alteration required. Mounting hardware provided for secure attachment.	(1 pc.) FRBC4X4YL	1	—
3-Sided BRC Trumpet Spillout for 4x4 FiberRunner® Exit				
FRTR4X4YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from 4x4 FiberRunner® Channel or a 4x4 FiberRunner® Horizontal Tee.	(1 pc.) FRBC4X4YL	1	5
2-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FRIDT4X4YL	Used to route cable into one or two pieces of 1.5" (38mm) diameter split corrugated tubing. Requires coupler to be used with 4x4 FiberRunner® Fitting. Used with any 4x4 FiberRunner® Fitting. Securely holds corrugated split tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FRBC4X4YL	1	5
4x4 Hinged Duct Vertical Cable Manager Kit				
FRHD4KTYL	Provides secure, accessible route for cables spilling out from vertical tee to rack mounted equipment. Kit includes 6' length of 4x4 capacity hinged duct, 6' length of 4x4 hinged duct cover, one end cap for 4x4 hinged duct, three FZBA1.5X4 adjustable "Z" brackets, an adapter fitting, six WR4-C wire retainers and all required mounting hardware. Attaches directly to 6x4 and 4x4 vertical tee exit or FRLPR64 low profile reducer.	—	1	—
4x4 Hinged Duct Bend Radius Control Trumpet				
TRC4HDBL	Bend radius control trumpet for exiting at the sidewall of 4" wall heights of type H hinged cover wiring duct channels. Maintains 1" (25.4mm) bend radius control. Black color only.	—	1	10
3-Sided BRC Trumpet Spillout for 24x4 Exit				
FRTR24X4YL	Used to limit the bend radius of the cable to 3" (76.2mm) when exiting from the 24x4 channel or a 24x4 horizontal tee.	(1 pc.) FRBC24X4YL	1	5

For other colors replace suffix YL (Yellow) with OR (Orange), BL (Black), or LG (Light Gray).

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PANDUIT® **PHYSICAL INFRASTRUCTURE SYSTEMS**

24x4 FiberRunner® Mounting Brackets

FR24TBE12
FR24TBE12M

FR24TBN12
FR24TBN12M

FRTBWG30BL

F2PCLB12

FRAFC58

FR12BS-L

| Part Number	Part Description	For Threaded Rod Size	Std. Pkg. Qty.	Std. Ctn. Qty.
Existing Threaded Rod QuikLock™ Bracket for 24x4 System				
FR24TBE12	Used to support the 24x4 system by spanning two 1/2" existing threaded rod drops. Can be installed from above or below. Bracket is secured to each threaded rod with two split nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	1/2"	1	—
FR24TBE12M		12mm	1	—
New Threaded Rod QuikLock™ Bracket for 24x4 System				
FR24TBN12	Used to support the 24x4 system from new threaded rod installations. Bracket is secured to threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	1/2"	1	—
FR24TBN12M		12mm	1	—
Wyr-Grid™ Mounting Bracket for FiberRunner® System				
FRTBWG30BL	FiberRunner® QuikLock™ Threaded Rod Trapeze Bracket for Wyr-Grid® 30" (762mm) width. Used to support FiberRunner® 4x4, 6x4, 12x4, and 24x4 Channel above or below the Wyr-Grid® 30" Pathway using the same 1/2" or 12mm threaded rod used to support the WGTB30BL bracket. Quick mount clips, FRQMC24-X are not included for installing the 24x4 channel. These must be purchased separately. This bracket is on the same pitch as the Wyr-Grid® Bracket. Hardware for attaching to threaded rod sold separately.	1/2" 12mm	1	10
FiberRunner® Quick Mount Clips				
FRQMC24-X	Used whenever a FiberRunner® 24x4 Channel is installed on the FiberRunner® Trapeze Bracket, FRTBWG30BL for 30" Wyr-Grid™ Pathway. For use with FiberRunner® 24x4 Channel only.	—	10	50
Two-Piece Ladder Rack Bracket for Attaching Threaded Rod to 1 1/2" – 2" Ladder Rack				
F2PCLB12	Two-piece bracket attaches to 3/8" (9.5mm) wide x 1 1/2" (38.1mm) or 3/8" (9.5mm) wide x 2" (50.8mm) ladder rack rail. Bracket halves slide into position and clamp together on the ladder rack rail, which allows for a one-handed assembly of the threaded rod (not included). Contains bracket and hardware for attaching bracket to ladder rack.	1/2"	1	10
Two Piece Framing Clip for Attaching 5/8" Threaded Rod to 2" x 9/16" C-Channel Auxiliary Framing Bars				
FRAFC58	Two-piece framing clip attaches to auxiliary framing bars. Framing clip halves slide into position and interlock on the auxiliary framing bars, allowing easier assembly of the threaded rod to bars. Contains two-piece framing clip and hardware for attaching framing clip to auxiliary framing bars. (5/8" threaded rod not included.)	5/8"	1	10
Self-Tapping Screws for 12x4 and 24x4 Brackets				
FR12BS-L	Self-tapping screws allow selected 24x4 and 12x4 fittings to be fastened directly to mounting brackets for additional support. Screws tap directly into those 24x4 and 12x4 fittings that have plastic bosses.	—	50	500

12x4 Routing System Roadmap
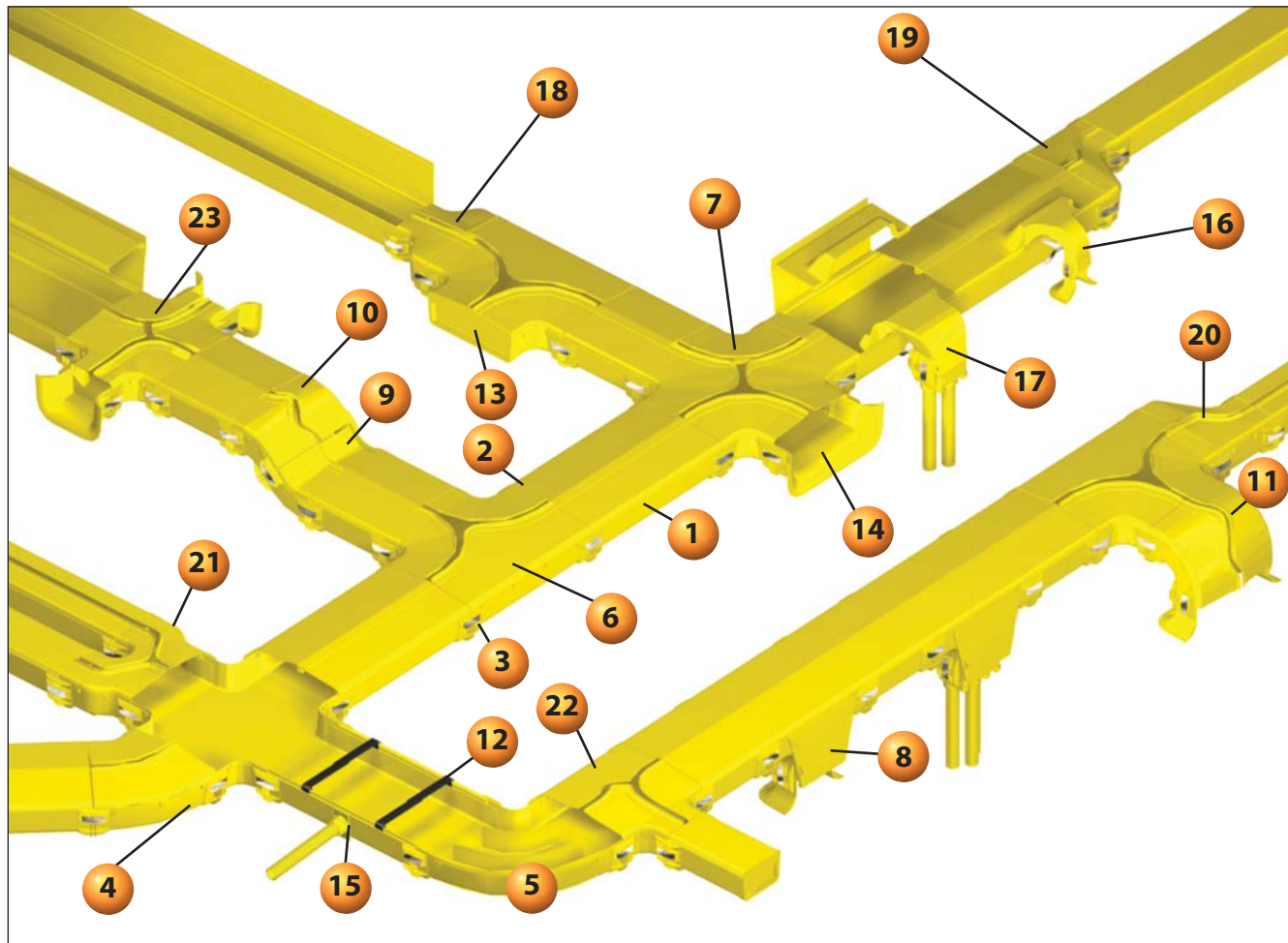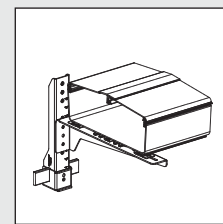

12x4 FiberRunner® Mounting Brackets
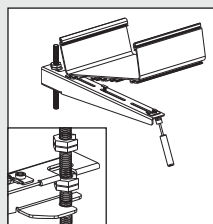
FR12TRBE58 – Existing Threaded Rod QuikLock™ Bracket (page J.20)
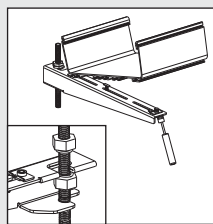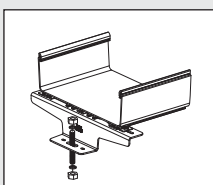
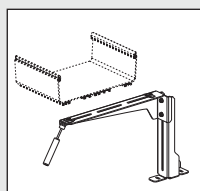**FR12TRBN58 – New Threaded Rod QuikLock™ Bracket (page J.20)**
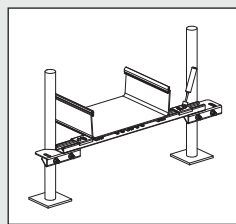
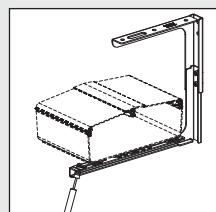**FR12USB – Underfloor Pedestal QuikLock™ Bracket (page J.20)**

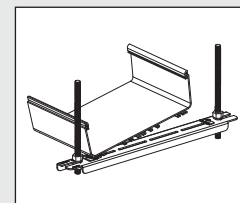**FR12ALB – Adjustable Ladder QuikLock™ Bracket (page J.20)**

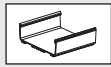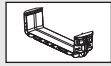**FR12CS58 – Center Support QuikLock™ Bracket (page J.20)**

FR12ACAB – Adjustable Cabinet QuikLock™ Bracket (page J.21)

FR12ACB58 – Top Support Adjustable "C" QuikLock™ Bracket (page J.20)

FR12TB58 – Trapeze QuikLock™ Bracket (page J.20)

1 FR12X4**6 – 12x4 FiberRunner® Channel (page J.12)

2 FRHC12**6 – 12x4 Snap-On Hinged Cover (page J.12)

3 FRBC12X4** – 12x4 QuikLock™ Coupler (page J.13)

4 FRH4512X4** – 12x4 Horizontal 45° Angle Fitting and FRH45SC12** – Optional Split Cover (page J.13)
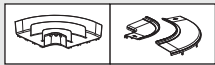
5 FRRA12X4** – 12x4 Horizontal Right Angle Fitting and FRRASC12** Optional Split Cover (page J.13)
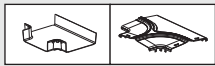
6 FRT12X4** – 12x4 Horizontal Tee Fitting and FRTSC12** – Optional Split Cover (page J.13 and J.14)
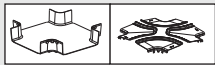
7 FRFWC12X4** – 12x4 4-Way Cross Fitting and FRFWCSC12** – Optional Split Cover (page J.14)

8 FRVT12X4** – 12x4 Vertical Tee (page J.17)

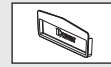**9** FRIV4512X4** – 12x4 Inside Vertical 45° Angle Fitting (page J.15)

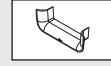**10** FROV4512X4** – 12x4 Outside Vertical 45° Angle Fitting and FROV45SC12** – Optional Split Cover (page J.15)

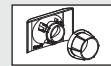**11** FROVRA12X4** – 12x4 Outside Vertical Right Angle Fitting and FROVRASC12** Optional Split Cover (page J.15)
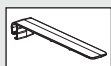
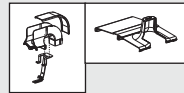**12** FRCR12BL-X – Cable Retainer for 12x4 System (page J.12)
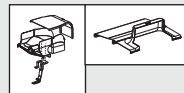
13 FREC12X4** – 12x4 End Cap Fitting (page J.15)

14 FRTR12X4** – 3-Sided BRC Trumpet Spillout for 12x4 Exit (page J.19)
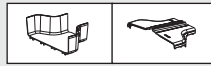
**15** FR1.5IDE** – 1-Port Spillout Side Exit to 1.5" (38mm) Inside Diameter Corrugated Tubing (page J.19)

**16** FRSPJ2X2** – Spill-Over Junction with 2x2 Exit and FRSPJC212** – Optional Cover for 12x4 System (page J.17)

17 FRSPJ4X4** – Spill-Over Junction with 4x4 Exit and FRSPJC412** Optional Cover for 12x4 System (page J.18)

18 FRRF126** – 12x4 to 6x4 FiberRunner® Reducer Fitting and FRRF126SC** – Optional Split Cover (page J.16)
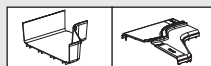
19 FRRF126L** – 12x4 to 6x4 Transition Left Reducer Fitting and FRRF126LSC** – Optional Split Cover (page J.16)
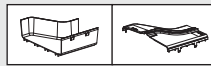
20 FRRF126R** – 12x4 to 6x4 Transition Right Reducer Fitting and FRRF126RSC** – Optional Split Cover (page J.16)
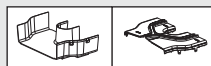
21 FRY126** – Y-Reducer from 12x4 to two 6x4 Exit and FRY126SC** – Optional Split Cover (page J.16)

22 FRT12X4W6** – 12x4 Horizontal Tee with 6x4 Exit and FRTSC12W6** – Optional Split Cover (page J.14)

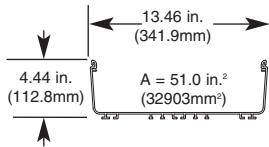**23** FRFWC12X4W6** – 12x4 4-Way Cross Fitting with 6x4 Exits and FRFWCSC12W6** – Optional Split Cover (page J.14 and J.15)

**Available colors include: YL (Yellow), OR (Orange), and BL (Black).

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PANDUIT ®

PHYSICAL INFRASTRUCTURE SYSTEMS

12x4 FiberRunner® Routing System

Cable Fills for 12x4 FiberRunner® Routing System

The maximum amounts may vary according to the cable fill installation methods, straightness of cables, etc.

13.46 in. (341.9mm)

4.44 in. (112.8mm)   A = 51.0 in.² (32903mm²)

					12x4 FiberRunner® Cable Routing System				
Fill/Pile Up	Internal Area (in²)	Diameter 1.6mm 0.063"	Diameter 2.0mm 0.079"	Diameter 3.0mm 0.118"	Fiber Optic Ribbon Interconnect Cable Diameter 5.20mm 0.205"	Category 6A (SD) Diameter 6.1mm 0.240"	Category 6A Diameter 7.6mm 0.300"	Category 6 Diameter 6.1mm 0.240"
40% Fill								
2" Pile Up	25.7	3299	2111	938	311	227	147	209
3" Pile Up	38.8	4980	3187	1417	470	343	223	316
4" Pile Up	51	6546	4189	1862	618	451	292	416
50% Fill								
2" Pile Up	25.7	4124	2639	1173	389	284	184	262
3" Pile Up	38.8	6225	3984	1771	588	429	278	395
4" Pile Up	51	8183	5237	2327	773	564	366	519
60% Fill								
2" Pile Up	25.7	4948	3167	1407	467	341	221	314
3" Pile Up	38.8	7470	4781	2125	705	515	334	474
4" Pile Up	51	9819	6284	2793	927	676	439	623

Channel cutting instructions: For optimum results, use a miter box and saw. For larger quantities use a plastic cutting saw blade for clean, burr-free cuts. Recommend: Carbide 80T and 100T; .090" thickness, .125" kerf.

The above cable diameters represent the nominal Panduit cable diameter per performance level.
For specific cable fill information based on specific part numbers, please contact Panduit customer service.

12x4 FiberRunner® Routing System – Channel and Cover

- Robust, large capacity 12x4 system ideal for use with large cable counts
- Multiple spillout options provide versatility to mate to various equipment and rack configurations
- QuikLock™ Couplers and Brackets reduce system installation time dramatically
- Channel, covers, fittings and other non-metallic system components made from V-0 flame class rated material

- Compatible with all sizes of Panduit® FiberRunner® and Panduit® Fiber-Duct™ Routing Systems, cable management, and racks
- Compliant with the applicable tests in Telcordia GR-63-CORE Network Equipment Building Systems (NEBS) Level 3

FR12X4

FRHC12

FRCR12BL-X

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
12x4 FiberRunner® Channel			
FR12X4YL6	Used to carry the cables horizontally throughout the system. Accepts cable retainers FRCR12BL-X or hinged cover FRHC12YL6. Use QuikLock™ Coupler FRBC12X4YL to attach channel and/or fittings.	6	12
12x4 Snap-On Hinged Cover			
FRHC12YL6	Optional snap-on hinged cover for channel FR12X4YL6. Can be folded down for height restricted areas.	6	12
Cable Retainer for 12x4 System			
FRCR12BL-X	Cable retainer holds cable in the channel when cover is not used. Install anywhere on channel, near the coupler or every 18" (457mm). Black color only.	10	100

For other colors replace YL (Yellow) with OR (Orange) or BL (Black).
Order number of feet required, in multiples of standard 6' length increments.
Order number of cable retainers required, in multiples of Standard Package Quantity.

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12x4 FiberRunner® QuikLock™ Coupler

- Pre-assembled to provide fast mechanical assembly of components
- No tools required for installation; bolts loosen for component disassembly

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
FRBC12X4YL	Pre-assembled coupler quickly joins two sections of channel and/or fittings. Mechanically attaches without tightening bolts. Bolts release using 3/8" nut driver to allow coupler to be removed if necessary.	1	5

For a bulk package of 10 couplers, order FRBC12X4YL-X.
For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

12x4 FiberRunner® System Fittings

- Minimum 2" (50.8mm) bend radius control fittings
- Protect against signal loss and performance degradation
- Assemble using FRBC QuikLock™ Couplers
- Optional split covers snap onto each fitting
- Covers feature 3/4" (19mm) gap to allow cable to be laid in

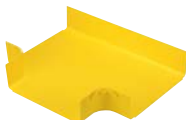| Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
12x4 Horizontal Right Angle Fitting				
FRRA12X4YL	Attaches to 12x4 channel and/or fitting to create a 90° horizontal turn from a straight horizontal run. Inside divider walls manage cables routed around horizontal right angles. Accepts optional split cover FRRASC12YL.	(2 pcs.) FRBC12X4YL	1	—
Split Cover for 12x4 Horizontal Right Angle Fitting				
FRRASC12YL	Optional split cover for the horizontal right angle fitting FRRA12X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
12x4 Horizontal 45° Angle Fitting				
FRH4512X4YL	Attaches to 12x4 channel and/or fitting to create a 45° horizontal turn from a straight horizontal run. Accepts optional split cover FRH45SC12YL.	(2 pcs.) FRBC12X4YL	1	—
Split Cover for 12x4 Horizontal 45° Angle Fitting				
FRH45SC12YL	Optional split cover for the horizontal 45° angle fitting FRH4512X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or removes cables.	—	1	5
12x4 Horizontal Tee Fitting				
FRT12X4YL	Attaches to 12x4 channel and/or fittings to create a 90° horizontal branch with a 12x4 exit from straight horizontal run. Accepts optional split cover FRTSC12YL.	(3 pcs.) FRBC12X4YL	1	—

FRRA12X4

FRRASC12

FRH4512X4

FRH45SC12

FRT12X4

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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12x4 FiberRunner ® System Fittings (continued)

FRTSC12

FRT12X4W6

FRTSC12W6

FRT12X4W4

FRTSC12W4

FRFWC12X4

FRFWCSC12

FRFWC12X4W6

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Split Cover for 12x4 Horizontal Tee Fitting				
FRTSC12YL	Optional split cover for the horizontal tee fitting FRT12X4BL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
12x4 Horizontal Tee with 6x4 Exit				
FRT12X4W6YL	Attaches to 12x4 channel and/or fittings to create a 90° horizontal branch with a 6x4 exit from straight horizontal run. Accepts optional split cover FRTSC12W6YL.	(2 pcs.) FRBC12X4YL (1 pc.) FRBC6X4YL	1	—
Split Cover for 12x4 Horizontal Tee with 6x4 Exit				
FRTSC12W6YL	Optional split cover for the horizontal tee with 6x4 exit fitting FRT12X4W6YL. Snap-on feature allows cover to be installed and removed without tools. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
FRT12X4W4YL	Attaches to 12x4 channel and/or fittings to create a 90° horizontal branch with a 4x4 exit from straight horizontal run. Accepts optional split cover FRTSC12W4YL.	(2 pcs.) FRBC12X4YL (1 pc.) FRBC4X4YL	1	—
FRTSC12W4YL	Split Cover, Horizontal Tee with 12x4 Exit.	—	1	5
12x4 Four Way Cross Fitting				
FRFWC12X4YL	Attaches to 12x4 channel and/or fittings to create a horizontal four way cross intersection with two 12x4 exits. Accepts optional split cover FRFWCSC12YL.	(4 pcs.) FRBC12X4YL	1	—
Split Cover for 12x4 Four Way Cross Fitting				
FRFWCSC12YL	Optional split cover for the four way cross fitting FRFWC12X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
12x4 Four Way Cross Fitting with 6x4 Exits				
FRFWC12X4W6YL	Attaches to 12x4 channel and/or fittings to create a horizontal four way cross intersection with two 6x4 exits. Accepts optional split cover FRFWCSC12W6YL.	(2 pcs.) FRBC12X4YL (2 pcs.) FRBC6X4YL	1	—

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Split Cover for 12x4 Four Way Cross Fitting with 6x4 Exits				
FRFWCSC12W6YL	Optional split cover for the four way cross fitting FRFWC12X4W6YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
FRFWC12X4W4YL	Attaches to 12x4 channel and/or fittings to create a horizontal four way cross intersection with two 4x4 exits.	(2 pcs.) FRBC12X4YL (2 pcs.) FRBC4X4YL	1	—
FRFWCSC12W4YL	Optional split cover for the four way cross fitting FRFWC12X4W4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
12x4 End Cap Fitting				
FREC12X4YL	Used for closing off open ends of the channel or fittings. No coupler required. Push-on installation.	—	1	5
12x4 Inside Vertical 45° Angle Fitting				
FRIV4512X4YL	Attaches to 12x4 channel and/or fitting to create a 45° upward angle from a straight horizontal run. Used with outside vertical 45° angle fitting FROV4512X4YL to change level of a straight horizontal run. Includes split cover.	(2 pcs.) FRBC12X4YL	1	—
12x4 Outside Vertical 45° Angle Fitting				
FROV4512X4YL	Attaches to 12x4 channel and/or fitting to create a 45° downward angle from a straight horizontal run. Used with inside vertical 45° angle fitting FRIV4512X4YL to change level of a horizontal run. Accepts optional split cover FROV45SC12YL.	(2 pcs.) FRBC12X4YL	1	—
Split Cover for 12x4 Outside Vertical 45° Angle Fitting				
FROV45SC12YL	Optional split cover for the outside vertical 45° angle fitting FROV4512X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
12x4 Outside Vertical Right Angle Fitting				
FROVRA12X4YL	Attaches to 12x4 channel and/or fittings to create a 90° vertical turn down from a straight horizontal run. Accepts optional split cover FROVRASC12YL.	(2 pcs.) FRBC12X4YL	1	—
Split Cover for 12x4 Outside Vertical Right Angle Fitting				
FROVRASC12YL	Optional split cover for the outside vertical right angle fitting FROVRA12X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

FRFWCSC12W6

FRFWC12X4W4

FRFWCSC12W4

FREC12X4

FRIV4512X4

FROV4512X4

FROV45SC12

FROVRA12X4

FROVRASC12

Request Info

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12x4 FiberRunner® System Fittings (continued)

FRRF126

FRRF126SC

FRY126

FRY126SC

FRRF126R

FRRF126RSC

FRRF126L

FRRF126LSC

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
12x4 to 6x4 FiberRunner® Reducer Fitting				
FRRF126YL	Attaches any 12x4 FiberRunner® Fitting or Channel to any 6x4 FiberRunner® Fitting or Channel. Accepts split cover FRRF126SCYL.	(1 pc.) FRBC12X4YL (1 pc.) FRBC6X4YL	1	—
Split Cover for 12x4 to 6x4 FiberRunner® Reducer Fitting				
FRRF126SCYL	Optional split cover for the reducer fitting FRRF126YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
Y-Reducer from 12x4 to Two 6x4 Exits				
FRY126YL	Attaches any 12x4 FiberRunner® Fitting or Channel to two 6x4 FiberRunner® Channels. Accepts split cover FRY126SCYL.	(1 pc.) FRBC12X4YL (2 pcs.) FRBC6X4YL	1	—
Split Cover for Y-Reducer from 12x4 to Two 6x4 Exits				
FRY126SCYL	Optional split cover for the Y-reducer fitting FRY126YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 11/16" (17.5mm) opening for easy access to add or remove cables.	—	1	5
12x4 to 6x4 Transition Right Reducer Fitting				
FRRF126RYL	Attaches any 12x4 FiberRunner® Fitting or Channel to any 6x4 FiberRunner® Fitting or Channel while transitioning to the right. Accepts split cover FRRF126RSCYL.	(1 pc.) FRBC12X4YL (1 pc.) FRBC6X4YL	1	—
Split Cover for 12x4 to 6x4 Transition Right Reducer Fitting				
FRRF126RSCYL	Optional split cover for the transition right reducer fitting FRRF126RYL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 1/2" (12.7mm) opening for easy access to add or remove cables.	—	1	5
12x4 to 6x4 Transition Left Reducer Fitting				
FRRF126LYL	Attaches any 12x4 FiberRunner® Fitting or Channel to any 6x4 FiberRunner® Fitting or Channel while transitioning to the left. Accepts split cover FRRF126LSCYL.	(1 pc.) FRBC12X4YL (1 pc.) FRBC6X4YL	1	—
Split Cover for 12x4 to 6x4 Transition Left Reducer Fitting				
FRRF126LSCYL	Optional split cover for the transition left reducer fitting FRRF126LYL. Snap-on feature allows cover to be installed and removed with no tools required. Creates 1/2" (12.7mm) opening for easy access to add or remove cables.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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12x4 FiberRunner® System Spillouts

- Spill-overs allow safe transition from horizontal to vertical runs
- 2" (50.8mm) bend radius control

- Transition to channel, slotted channel, and corrugated loom tubing
- Spill-over junction fittings can be retro-fitted to existing horizontal runs

FRVT12X4

FRTR6X4

FRIDT6X4

FRHD4KT

TRC4HDBL

FRLPR64BL

FRSPJ2X2

FRSPJC212

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
12x4 Vertical Tee				
FRVT12X4YL	Attaches to 12x4 channel and/or fittings to create a 90° vertical drop from a horizontal run. Hinged door included. Requires coupler to attach FRTR6X4YL or FRIDT6X4YL to vertical exit. Accepts optional snap-on cover FRHC12YL6 in conjunction with channel.	(2 pcs.) FRBC12X4YL (1 pc.) FRBC6X4YL	1	—
3-Sided BRC Trumpet Spillout for 6x4 Exit				
FRTR6X4YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from 6x4 channel, 6x4 horizontal tee fitting, or 6x4 exit on 12x4 vertical tee.	(1 pc.) FRBC6X4YL	1	5
3-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FRIDT6X4YL	Used to route cable into three separate pieces of 1.5" (38mm) diameter split corrugated tubing. Used with FRVT12X4YL or any 6x4 fitting. Securely holds corrugated split tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FRBC6X4YL	1	5
4x4 Hinged Duct Vertical Cable Manager Kit				
FRHD4KTYL	Provides secure, accessible route for cables spilling out from vertical tee to rack mounted equipment. Kit includes 6' length of 4x4 capacity hinged duct, 6' length of 4x4 hinged duct cover, one end cap for 4x4 hinged duct, three FZBA1.5X4 adjustable "Z" brackets, an adapter fitting, six WR4-C wire retainers and all required mounting hardware. Attaches directly to 6x4 and 4x4 vertical tee exit or FRLPR64 low profile reducer.	—	1	—
4x4 Hinged Duct Bend Radius Control Trumpet				
TRC4HDBL	Bend radius control trumpet for exiting at the sidewall of 4" wall heights of type H hinged cover wiring duct channels. Maintains 1" (25.4mm) bend radius control. Black color only.	—	1	10
Low Profile Reducer 6x4 to 4x4 for Vertical Tee				
FRLPR64BL	Assembled into the 12x4 vertical tee FRVT12X4YL. The FRLPR64BL allows for the transition to 4x4 Fiber-Duct™ Channel with minimal space required. No tools required for assembly. Black color only.	—	1	5
Spill-Over Junction with 2x2 Exit				
FRSPJ2X2YL	Assembles onto 4x4, 6x4, 12x4, or 24x4 FiberRunner® Channel, spilling over the side into a 2x2 vertical exit. Requires coupler to attach 2x2 FiberRunner® and fittings to the vertical exit. Mounts directly to existing installation with no alteration required. Mounting hardware provided for secure attachment.	(1 pc.) FBC2X2YL	1	—
Cover for Spill-Over Junction with 2x2 Exit for 12x4 Channel				
FRSPJC212YL	Used to fully enclose 12x4 channel in conjunction with the spill-over junction FRSPJ2X2YL. Cover snaps onto the channel base. Hinged feature allows easy access to add or remove cables.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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12x4 FiberRunner® System Spillouts (continued)

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
3-Sided BRC Trumpet Spillout for 2x2 Exit				
FTR2X2YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from a spill-over junction with a 2x2 exit or from 2x2 Fiber-Duct™ Channel. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FBC2X2YL	1	5
1-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FIDT2X2YL	Used to route cable into one piece of 1.5" (38mm) diameter split corrugated tubing. Used with a spill-over junction with a 2x2 exit, 2x2 Fiber-Duct™ Fittings, and the 2x2 FiberRunner® Hinged Channel. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FBC2X2YL	1	5
2x2 Hinged Duct Vertical Cable Manager Kit				
FRHD2KTYL	Provides secure, accessible route for cables spilling out from a vertical tee or spill-over junction to rack mounted equipment. Kit includes 6' length of 2x2 FiberRunner® Hinged Channel H2X2YL6, 6' length of 2x2 snap-on hinged cover HC2YL6, four adjustable "Z" brackets FZBA1.5X4, one FiberRunner® 2x2 End Cap FHDEC2X2YL, six hinged duct 2" wire retainers WR2H-C and all required mounting hardware. Attaches to 2x2 vertical tee exit or spill-over junction with a 2x2 exit with a 2x2 QuikLock™ Coupler FBC2X2YL. Also attaches directly to 4x4 or 6x4 vertical tee exits with low profile reducer FRLPR42BL.	—	1	—
2x2 FiberRunner® Bend Radius Control Trumpet				
TRC2HDBL	Bend radius control trumpet for exiting at the sidewall of 2" wall heights of type H hinged cover wiring duct channels. Maintains 1" (25.4mm) bend radius control. Black color only.	—	1	10
Spill-Over Junction with 4x4 Exit				
FRSPJ4X4YL	Assembles onto 4x4, 6x4, 12x4, or 24x4 FiberRunner® Channel, spilling over the side into a 4x4 vertical exit. Requires coupler to attach 4x4 FiberRunner® Channel and fittings to the vertical exit. Mounts directly to existing installation with no alteration required. Mounting hardware provided for secure attachment.	(1 pc.) FRBC4X4YL	1	—
Cover for Spill-Over Junction with 4x4 Exit for 12x4 Channel				
FRSPJC412YL	Used to fully enclose 12x4 channel in conjunction with the spill-over junction FRSPJ4X4YL. Cover snaps onto the channel base. Hinged feature allows easy access to add or remove cables.	—	1	5

FTR2X2

FIDT2X2

FRHD2KT

TRC2HDBL

FRSPJ4X4

FRSPJC412

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

12x4 FiberRunner ® System Spillouts (continued)

FRTR4X4

FRIDT4X4

FR1.5IDE

FRTR12X4

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
3-Sided BRC Trumpet Spillout for 4x4 FiberRunner ® Exit				
FRTR4X4YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from 4x4 FiberRunner ® Channel or a 4x4 FiberRunner ® Horizontal Tee.	(1 pc.) FRBC4X4YL	1	5
2-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FRIDT4X4YL	Used to route cable into one or two pieces of 1.5" (38mm) diameter split corrugated tubing. Requires coupler to be used with 4x4 FiberRunner ® Fitting. Used with any 4x4 FiberRunner ® Fitting. Securely holds corrugated split tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FRBC4X4YL	1	5
1-Port Spillout Side Exit to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FR1.5IDEYL	Used to route cable into 1.5" (38mm) diameter split corrugated tubing directly through a hole cut in the side wall of the 4x4, 6x4, and 12x4 FiberRunner ® Channel or 4x4 Fiber-Duct ™ Channel. Provides 1" (25.4mm) bend radius control at the exit. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables. Includes drilling template.	—	1	5
3-Sided BRC Trumpet Spillout for 12x4 Exit				
FRTR12X4YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from the 12x4 channel or a 12x4 horizontal tee.	(1 pc.) FRBC12X4YL	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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PANDUIT® *PHYSICAL INFRASTRUCTURE SYSTEMS*

12x4 FiberRunner® Mounting Brackets

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FR12TRBE58M

FR12TRBN58
FR12TRBN58M

FR12USB

FR12ALB
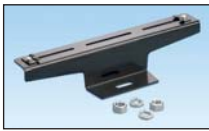
FR12CS12
FR12CS58
FR12CS12M
FR12CS58M

FR12ACB12
FR12ACB58
FR12ACB12M
FR12ACB58M
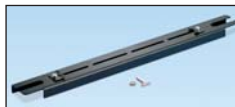
FR12TB12
FR12TB58
FR12TB12M
FR12TB58M

Part Number	Part Description	For Threaded Rod Size	Std. Pkg. Qty.	Std. Ctn. Qty.
Existing Threaded Rod QuikLock™ Bracket for 12x4 System				
FR12TRBE58	Used to support the 12x4 system from existing threaded rod installations. Bracket is secured to threaded rod with two split nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	5/8"	1	—
FR12TRBE58M		16mm	1	—
New Threaded Rod QuikLock™ Bracket for 12x4 System				
FR12TRBN58	Used to support the 12x4 system from new threaded rod installations. Bracket is secured to threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	5/8"	1	—
FR12TRBN58M		16mm	1	—
Underfloor Pedestal QuikLock™ Bracket for 12x4 System				
FR12USB	Used to support the 12x4 system by attaching to underfloor pedestals. (Contains all necessary hardware.) Use on pedestals up to 2" in diameter. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	—	1	—
Adjustable Ladder QuikLock™ Bracket for 12x4 System				
FR12ALB	Used to support the 12x4 system attaching to any 3/8" (9.5mm) x 1 1/2" (38.1mm) or 3/8" (9.5mm) x 2" (50.8mm) ladder rack rail. Adjustable to nine incremental positions from 4" (101mm) to 12" (305mm) above or below the ladder rack. No threaded rod required. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	—	1	—
Center Support QuikLock™ Bracket for 12x4 System				
FR12CS12	Used to support the 12x4 system from below with new threaded rod. Bracket is secured to threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps. Also can be secured directly to the top of cabinets.	1/2"	1	—
FR12CS58		5/8"	1	—
FR12CS12M		12mm	1	—
FR12CS58M		16mm	1	—
Top Support Adjustable "C" QuikLock™ Bracket for 12x4 System				
FR12ACB12	Used to support the 12x4 system from any new threaded rod extending down directly from the ceiling, grid, or ladder rack system. Two position height adjustments to accommodate system with or without hinged cover. Bracket is secured to threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	1/2"	1	—
FR12ACB58		5/8"	1	—
FR12ACB12M		12mm	1	—
FR12ACB58M		16mm	1	—
Trapeze QuikLock™ Bracket for 12x4 System				
FR12TB12	Used to support the 12x4 system by spanning two threaded rod drops that are 18" apart. Can be installed from above or below. Bracket is secured to each threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	1/2"	1	—
FR12TB58		5/8"	1	—
FR12TB12M		12mm	1	—
FR12TB58M		16mm	1	—

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12x4 FiberRunner® Mounting Brackets (continued)
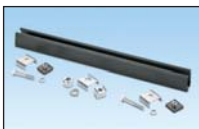
FRTBWG18BL

FRTBWG24BL

FRTBWG30BL

**FR12TB2412
FR12TB2458
FR12TB2412M
FR12TB2458M**

FR12ACAB

FR4PRB58

Part Number	Part Description	For Threaded Rod Size	Std. Pkg. Qty.	Std. Ctn. Qty.
Wyr-Grid® Mounting Brackets for FiberRunner® System				
FRTBWG18BL	FiberRunner® QuikLock™ Threaded Rod Trapeze Bracket for Wyr-Grid® 18" (457mm) width. Used to support FiberRunner® 4x4, 6x4, and 12x4 Channel above or below the Wyr-Grid® 18" Pathway using the same 1/2" or 12mm threaded rod used to support the WGTB18BL bracket. Hardware for attaching to threaded rod sold separately.	1/2" 12mm	1	10
FRTBWG24BL	FiberRunner® QuikLock™ Threaded Rod Trapeze Bracket for Wyr-Grid® 24" (610mm) width. Used to support FiberRunner® 4x4, 6x4, and 12x4 Channel above or below the Wyr-Grid® 24" Pathway using the same 1/2" or 12mm threaded rod used to support the WGTB24BL bracket. Hardware for attaching to threaded rod sold separately.	1/2" 12mm	1	10
FRTBWG30BL	FiberRunner® QuikLock™ Threaded Rod Trapeze Bracket for Wyr-Grid® 30" (762mm) width. Used to support FiberRunner® 4x4, 6x4, 12x4, and 24x4 Channel above or below the Wyr-Grid® 30" Pathway using the same 1/2" or 12mm threaded rod used to support the WGTB30BL bracket. Quick mount clips, FRQMC24-X are not included for installing the 24x4 channel. These must be purchased separately. Hardware for attaching to threaded rod sold separately.	1/2" 12mm	1	10
Trapeze QuikLock™ Bracket for 12x4 System				
FR12TB2412	Used to support the 12x4 system by spanning two threaded rod drops that are 24" apart. Ideal for supporting trapeze bracket from 24" wide ladder rack or 24" wide cable tray. Can be installed from above or below. Bracket is secured to each threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	1/2"	1	—
FR12TB2458		5/8"	1	—
FR12TB2412M		12mm	1	—
FR12TB2458M		16mm	1	—
Adjustable Cabinet QuikLock™ Bracket for 12x4 System				
FR12ACAB	Used to support the 12x4 system, dual 6x4, or dual 4x4 systems attaching to the top of cabinets. Adjustable from 4 1/4" (108mm) to 12" (305mm) allowing runs to be leveled over uneven cabinet heights. Also allows spillouts such as vertical tee to be positioned directly over cable inlets on cabinet tops. Bracket is secured to the cabinet frame with through bolts (not included). The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	—	1	—
4 Post Rack Bracket				
FR4PRB58	Used to support 12x4, 6x4, and 4x4 systems attaching to the top of the 19" wide version of the Panduit NF4PR84 4 post rack. Contains all hardware required to assemble bracket to the top of the 4 post rack. Bracket accepts 5/8" threaded rod (not included).	5/8"	1	—

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F2PCLB12
F2PCLB58

FRAFC58

FR12BS-L

FRTBKT-X

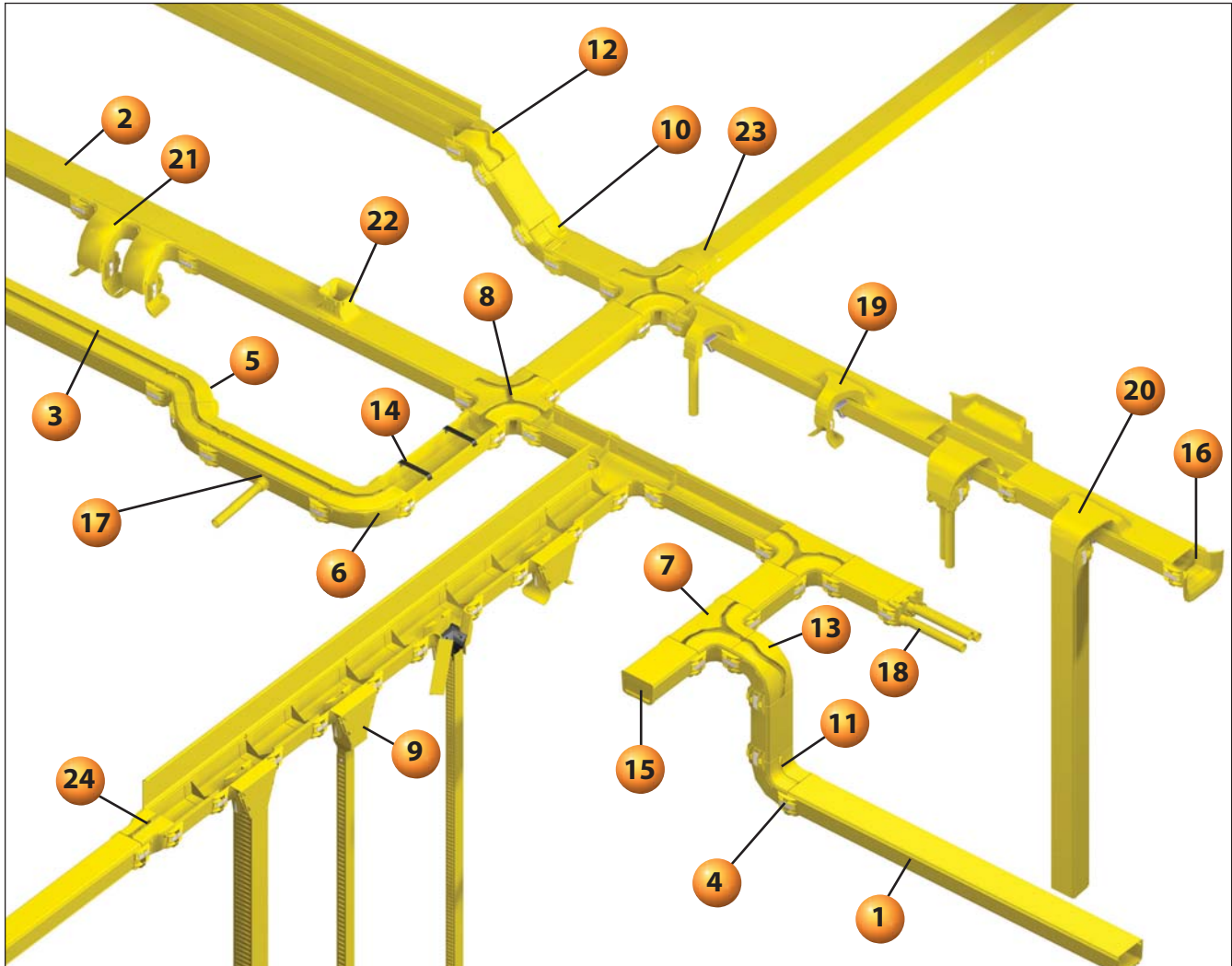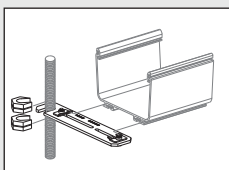| Part Number	Part Description	For Threaded Rod Size	Std. Pkg. Qty.	Std. Ctn. Qty.
Two-Piece Ladder Rack Bracket for Attaching Threaded Rod to 1 1/2" — 2" Ladder Rack				
F2PCLB12	Two-piece bracket attaches to 3/8" (9.5mm) wide x 1 1/2" (38.1mm) or 3/8" (9.5mm) wide x 2" (50.8mm) ladder rack rail. Bracket halves slide into position and clamp together on the ladder rack rail, which allows for a one-handed assembly of the threaded rod (not included). Contains bracket and hardware for attaching bracket to ladder rack.	1/2"	1	10
F2PCLB58		5/8"	1	10
Two-Piece Framing Clip for Attaching 5/8" Threaded Rod to 2" x 9/16" C-Channel Auxiliary Framing Bars				
FRAFC58	Two-piece framing clip attaches to auxiliary framing bars. Framing clip halves slide into position and interlock on the auxiliary framing bars, allowing easier assembly of the threaded rod to bars. Contains two-piece framing clip and hardware for attaching framing clip to auxiliary framing bars. (5/8" threaded rod not included.)	5/8"	1	10
Self-Tapping Screws for 12x4 and 24x4 Brackets and Fittings				
FR12BS-L	Self-tapping screws allow selected 12x4 fittings to be fastened directly to mounting brackets for additional support. Screws tap directly into those 12x4 fittings that have plastic bosses. Those part numbers are 12x4 and 24x4 brackets and fittings.	—	50	500
1/4" T-Bolt Kit				
FRTBKT-X	T-bolts can be used for additional attachment when securing FiberRunner® Channel to mounting brackets. For example, a T-bolt can be inserted thru a 12x4 mounting bracket and positioned within the center rib structure on the underside of 12x4 channel. By tightening the nut, the 12x4 channel is more securely fastened to the mounting bracket.	—	10	100

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PANDUIT®

PHYSICAL INFRASTRUCTURE SYSTEMS

6x4 Routing System Roadmap

4x4 and 6x4 FiberRunner® Mounting Brackets

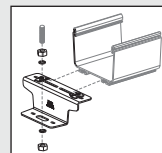**FR6TRBE58 – Existing Threaded Rod QuikLock™ Bracket (page J.33)**
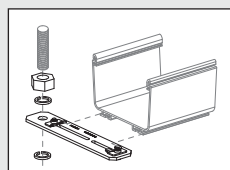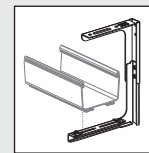
FR6TRBN58 – New Threaded Rod QuikLock™ Bracket (page J.33)
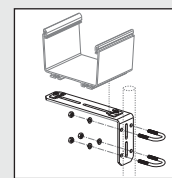
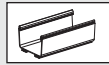**FR6USB – Underfloor Pedestal QuikLock™ Bracket (page J.33)**
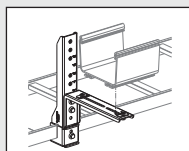
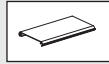**FR6ALB – Adjustable Ladder QuikLock™ Bracket (page J.33)**

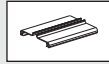**FR6CS58 – Center Support QuikLock™ Bracket (page J.33)**

FR6ACB58 – Top Support Adjustable "C" QuikLock™ Bracket (page J.34)

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1 FR6X4**6 – 6x4 FiberRunner® Channel (page J.25)

2 FRHC6**6 – 6x4 Snap-On Hinged Cover (page J.25)
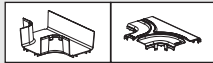
3 FRSHC6**6 – 6x4 Split Hinged Cover (page J.25)

4 FRBC6X4** – 6x4 QuikLock™ Coupler (page J.26)
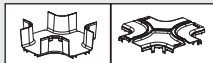
5 FRH456X4** – 6x4 Horizontal 45° Angle Fitting and FRH45SC6** – Optional Split Cover (page J.26)

6 FRRA6X4** – 6x4 Horizontal Right Angle Fitting and FRRASC6** – Optional Split Cover (page J.26)

7 FRT6X4** – 6x4 Horizontal Tee Fitting and FRTSC6** – Optional Split Cover (page J.26)

8 FRFWC6X4** – 6x4 4-Way Cross Fitting and FRFWCSC6** – Optional Split Cover (page J.27)

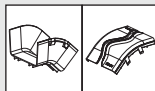**9** FRVT6X4** – 6x4 QuikLock™ Vertical Tee (page J.29)
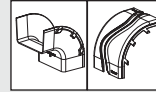
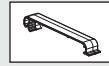**10** FRIV456X4** – 6x4 Inside Vertical 45° Angle Fitting (page J.27)

11 FRIVRA6X4** – 6x4 Inside Vertical 90° Angle Fitting (page J.27)

12 FROV456X4** – 6x4 Outside Vertical 45° Angle Fitting and FROV45SC6** – Optional Split Cover (page J.27)

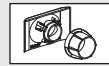**13** FROVRA6X4** – 6x4 Outside Vertical Right Angle Fitting and FROVRASC6** – Optional Split Cover (page J.28)

14 FRCR6BL-X – Cable Retainer for 6x4 System (page J.25)

15 FREC6X4** – 6x4 End Cap Fitting (page J.27)
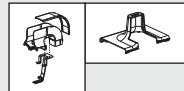
16 FRTR6X4** – 3-Sided BRC Trumpet Spillout for 6x4 Exit (page J.32)

17 FR1.5IDE** – 1-Port Spillout Side Exit to 1.5" (38mm) Inside Diameter Corrugated Tubing (page J.31)

18 FRIDT6X4** – 3-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing (page J.32)

19 FRSPJ2X2** – Spill-Over Junction with 2x2 Exit and FRSPJC26** – Optional Cover for 6x4 System (pages J.29 and J.30)
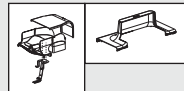
20 FRSPJ4X4** – Spill-Over Junction with 4x4 Exit and FRSPJC46** – Optional Cover for 6x4 System (page J.30)
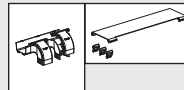
21 FRDDS6X4** – 6x4 Dual Downspout and FRDDSHC6** – Optional Cover for 6x4 Dual Downspout (page J.31)

22 FRUPS6X4** – 6x4 Up Spout (page J.32)

23 FRRF64** – 6x4 FiberRunner® Fitting to 4x4 Fiber-Duct™ Channel Reducer Fitting (page J.28)
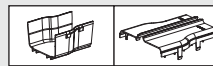
24 FRRF6FR4** – 6x4 to 4x4 FiberRunner® Reducer Fitting and FRRF6FR4SC** – Optional Split Cover (page J.28)

**Available Colors include: YL (Yellow), OR (Orange), and BL (Black).
Note: Additional 6 x 4 and 4 x 4 bracket applications, see page J.38.

Above Board Electronics, Inc.

Request Info

1-800-453-1692
www.aboveboardelectronics.com

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PANDUIT®

PHYSICAL INFRASTRUCTURE SYSTEMS

6x4 FiberRunner® Routing System

Cable Fills for 6x4 FiberRunner® Cable Routing System

The maximum amounts may vary according to the cable fill installation methods, straightness of cables, etc.

6.58"
(167.3mm)

4.44"
(112.8mm)

A = 23.8 in.²
(15354mm²)

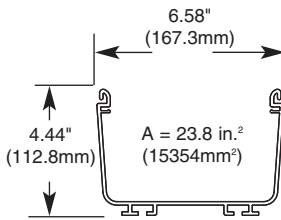| 6x4 FiberRunner® Cable Routing System								
Fill/Pile Up	Internal Area (in²)	Diameter 1.6mm 0.063"	Diameter 2.0mm 0.079"	Diameter 30mm 0.118"	Fiber Optic Ribbon Interconnect Cable Diameter 5.20mm 0.205"	Category 6A (SD) Diameter 6.1mm 0.240"	Category 6A Diameter 7.6mm 0.300"	Category 6 Diameter 6.1mm 0.240"
40% Fill								
2" Pile Up	11.95	1534	982	436	145	106	69	97
3" Pile Up	18.16	2331	1492	663	220	161	104	148
4" Pile Up	23.8	3055	1955	869	288	210	136	194
50% Fill								
2" Pile Up	11.95	1917	1227	545	181	132	86	122
3" Pile Up	18.16	2914	1865	829	275	201	130	185
4" Pile Up	23.8	3819	2444	1086	361	263	171	242
60% Fill								
2" Pile Up	11.95	2301	1472	654	217	158	103	146
3" Pile Up	18.16	3496	2238	994	330	241	156	222
4" Pile Up	23.8	4582	2933	1303	433	316	205	291

Channel cutting instructions: For optimum results, use a miter box and saw. For larger quantities use a plastic cutting saw blade for clean, burr-free cuts. Recommend: Carbide 80T and 100T; .090" thickness, .125" kerf.

The above cable diameters represent the nominal Panduit cable diameter per performance level.
For specific cable fill information based on specific part numbers, please contact Panduit customer service.

6x4 FiberRunner® Routing System – Channel and Covers

- Robust, large capacity 6x4 system ideal for use with large cable counts
- Multiple spillout options provide versatility to mate to various equipment and rack configurations
- QuikLock™ Couplers and Brackets reduce system installation time dramatically
- Channel, covers, fittings and other non-metallic system components made from V-0 flame class rated material

- Compatible with all sizes of Panduit® FiberRunner® and Panduit® Fiber-Duct™ Routing Systems, cable management, and racks
- Compliant with the applicable tests in Telcordia GR-63-CORE Network Equipment Building Systems (NEBS) Level 3

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
6x4 FiberRunner® Channel			
FR6X4YL6	Used to carry the cables horizontally throughout the system. Accepts hinged cable retainers FRCR6BL-X, hinged cover FRHC6YL6 or split hinged cover FRSHC6YL6. Use QuikLock™ Coupler FRBC6X4YL to attach channel and/or fittings.	6	36
6x4 Snap-On Hinged Cover			
FRHC6YL6	Optional snap-on hinged cover for channel FR6X4YL6. Hinge feature enables positioning of cover at angles between 30° and 90°.	6	36
6x4 Split Hinged Cover			
FRSHC6YL6	Optional split hinged cover for the channel FR6X4YL6. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables. Snap-on hinge feature enables positioning of cover at angles between 30° and 90°.	6	36
Cable Retainer for 6x4 System			
FRCR6BL-X	Cable retainer holds cable in the channel when cover is not used. Install anywhere on channel, near the coupler or every 18" (457mm). Black color only.	10	100

FR6X4

FRHC6

FRSHC6

FRCR6BL-X

For other colors replace YL (Yellow) with OR (Orange) or BL (Black).
Order number of feet required, in multiples of standard 6' length increments.
Order number of cable retainers required, in multiples of Standard Package Quantity.

ABE
Above Board Electronics, Inc.

Request Info

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www.aboveboardelectronics.com

J.25

6x4 FiberRunner® QuikLock™ Coupler

• Pre-assembled to provide fast mechanical assembly of components

• No tools required for installation; bolts loosen for component disassembly

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
FRBC6X4YL	Pre-assembled coupler quickly joins two sections of channel and/or fittings. Mechanically attaches without tightening bolts. Bolts release using 3/8" nut driver to allow coupler to be removed if necessary.	1	5

For a bulk package of 20 couplers, order FRBC6X4YL-E.
For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

6x4 FiberRunner® System Fittings

• Minimum 2" (50.8mm) bend radius control fittings
• Protect against signal loss and performance degradation
• Assemble using FRBC QuikLock™ Couplers

• Optional split covers snap onto each fitting
• Covers feature 3/4" (19mm) gap to allow cable to be laid in

FRRA6X4

FRRASC6

FRH456X4

FRH45SC6

FRT6X4

FRTSC6

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
6x4 Horizontal Right Angle Fitting				
FRRA6X4YL	Attaches to 6x4 channel and/or fittings to create a 90° horizontal turn from a straight horizontal run. Accepts optional split cover FRRASC6YL.	(2 pcs.) FRBC6X4YL	1	5
Split Cover for 6x4 Horizontal Right Angle Fitting				
FRRASC6YL	Optional split cover for the horizontal right angle fitting FRRA6X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
6x4 Horizontal 45° Angle Fitting				
FRH456X4YL	Attaches to 6x4 channel and/or fittings to create a 45° horizontal turn from a straight horizontal run. Accepts optional split cover FRH45SC6YL.	(2 pcs.) FRBC6X4YL	1	5
Split Cover for 6x4 Horizontal 45° Angle Fitting				
FRH45SC6YL	Optional split cover for the horizontal 45° angle fitting FRH456X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
6x4 Horizontal Tee Fitting				
FRT6X4YL	Attaches to 6x4 channel and/or fittings to create a 90° horizontal branch from a straight horizontal run. Accepts optional split cover FRTSC6YL.	(3 pcs.) FRBC6X4YL	1	5
Split Cover for 6x4 Horizontal Tee Fitting				
FRTSC6YL	Optional split cover for the horizontal tee fitting FRT6X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

6x4 FiberRunner® System Fittings (continued)

FRFWC6X4

FRFWCSC6

FREC6X4

FRIVRA6X4

FRIV456X4

FROV456X4

FROV45SC6

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
6x4 Four Way Cross Fitting				
FRFWC6X4YL	Attaches to 6x4 channel and/or fittings to create a horizontal four way cross intersection. Accepts optional split cover FRFWCSC6YL.	(4 pcs.) FRBC6X4YL	1	5
Split Cover for 6x4 Four Way Cross Fitting				
FRFWCSC6YL	Optional split cover for the four way cross fitting FRFWC6X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
6x4 End Cap Fitting				
FREC6X4YL	Used for closing off open ends of the channel or fittings. No coupler required. Push-on installation.	—	1	5
6x4 Inside Vertical 90° Angle Fitting				
FRIVRA6X4YL	Attaches to 6x4 channel and/or fittings to create a 90° upward angle from a straight horizontal run. Used with outside vertical 90° angle fitting FROVRA6X4YL to change level of a straight horizontal run. Includes split cover.	(2 pcs.) FRBC6X4YL	1	5
6x4 Inside Vertical 45° Angle Fitting				
FRIV456X4YL	Attaches to 6x4 channel and/or fittings to create a 45° upward angle from a straight horizontal run. Used with outside vertical 45° angle fitting FROV456X4YL to change level of a straight horizontal run. Includes split cover.	(2 pcs.) FRBC6X4YL	1	5
6x4 Outside Vertical 45° Angle Fitting				
FROV456X4YL	Attaches to 6x4 channel and/or fittings to create a 45° downward angle from a straight horizontal run. Used with inside vertical 45° angle fitting FRIV456X4YL to change level of a straight horizontal run. Accepts optional split cover FROV45SC6YL.	(2 pcs.) FRBC6X4YL	1	5
Split Cover for 6x4 Outside Vertical 45° Angle Fitting				
FROV45SC6YL	Optional split cover for the outside vertical 45° angle fitting FROV456X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

6x4 FiberRunner ® System Fittings (continued)

FROVRA6X4

FROVRASC6

FRRF6FR4

FRRF6FR4SC

FRRF64

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
6x4 Outside Vertical Right Angle Fitting				
FROVRA6X4YL	Attaches to 6x4 channel and/or fittings to create a 90° vertical turn down from a straight horizontal run. Accepts optional split cover FROVRASC6YL.	(2 pcs.) FRBC6X4YL	1	5
Split Cover for 6x4 Outside Vertical Right Angle Fitting				
FROVRASC6YL	Optional split cover for the outside vertical right angle fitting FROVRA6X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
6x4 to 4x4 FiberRunner ® Reducer Fitting				
FRRF6FR4YL	Attaches any 6x4 FiberRunner ® Fitting or Channel to any 4x4 FiberRunner ® Fitting or Channel. Accepts split cover FRRF6FR4SCYL.	(1 pc.) FRBC6X4YL (1 pc.) FRBC4X4YL	1	5
Split Cover for 6x4 to 4x4 FiberRunner ® Reducer Fitting				
FRRF6FR4SCYL	Optional split cover for the 6x4 FiberRunner ® to 4x4 FiberRunner ® Reducer Fitting FRRF6FR4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
6x4 FiberRunner ® System to 4x4 Fiber-Duct ™ Reducer Fitting				
FRRF64YL	Attaches any 6x4 FiberRunner ® Fitting or Channel to the 4x4 Fiber-Duct ™ Channel S4X4YL6 or E4X4YL6. Includes solid cover.	(1 pc.) FRBC6X4YL	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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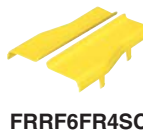
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6x4 FiberRunner® System Spillouts

- Spill-overs allow safe transition from horizontal to vertical runs
- 2" (50.8mm) bend radius control
- Transition to channel, slotted channel, and corrugated loom tubing
- Spill-over junction fittings can be retro-fitted to existing horizontal runs

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
6x4 QuikLock™ Vertical Tee				
FRVT6X4YL	Attaches to 6x4 channel and/or fittings to create 90° vertical drop from a straight horizontal run. Hinged door included. Accepts FTR4X4YL, FIDT4X4BL, S4X4YL6 or E4X4YL6 directly. Accepts optional snap-on cover FRHC6YL6 in conjunction with channel.	(2 pcs.) FRBC6X4YL	1	5
3-Sided Vertical Tee Trumpet Spillout				
FTR4X4YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from a 4x4 or 6x4 FiberRunner® Vertical Tee and 4x4 Fiber-Duct™ Fittings.	—	1	5
2-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FIDT4X4BL	Used to route cable into one or two pieces of 1.5" (38mm) diameter split corrugated tubing. Used with FRVT6X4YL, FRVT4X4YL, or FVT4X4YL. Securely holds corrugated split tubing to ensure system integrity and easy access to add or remove cables. Black color only.	—	1	5
4x4 Hinged Duct Vertical Cable Manager Kit				
FRHD4KTYL	Provides secure, accessible route for cables spilling out from vertical tee to rack mounted equipment. Kit includes 6' length of 4x4 capacity hinged duct, 6' length of 4x4 hinged duct cover, one end cap for 4x4 hinged duct, three FZBA1.5X4 adjustable "Z" brackets, an adapter fitting, six WR4-C wire retainers and all required mounting hardware. Attaches directly to 6x4 and 4x4 vertical tee exit or FRLPR64 low profile reducer.	—	1	—
4x4 Hinged Duct Bend Radius Control Trumpet				
TRC4HDBL	Bend radius control trumpet for exiting at the sidewall of 4" wall heights of type H hinged cover wiring duct channels. Maintains 1" (25.4mm) bend radius control. Black color only.	—	1	10
Low Profile Reducer 4x4 to 2x2 for Vertical Tee				
FRLPR42BL	Assembled into the 6x4 vertical tee FRVT6X4YL or 4x4 vertical tee FRVT4X4YL with an audible snap, the FRLPR42BL allows for the transition to 2x2 FiberRunner® or 2x2 Fiber-Duct™ Channel with minimal space required. No tools required for assembly. Black color only.	—	1	5
Spill-Over Junction with 2x2 Exit				
FRSPJ2X2YL	Assembles onto 4x4, 6x4, 12x4, or 24x4 FiberRunner® Channel, spilling over the side into a 2x2 vertical exit. Requires coupler to attach 2x2 FiberRunner® and fittings to the vertical exit. Mounts directly to existing installation with no alteration required. Mounting hardware provided for secure attachment.	(1 pc.) FBC2X2YL	1	—

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

FRVT6X4

FTR4X4

FIDT4X4BL

FRHD4KT

TRC4HDBL

FRLPR42BL

FRSPJ2X2

6x4 FiberRunner® System Spillouts (continued)

FRSPJC26

FTR2X2

FIDT2X2

FRHD2KT

TRC2HDBL

FRSPJ4X4

FRSPJC46

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Cover for Spill-Over Junction with 2x2 Exit for 6x4 Channel				
FRSPJC26YL	Used to fully enclose 6x4 channel in conjunction with the spill-over junction FRSPJ2X2YL. Cover snaps onto the channel base. Hinged feature allows easy access to add or remove cables.	—	1	5
3-Sided BRC Trumpet Spillout for 2x2 Exit				
FTR2X2YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from a spill-over junction with a 2x2 exit or from 2x2 Fiber-Duct™ Channel.	(1 pc.) FBC2X2YL	1	5
1-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FIDT2X2YL	Used to route cable into one piece of 1.5" (38mm) diameter split corrugated tubing. Used with a spill-over junction with a 2x2 exit, 2x2 Fiber-Duct™ Fittings, and the 2x2 FiberRunner® Hinged Channel. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FBC2X2YL	1	5
2x2 Hinged Duct Vertical Cable Manager Kit				
FRHD2KTYL	Provides secure, accessible route for cables spilling out from a vertical tee or spill-over junction to rack mounted equipment. Kit includes 6' length of 2x2 FiberRunner® Hinged Channel H2X2YL6, 6' length of 2x2 snap-on hinged cover HC2YL6, four adjustable "Z" brackets FZBA1.5X4, one FiberRunner® 2x2 End Cap FHDEC2X2YL, six hinged duct 2" wire retainers WR2H-C, and all required mounting hardware. Attaches to 2x2 vertical tee exit or spill-over junction with a 2x2 exit with a 2x2 QuikLock™ Coupler FBC2X2YL. Also attaches directly to 4x4 or 6x4 vertical tee exits with low profile reducer FRLPR42BL.	—	1	—
2x2 FiberRunner® Bend Radius Control Trumpet				
TRC2HDBL	Bend radius control trumpet for exiting at the sidewall of 2" wall heights of type H hinged cover wiring duct channels. Maintains 1" (25.4mm) bend radius control. Black color only.	—	1	10
Spill-Over Junction with 4x4 Exit				
FRSPJ4X4YL	Assembles onto 4x4, 6x4, 12x4, or 24x4 FiberRunner® Channel, spilling over the side into a 4x4 vertical exit. Requires coupler to attach 4x4 FiberRunner® Channel and fittings to the vertical exit. Mounts directly to existing installation with no alteration required. Mounting hardware provided for secure attachment.	(1 pc.) FRBC4X4YL	1	—
Cover for Spill-Over Junction with 4x4 Exit for 6x4 Channel				
FRSPJC46YL	Used to fully enclose 6x4 channel in conjunction with the spill-over junction FRSPJ4X4YL. Cover snaps onto the channel base. Hinged feature allows easy access to add or remove cables.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

6x4 FiberRunner® System Spillouts (continued)

FRDDS6X4

FRDDSHC6

FRTR4X4

FRIDT4X4

FR1.5IDE

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
6x4 Dual Downspout				
FRDDS6X4YL	Attaches to 6x4 channel and/or fittings to create two 90° 4x4 downward transitions from a horizontal run. The fitting maintains a 2" bend radius control throughout the transition to the vertical downspouts. Includes two snap-on throat covers for the dual downspouts. Accepts optional cover FRDDSHC6YL.	(2) FRBC6X4YL (2) FRBC4X4YL	1	—
Cover for 6x4 Dual Downspout				
FRDDSHC6YL	Used to fully enclose the 6x4 dual downspout fitting FRDDS6X4YL. Cover is attached to the fitting base with three hinge clips. The hinge clips allow the hinged cover to rotate to a fully closed position and an open position greater than 90°.	—	1	5
3-Sided BRC Trumpet Spillout for 4x4 FiberRunner® Exit				
FRTR4X4YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from 4x4 FiberRunner® Channel or a 4x4 FiberRunner® Horizontal Tee.	(1 pc.) FRBC4X4YL	1	5
2-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FRIDT4X4YL	Used to route cable into one or two pieces of 1.5" (38mm) diameter split corrugated tubing. Requires coupler to be used with 4x4 FiberRunner® Fitting. Used with any 4x4 FiberRunner® Fitting. Securely holds corrugated split tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FRBC4X4YL	1	5
1-Port Spillout Side Exit to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FR1.5IDEYL	Used to route cable into 1.5" (38mm) diameter split corrugated tubing directly through a hole cut in the side wall of the 4x4, 6x4, and 12x4 FiberRunner® Channel or 4x4 Fiber-Duct™ Channel. Provides 1" (25.4mm) bend radius control at the exit. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables. Includes drilling template.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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FRTR6X4

FRUPS6X4

FITF6X4

FRIDT6X4

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
3-Sided BRC Trumpet Spillout for 6x4 Exit				
FRTR6X4YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from 6x4 channel, 6x4 horizontal tee fitting, or 6x4 exit on 12x4 vertical tee.	(1 pc.) FRBC6X4YL	1	5
6x4 Up Spout				
FRUPS6X4YL	Allows cable to be directed upward out of the channel deployed directly below racks and cabinets in underfloor installations. Provides 2" (50.8mm) bend radius. Snaps directly onto the channel and can be positioned to allow cables to be laid in. A 1" (25.4mm) top bezel is included. Other fittings can be installed for specific applications including FTR4X4YL and FIDT4X4BL.	—	1	5
Innerduct Transition Fitting				
FITF6X4	Metal fitting attaches to end of channel or fitting to transition up to four pieces of solid 1.5" (38mm) inside diameter inner duct. Hardware is included for installation. Black color only.	—	1	10
3-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FRIDT6X4YL	Used to route cable into three separate pieces of 1.5" (38mm) diameter split corrugated tubing. Used with FRVT12X4YL or any 6x4 fitting. Securely holds corrugated split tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FRBC6X4YL	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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4x4 and 6x4 FiberRunner® Mounting Brackets

FR6TRBE12
FR6TRBE58
FR6TRBE12M
FR6TRBE58M

FR6TRBN12
FR6TRBN58
FR6TRBN12M
FR6TRBN58M

FR6USB

FR6ALB

FR6CS12
FR6CS58
FR6CS12M
FR6CS58M

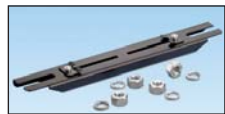| Part Number	Part Description	For Threaded Rod Size	Std. Pkg. Qty.	Std. Ctn. Qty.
Existing Threaded Rod QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6TRBE12	Used to support the 6x4 and 4x4 systems from existing threaded rod installations. Bracket is secured to threaded rod with two split nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	1/2"	1	10
FR6TRBE58		5/8"	1	10
FR6TRBE12M		12mm	1	10
FR6TRBE58M		16mm	1	10
New Threaded Rod QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6TRBN12	Used to support the 6x4 and 4x4 systems from any new threaded rod installations. Bracket is secured to threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	1/2"	1	10
FR6TRBN58		5/8"	1	10
FR6TRBN12M		12mm	1	10
FR6TRBN58M		16mm	1	10
Underfloor Pedestal QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6USB	Used to support the 6x4 and 4x4 systems by attaching to underfloor pedestals. (Contains all necessary hardware.) Use on pedestals up to 1" in diameter. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	—	1	10
Adjustable Ladder QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6ALB	Used to support the 6x4 and 4x4 systems attaching to any 3/8" (9.5mm) x 1 1/2" (38.1mm) or 3/8" (9.5mm) x 2" (50.8mm) ladder rack rail. Adjustable to nine incremental positions from 4" (101mm) to 12" (305mm) above or below the ladder rack. No threaded rod required. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	—	1	10
Center Support QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6CS12	Used to support the 6x4 and 4x4 systems from below with new threaded rod. Bracket is secured to threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps. Also can be secured directly to the top of cabinets.	1/2"	1	10
FR6CS58		5/8"	1	10
FR6CS12M		12mm	1	10
FR6CS58M		16mm	1	10

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4x4 and 6x4 FiberRunner® Mounting Brackets (continued)

FR6ACB12
FR6ACB58
FR6ACB12M
FR6ACB58M

FR6TB38
FR6TB12
FR6TB38M
FR6TB12M

FRTBWG12BL

FRTBWG18BL

FRTBWG24BL

FRTBWG30BL

Part Number	Part Description	For Threaded Rod Size	Std. Pkg. Qty.	Std. Ctn. Qty.
Top Support Adjustable "C" QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6ACB12	Used to support the 6x4 and 4x4 systems from any new threaded rod extending down directly from the ceiling, grid, or ladder rack system. Two position height adjustments to accommodate system with or without hinged cover. Bracket is secured to threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	1/2"	1	—
FR6ACB58		5/8"	1	—
FR6ACB12M		12mm	1	—
FR6ACB58M		16mm	1	—
Trapeze QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6TB38	Used to support the 6x4 and 4x4 systems by spanning two threaded rod drops. Can be installed from above or below. Bracket is secured to each threaded rod with two nuts. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	3/8"	1	10
FR6TB12		1/2"	1	10
FR6TB38M		10mm	1	10
FR6TB12M		12mm	1	10
Wyr-Grid® Mounting Brackets for FiberRunner® System				
FRTBWG12BL	FiberRunner® QuikLock™ Threaded Rod Trapeze Bracket for Wyr-Grid® 12" (305mm) width. Used to support FiberRunner® 4x4 and 6x4 Channel above or below the Wyr-Grid® 12" Pathway using the same 1/2" or 12mm threaded rod used to support the WGTB12BL bracket. Hardware for attaching to threaded rod sold separately.	1/2" 12mm	1	10
FRTBWG18BL	FiberRunner® QuikLock™ Threaded Rod Trapeze Bracket for Wyr-Grid® 18" (457mm) width. Used to support FiberRunner® 4x4, 6x4, and 12x4 Channel above or below the Wyr-Grid® 18" Pathway using the same 1/2" or 12mm threaded rod used to support the WGTB18BL bracket. Hardware for attaching to threaded rod sold separately.	1/2" 12mm	1	10
FRTBWG24BL	FiberRunner® QuikLock™ Threaded Rod Trapeze Bracket for Wyr-Grid® 24" (610mm) width. Used to support FiberRunner® 4x4, 6x4, and 12x4 Channel above or below the Wyr-Grid® 24" Pathway using the same 1/2" or 12mm threaded rod used to support the WGTB24BL bracket. Hardware for attaching to threaded rod sold separately.	1/2" 12mm	1	10
FRTBWG30BL	FiberRunner® QuikLock™ Threaded Rod Trapeze Bracket for Wyr-Grid® 30" (762mm) width. Used to support FiberRunner® 4x4, 6x4, 12x4, and 24x4 Channel above or below the Wyr-Grid® 30" Pathway using the same 1/2" or 12mm threaded rod used to support the WGTB30BL bracket. Quick mount clips, FRQMC24-X are not included for installing the 24x4 channel. These must be purchased separately. Hardware for attaching to threaded rod sold separately.	1/2" 12mm	1	10

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4x4 and 6x4 FiberRunner® Mounting Brackets (continued)

FR6ACAB

F2PCLB12
F2PCLB58

FRAFC58

FR6LRB

FR6LB

FRRMBNF58

FR4PRB58

Part Number	Part Description	For Threaded Rod Size	Std. Pkg. Qty.	Std. Ctn. Qty.
Adjustable Cabinet QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6ACAB	Used to support the 6x4 and 4x4 systems attaching to the top of cabinets. Adjustable from 4 1/4" (108mm) to 9" (229mm) allowing runs to be leveled over uneven cabinet heights. Also allows spillouts such as the vertical tee to be positioned directly over cable inlets on cabinet tops. Bracket is secured to the cabinet frame with through bolts (not included). The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	—	1	—
Two-Piece Ladder Rack Bracket for Attaching Threaded Rod to 1 1/2" — 2" Ladder Rack				
F2PCLB12	Two-piece bracket attaches to 3/8" (9.5mm) wide x 1 1/2" (38.1mm) or 3/8" (9.5mm) wide x 2" (50.8mm) ladder rack rail. Bracket halves slide into position and clamp together on the ladder rack rail, which allows for a one-handed assembly of the threaded rod (not included). Contains bracket and hardware for attaching bracket to ladder rack.	1/2"	1	10
F2PCLB58		5/8"	1	10
Two-Piece Framing Clip for Attaching 5/8" Threaded Rod to 2" x 9/16" C-Channel Auxiliary Framing Bars				
FRAFC58	Two-piece framing clip attaches to auxiliary framing bars. Framing clip halves slide into position and interlock on the auxiliary framing bars, allowing easier assembly of the threaded rod to bars. Contains two-piece framing clip and hardware for attaching framing clip to auxiliary framing bars. (5/8" threaded rod not included.)	5/8"	1	10
Ladder Rack QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6LRB	Used to support the 6x4 and 4x4 systems attaching directly to any 3/8 (9.5mm) x 1 1/2" (38.1mm) or 3/8" (9.5mm) x 2" (50.8mm) ladder rack rail. No threaded rod required. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	—	1	10
"L" Wall Mount QuikLock™ Bracket for 6x4 and 4x4 Systems				
FR6LB	Used to support the 6x4 and 4x4 systems attaching to a wall or the front or back of an equipment rack. The pre-assembled slide clamps enable fast assembly to channel. Use 7/16" nut driver on slide clamps.	—	1	10
NetFrame®/NetRack™ QuikLock™ Mounting Bracket for 6x4 and 4x4 Systems				
FRRMBNF58	Used to support the 6x4 and 4x4 systems attaching to the top of NetFrame® or NetRack™ Rack. (Contains all necessary mounting hardware.) Bracket accepts 5/8" threaded rod.	5/8"	1	—
4 Post Rack Bracket				
FR4PRB58	Used to support 12x4, 6x4, and 4x4 systems attaching to the top of the 19" wide version of the Panduit NF4PR84 4 post rack. Contains all hardware required to assemble bracket to the top of the 4 post rack. Bracket accepts 5/8" threaded rod (not included).	5/8"	1	—

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PANDUIT ® **PHYSICAL INFRASTRUCTURE SYSTEMS**

Adapters to Other Systems

FRADC12X4BL

FRADC6X4

FRADC4X4BL

FADC4X4

FRTEL6

FRTEL4

FRWBS68

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Adapter from 12x4 FiberRunner® System to ADC 12x4 FiberGuide*				
FRADC12X4BL	Fitting that transitions from ADC's 12x4 FiberGuide* System to 12x4 FiberRunner® System. Fitting has a black finish and is made from metal. Attachment hardware is included.	(1 pc.) FRBC12X4YL	1	5
Adapter from 6x4 FiberRunner® System to ADC 6x4 FiberGuide*				
FRADC6X4YL	Fitting that transitions from ADC's 6x4 FiberGuide* System to 6x4 FiberRunner® System. Bolts release using 3/8" nut driver to allow coupler to be removed, if necessary.	—	1	5
Adapter from 4x4 FiberRunner® System to ADC 4x4 FiberGuide*				
FRADC4X4BL	Fitting that transitions from ADC's 4x4 FiberGuide* System to 4x4 FiberRunner® System. Fitting has a black finish and is made from metal. Attachment hardware is included.	(1 pc.) FRBC4X4YL	1	5
Adapter from 4x4 Fiber-Duct™ System to ADC 4x4 FiberGuide*				
FADC4X4	Fitting that transitions from ADC's 4x4 FiberGuide* Fiber Cable Management System to 4x4 Fiber-Duct™ System. Fitting has a black finish and is made from metal. Attachment hardware is included.	—	1	10
Adapter from 6x4 FiberRunner® System to Telect 6x4 WaveTrax**				
FRTEL6	Fitting that transitions from Telect's 6x4 WaveTrax*** System to 6x4 FiberRunner® System. Fitting has a black finish and is made from metal. Attachment hardware is included.	(1 pc.) FRBC6X4YL	1	5
Adapter from 4x4 FiberRunner® System to Telect 4x4 WaveTrax**				
FRTEL4	Fitting that transitions from Telect's 4x4 WaveTrax*** System to 4x4 FiberRunner® System. Fitting has a black finish and is made from metal. Attachment hardware is included.	(1 pc.) FRBC4X4YL	1	5
Adapter from 6x4 FiberRunner® System to Warren & Brown 8x4 Lightpaths**				
FRWBS68	Fitting that transitions from Warren & Brown 8x4 Lightpaths** System to 6x4 FiberRunner® System. Fitting has a black finish and is made from metal. Attachment hardware is included.	(1 pc.) FRBC6X4YL	1	5

*FiberGuide is a registered trademark of ADC Telecommunications, Inc.
**Lightpaths is a trademark of Warren & Brown Technologies Pty. Ltd.
***WaveTrax is a trademark of Telect, Inc.

Table continues on page J.36

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Adapters to Other Systems (continued)

FRNWT12

FRNWT128

FRTYT68

FTDNS4X4

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Adapter from 12x4 FiberRunner® System to Various 12x4 System Channels				
FRNWT12	Fitting that transitions from Tyton 12x4 Lightguide* Channel, Newton** 12x4 Channel, or Ditel 12x4 Lightrax*** Channel to 12x4 FiberRunner® System. Fitting has a black finish and is made from metal. Attachment hardware is included.	(1 pc.) FRBC12X4YL	1	—
Adapter from 12x4 FiberRunner® System to Various 8x4 System Channels				
FRNWT128	Fitting that transitions from Tyton 8x4 Lightguide* Channel, Newton** 8x4 Channel, or Ditel 8x4 Lightrax*** Channel to 12x4 FiberRunner® System. Fitting has a black finish and is made from metal. Attachment hardware is included.	(1 pc.) FRBC12X4YL	1	—
Adapter from 6x4 FiberRunner® System to Various 8x4 System Channels				
FRTYT68	Fitting that transitions from Tyton 8x4 Lightguide* Channel, Newton** 8x4 Channel, or Ditel 8x4 Lightrax*** Channel to 6x4 FiberRunner® System. Fitting has a black finish and is made from metal. Attachment hardware is included.	(1 pc.) FRBC6X4YL	1	5
Adapter from 4x4 Fiber-Duct™ System to Various 4x4 Systems				
FTDNS4X4YL	Fitting that transitions from various 4x4 systems to 4x4 Fiber-Duct™ System. Attachment hardware is included.	—	1	5

*Lightguide is a trademark of the Hellerman Tyton Corporation.
**Newton is a tradename of Newton Instrument Company, Inc.
***Lightrax is a trademark of Tyco Electronics Corporation.

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Cabinets,
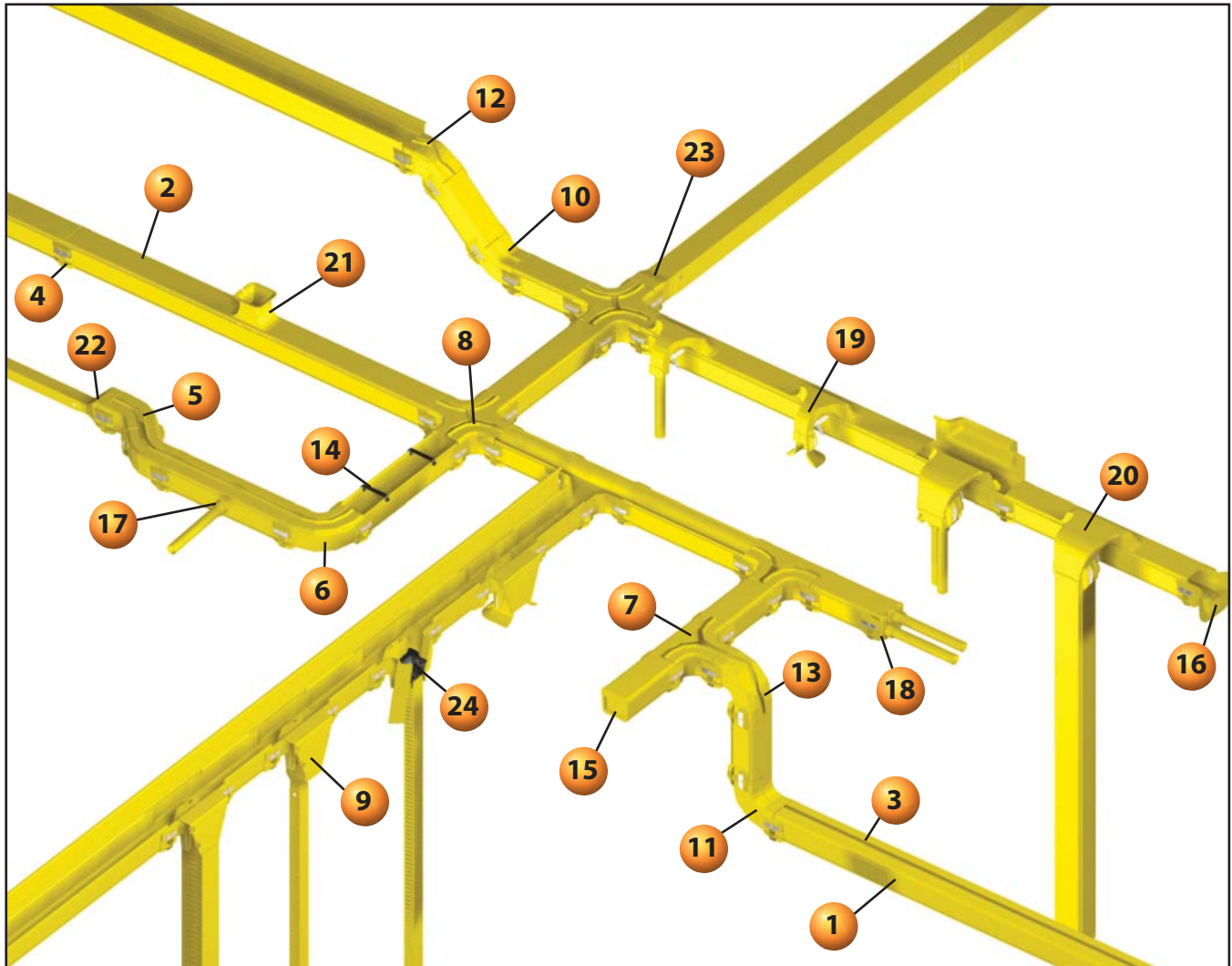Racks &
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4x4 Routing System Roadmap

4x4 and 6x4 FiberRunner® Mounting Brackets
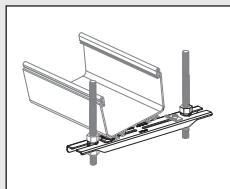
FR6TB38 – Trapeze QuikLock™ Bracket (page J.34)

F2PCLB – Two-Piece Ladder Rack Bracket for Attaching Threaded Rod to 1 1/2" – 2" Ladder Rack (page J.35)

FR6LRB – Ladder Rack QuikLock™ Bracket (page J.35)

FR6LB – "L" Wall Mount QuikLock™ Bracket (page J.35)

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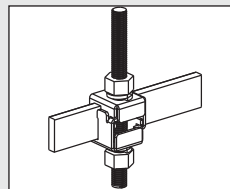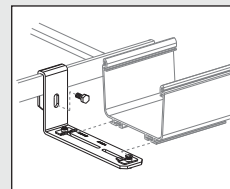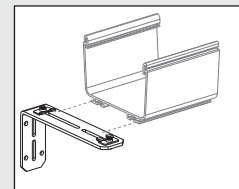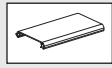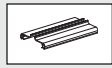O. Labeling & Identification

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1 FR4X4**6 – 4x4 FiberRunner® Channel (page J.40)

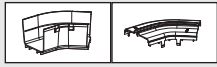**2** FRHC4**6 – 4x4 Snap-On Hinged Cover (page J.40)

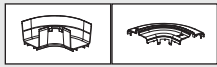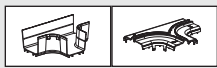**3** FRSHC4**6 – 4x4 Split Hinged Cover (page J.40)
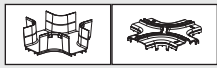
4 FRBC4X4** – 4x4 QuikLock™ Coupler (page J.41)

5 FRH454X4** – 4x4 Horizontal 45° Angle Fitting and FRH45SC4** Optional Split Cover (page J.41)

6 FRRA4X4** – 4x4 Horizontal Right Angle Fitting and FRRASC4** – Optional Split Cover (page J.41)

7 FRT4X4** – 4x4 Horizontal Tee Fitting and FRTSC4** – Optional Split Cover (page J.42)

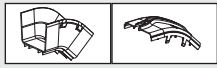**8** FRFWC4X4** – 4x4 4-Way Cross Fitting and FRFWCSC4** – Optional Split Cover (page J.42)

9 FRVT4X4** – 4x4 QuikLock™ Vertical Tee (page J.44)

10 FRIV454X4** – 4x4 Inside Vertical 45° Angle Fitting (page J.42)

11 FRIVRA4X4** – 4x4 Inside Vertical 90° Angle Fitting (page J.42)

12 FROV454X4** – 4x4 Outside Vertical 45° Angle Fitting and FROV45SC4** – Optional Split Cover (pages J.42 and J.43)
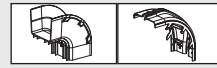
13 FROVRA4X4** – 4x4 Outside Vertical Right Angle Fitting and FROVRASC4** – Optional Split Cover (page J.43)

14 FRCR4BL-X – Cable Retainer for 4x4 System (page J.40)

15 FREC4X4** – 4x4 End Cap Fitting (page J.42)
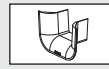
16 FRTR4X4** – 3-Sided BRC Trumpet Spillout for 4x4 FiberRunner® Exit (page J.46)
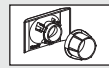
17 FR1.5IDE** – 1-Port Spillout Side Exit to 1.5" (38mm) Inside Diameter Corrugated Tubing (page J.46)
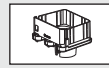
18 FRIDT4X4** – 2-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing (page J.46)
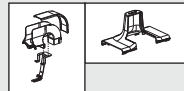
19 FRSPJ2X2** – Spill-Over Junction with 2x2 Exit and FRSPJC24** – Optional Cover for 4x4 System (page J.45)
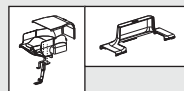
20 FRSPJ4X4** – Spill-Over Junction with 4x4 Exit and FRSPJC44** – Optional Cover for 4x4 System (pages J.45 and J.46)

21 FRUPS4X4** – 4x4 Up Spout (page J.46)
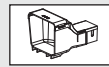
22 FRRF4FD2** – 4x4 FiberRunner® System to 2x2 Reducer Fitting with Cover (page J.43)
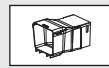
23 FRRF4FD4** – 4x4 FiberRunner® System to 4x4 Fiber-Duct™ Reducer Fitting with Cover (page J.43)

24 FRLPR42BL – Low Profile Reducer 4x4 to 2x2 for Vertical Tee (page J.44)

**Available colors include: YL (Yellow), OR (Orange), and BL (Black).
Note: Additional 6x4 and 4x4 bracket applications, see page J.23.

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PANDUIT®

PHYSICAL INFRASTRUCTURE SYSTEMS

4x4 FiberRunner® Routing System

Cable Fills for 4x4 FiberRunner® Cable Routing System

The maximum amounts may vary according to the cable fill installation methods, straightness of cables, etc.

5.05" (128.3mm)

4.44" (112.8mm) A = 17.6 in.² (11354mm²)

4x4 FiberRunner® Cable Routing System								
Fill/Pile Up	Internal Area (in²)	Diameter 1.6mm 0.063"	Diameter 2.0mm 0.079"	Diameter 3.0mm 0.118"	Fiber Optic Ribbon Interconnect Cable Diameter 5.20mm 0.205"	Category 6A (SD) Diameter 6.1mm 0.240"	Category 6A Diameter 7.6mm 0.300"	Category 6 Diameter 6.1mm 0.240"
40% Fill								
2" Pile Up	8.9	1142	731	325	108	79	50	79
3" Pile Up	13.58	1743	1116	496	165	120	77	120
4" Pile Up	17.6	2259	1446	643	213	156	100	156
50% Fill								
2" Pile Up	8.9	1428	914	406	135	98	63	98
3" Pile Up	13.58	2179	1394	620	206	150	96	150
4" Pile Up	17.6	2824	1807	803	267	195	124	195
60% Fill								
2" Pile Up	8.9	1714	1097	487	162	118	76	118
3" Pile Up	13.58	2615	1673	744	247	180	115	180
4" Pile Up	17.6	3389	2169	964	320	233	149	233

Channel cutting instructions: For optimum results, use a miter box and saw. For larger quantities use a plastic cutting saw blade for clean, burr-free cuts. Recommend: Carbide 80T and 100T; .090" thickness, .125" kerf.

The above cable diameters represent the nominal Panduit cable diameter per performance level.
For specific cable fill information based on specific part numbers, please contact Panduit customer service.

4x4 FiberRunner® Routing System – Channel and Covers

• Robust 4x4 system ideal for use with smaller cable counts
• Multiple spillout options provide versatility to mate to various equipment and rack configurations
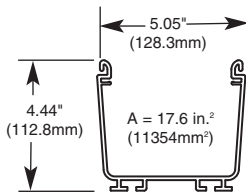• QuikLock™ Couplers and Brackets reduce system installation time dramatically
• Channel, covers, fittings and other non-metallic system components made from V-0 flame class rated material

• Compatible with all sizes of Panduit® FiberRunner® and Panduit® Fiber-Duct™ Routing Systems, cable management, and racks
• Compliant with the applicable tests in Telcordia GR-63-CORE Network Equipment Building Systems (NEBS) Level 3

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
4x4 FiberRunner® Channel			
FR4X4YL6	Used to carry the cables horizontally throughout the system. Accepts hinged cable retainers FRCR4BL-X, hinged cover FRHC4YL6, or split hinged cover FRSHC4YL6. Use QuikLock™ Coupler FRBC4X4YL to attach channel and/or fittings.	6	36
4x4 Snap-On Hinged Cover			
FRHC4YL6	Optional snap-on hinged cover for channel FR4X4YL6. Hinge feature enables positioning of cover at angles between 30° to 90°.	6	36
4x4 Split Hinged Cover			
FRSHC4YL6	Optional split hinged cover for the channel FR4X4YL6. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables. Snap-on hinge feature enables positioning of cover at angles between 30° and 90°.	6	36
Cable Retainer for 4x4 System			
FRCR4BL-X	Cable retainer holds cable in the channel when cover is not used. Install anywhere on channel, near the coupler or every 18" (457mm). Black color only.	10	100

FR4X4

FRHC4

FRSHC4

FRCR4BL-X

For other colors replace YL (Yellow) with OR (Orange) or BL (Black).
Order number of feet required, in multiples of standard 6' length increments.
Order number of cable retainers required, in multiples of Standard Package Quantity.

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4x4 FiberRunner® QuikLock™ Coupler

- Pre-assembled to provide fast mechanical assembly of components
- No tools required for installation; bolts loosen for component disassembly

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
FRBC4X4YL	Pre-assembled coupler quickly joins two sections of channel and/or fittings. Mechanically attaches without tightening bolts. Bolts release using 3/8" nut driver to allow coupler to be removed if necessary.	1	5

For a bulk package of 20 couplers, order FRBC4X4YL-E.
For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

4x4 FiberRunner® System Fittings

- Minimum 2" (50.8mm) bend radius control fittings
- Protects against signal loss and performance degradation
- Assemble using FRBC QuikLock™ Couplers
- Optional split covers snap onto each fitting
- Covers feature 3/4" (19mm) gap to allow cable to be laid in

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
4x4 Horizontal Right Angle Fitting				
FRRA4X4YL	Attaches to 4x4 channel and/or fitting to create a 90° horizontal turn from a straight horizontal run. Accepts optional split cover FRRASC4YL.	(2 pcs.) FRBC4X4YL	1	5
Split Cover for 4x4 Horizontal Right Angle Fitting				
FRRASC4YL	Optional split cover for the horizontal right angle fitting FRRA4X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
4x4 Horizontal 45° Angle Fitting				
FRH454X4YL	Attaches to 4x4 channel and/or fittings to create a 45° horizontal turn from a straight horizontal run. Accepts optional split cover FRH45SC4YL.	(2 pcs.) FRBC4X4YL	1	5
Split Cover for 4x4 Horizontal 45° Angle Fitting				
FRH45SC4YL	Optional split cover for the horizontal 45° angle fitting FRH454X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5

FRRA4X4
FRRASC4
FRH454X4
FRH45SC4

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

4x4 FiberRunner® System Fittings (continued)

FRT4X4

FRTSC4

FRFWC4X4

FRFWCSC4

FREC4X4

FRIVRA4X4

FRIV454X4

FROV454X4

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
4x4 Horizontal Tee Fitting				
FRT4X4YL	Attaches to 4x4 channel and/or fittings to create a 90° horizontal branch from straight horizontal runs. Accepts optional split cover FRTSC4YL.	(3 pcs.) FRBC4X4YL	1	5
Split Cover for 4x4 Horizontal Tee Fitting				
FRTSC4YL	Optional split cover for the horizontal tee fitting FRT4X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
4x4 Four Way Cross Fitting				
FRFWC4X4YL	Attaches to 4x4 channel and/or fittings to create a horizontal four way cross intersection. Accepts optional split cover FRFWCSC4YL.	(4 pcs.) FRBC4X4YL	1	5
Split Cover for 4x4 Four Way Cross Fitting				
FRFWCSC4YL	Optional split cover for the four way cross fitting FRFWC4X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
4x4 End Cap Fitting				
FREC4X4YL	Used for closing off open ends of the channel or fittings. No coupler required. Push-on installation.	—	1	5
4x4 Inside Vertical 90° Angle Fitting				
FRIVRA4X4YL	Attaches to 4x4 channel and/or fittings to create a 90° upward angle from a straight horizontal run. Used with outside vertical 90° angle fitting FROVRA4X4YL to change level of a straight horizontal run. Includes split cover.	(2 pcs.) FRBC4X4YL	1	5
4x4 Inside Vertical 45° Angle Fitting				
FRIV454X4YL	Attaches to 4x4 channel and/or fittings to create a 45° upward angle from a horizontal run. Used with outside vertical 45° angle fitting FROV454X4YL to change level of a straight horizontal run. Includes split cover.	(2 pcs.) FRBC4X4YL	1	5
4x4 Outside Vertical 45° Angle Fitting				
FROV454X4YL	Attaches to 4x4 channel and/or fittings to create a 45° downward angle from a horizontal run. Used with inside vertical 45° angle fitting FRIV454X4YL to change level of a straight horizontal run. Accepts optional split cover FROV45SC4YL.	(2 pcs.) FRBC4X4YL	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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4x4 FiberRunner® System Fittings (continued)

FROV45SC4

FROVRA4X4

FROVRASC4

FRRF6FR4

FRRF6FR4SC

FRRF4FD2

FRRF4FD4

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Split Cover for 4x4 Outside Vertical 45° Angle Fitting				
FROV45SC4YL	Optional split cover for the outside vertical 45° angle fitting FROV454X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
4x4 Outside Vertical Right Angle Fitting				
FROVRA4X4YL	Attaches to 4x4 channel and/or fittings to create a 90° vertical turn down from a straight horizontal run. Accepts optional split cover FROVRASC4YL.	(2 pcs.) FRBC4X4YL	1	5
Split Cover for 4x4 Outside Vertical Right Angle Fitting				
FROVRASC4YL	Optional split cover for the outside vertical right angle fitting FROVRA4X4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
6x4 to 4x4 FiberRunner® Reducer Fitting				
FRRF6FR4YL	Attaches any 6x4 FiberRunner® Fitting or Channel to any 4x4 FiberRunner® Fitting or Channel. Accepts split cover FRRF6FR4SCYL.	(1 pc.) FRBC6X4YL (1 pc.) FRBC4X4YL	1	5
Split Cover for 6x4 to 4x4 FiberRunner® Reducer Fitting				
FRRF6FR4SCYL	Optional split cover for the 6x4 FiberRunner® to 4x4 FiberRunner® Reducer Fitting FRRF6FR4YL. Snap-on feature allows cover to be installed and removed with no tools required. Creates radiused 3/4" (19mm) opening for easy access to add or remove cables.	—	1	5
4x4 FiberRunner® to 2x2 Reducer Fitting with Cover				
FRRF4FD2YL	Attaches any 4x4 FiberRunner® Fitting or Channel to the 2x2 Fiber-Duct™ Channel, S2X2YL6 or E2X2YL6 or 2x2 FiberRunner® Channel, HS2X2YL6 or H2X2YL6. Note: Attachment to 2x2 FiberRunner® Channel requires a QuikLock™ Coupler FBC2X2YL. Includes solid cover.	(1 pc.) FRBC4X4YL	1	5
4x4 FiberRunner® to 4x4 Fiber-Duct™ Reducer Fitting with Cover				
FRRF4FD4YL	Attaches any 4x4 FiberRunner® Fitting or Channel to the 4x4 Fiber-Duct™ Channel, S4X4YL6 or E4X4YL6. Includes solid cover.	(1 pc.) FRBC4X4YL	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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4x4 FiberRunner® System Spillouts

- Spill-overs allow safe transition from horizontal to vertical runs
- 2" (50.8mm) bend radius control
- Transition to channel, slotted channel, and corrugated loom tubing
- Spill-over junction fittings can be retro-fitted to existing horizontal runs

FRVT4X4

FTR4X4

FIDT4X4BL

FRHD4KT

TRC4HDBL

FRLPR42BL

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
4x4 QuikLock™ Vertical Tee				
FRVT4X4YL	Attaches to 4x4 channel and/or fittings to create a 90° vertical drop from a horizontal run. Hinged door included. Accepts FTR4X4YL, FIDT4X4BL, S4X4YL6 or E4X4YL6 directly. Accepts optional snap-on cover FRHC4YL6 in conjunction with channel.	(2 pcs.) FRBC4X4YL	1	5
3-Sided Vertical Tee Trumpet Spillout				
FTR4X4YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from a 4x4 or 6x4 FiberRunner® Vertical Tee and 4x4 Fiber-Duct™ Fittings.	—	1	5
2-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FIDT4X4BL	Used to route cable into one or two pieces of 1.5" (38mm) diameter split corrugated tubing. Used with FRVT6X4YL, FRVT4X4YL, or FVT4X4YL. Securely holds corrugated split tubing to ensure system integrity and easy access to add or remove cables. Black color only.	—	1	5
4x4 Hinged Duct Vertical Cable Manager Kit				
FRHD4KTYL	Provides secure, accessible route for cables spilling out from vertical tee to rack mounted equipment. Kit includes 6' length of 4x4 capacity hinged duct, 6' length of 4x4 hinged duct cover, one end cap for 4x4 hinged duct, three FZBA1.5X4 adjustable "Z" brackets, an adapter fitting, six WR4-C wire retainers and all required mounting hardware. Attaches directly to 6x4 and 4x4 vertical tee exit or FRLPR64 low profile reducer.	—	1	—
4x4 Hinged Duct Bend Radius Control Trumpet				
TRC4HDBL	Bend radius control trumpet for exiting at the sidewall of 4" wall heights of type H hinged cover wiring duct channels. Maintains 1" (25.4mm) bend radius control. Black color only.	—	1	—
Low Profile Reducer 4x4 to 2x2 for Vertical Tee				
FRLPR42BL	Assembled into the 6x4 vertical tee FRVT6X4YL or 4x4 vertical tee FRVT4X4YL with an audible snap, the FRLPR42BL allows for the transition to 2x2 FiberRunner® or 2x2 Fiber-Duct™ Channel with minimal space required. No tools required for assembly. Black color only.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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4x4 FiberRunner® System Spillouts (continued)

FRSPJ2X2

FRSPJC24

FTR2X2

FIDT2X2

FRHD2KT

TRC2HDBL

FRSPJ4X4

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Spill-Over Junction with 2x2 Exit				
FRSPJ2X2YL	Assembles onto 4x4, 6x4, 12x4, or 24x4 FiberRunner® Channel, spilling over the side into a 2x2 vertical exit. Requires coupler to attach 2x2 FiberRunner® and fittings to the vertical exit. Mounts directly to existing installation with no alteration required. Mounting hardware provided for secure attachment.	(1 pc.) FBC2X2YL	1	—
Cover for Spill-Over Junction with 2x2 Exit for 4x4 Channel				
FRSPJC24YL	Used to fully enclose 4x4 channel in conjunction with the spill-over junction FRSPJ2X2YL. Cover snaps onto the channel base. Hinged feature allows easy access to add or remove cables.	—	1	5
3-Sided BRC Trumpet Spillout for 2x2 Exit				
FTR2X2YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from a spill-over junction with a 2x2 exit or from 2x2 Fiber-Duct™ Channel. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FBC2X2YL	1	5
1-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FIDT2X2YL	Used to route cable into one piece of 1.5" (38mm) diameter split corrugated tubing. Used with a spill-over junction with a 2x2 exit, 2x2 Fiber-Duct™ Fittings, and the 2x2 FiberRunner® Hinged Channel. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FBC2X2YL	1	5
2x2 Hinged Duct Vertical Cable Manager Kit				
FRHD2KTYL	Provides secure, accessible route for cables spilling out from a vertical tee or spill-over junction to rack mounted equipment. Kit includes 6' length of 2x2 FiberRunner® Hinged Channel H2X2YL6, 6' length of 2x2 snap-on hinged cover HC2YL6, four adjustable "Z" brackets FZBA1.5X4, one FiberRunner® 2x2 End Cap FHDEC2X2YL, six hinged duct 2" wire retainers WR2H-C and all required mounting hardware. Attaches to 2x2 vertical tee exit or spill-over junction with a 2x2 exit with a 2x2 QuikLock™ Coupler FBC2X2YL. Also attaches directly to 4x4 or 6x4 vertical tee exits with low profile reducer FRLPR42BL.	—	1	—
2x2 FiberRunner® Bend Radius Control Trumpet				
TRC2HDBL	Bend radius control trumpet for exiting at the sidewall of 2" wall heights of type H hinged cover wiring duct channels. Maintains 1" (25.4mm) bend radius control. Black color only.	—	1	10
Spill-Over Junction with 4x4 Exit				
FRSPJ4X4YL	Assembles onto 4x4, 6x4, 12x4, or 24x4 FiberRunner® Channel, spilling over the side into a 4x4 vertical exit. Requires coupler to attach 4x4 FiberRunner® Channel and fittings to the vertical exit. Mounts directly to existing installation with no alteration required. Mounting hardware provided for secure attachment.	(1 pc.) FRBC4X4YL	1	—

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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4x4 FiberRunner® System Spillouts (continued)

FRSPJC44

FRTR4X4

FRIDT4X4

FR1.5IDE

FRUPS4X4

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
Cover for Spill-Over Junction with 4x4 Exit for 4x4 Channel				
FRSPJC44YL	Used to fully enclose 4x4 channel in conjunction with the spill-over junction FRSPJ4X4YL. Cover snaps onto the channel base. Hinged feature allows easy access to add or remove cables.	—	1	5
3-Sided BRC Trumpet Spillout for 4x4 FiberRunner® Exit				
FRTR4X4YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from 4x4 FiberRunner® Channel or a 4x4 FiberRunner® Horizontal Tee.	(1 pc.) FRBC4X4YL	1	5
2-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FRIDT4X4YL	Used to route cable into one or two pieces of 1.5" (38mm) diameter split corrugated tubing. Requires coupler to be used with 4x4 FiberRunner® Fitting. Used with any 4x4 FiberRunner® Fitting. Securely holds corrugated split tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FRBC4X4YL	1	5
1-Port Spillout Side Exit to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FR1.5IDEYL	Used to route cable into 1.5" (38mm) diameter split corrugated tubing directly through a hole cut in the side wall of the 4x4, 6x4, and 12x4 FiberRunner® Channel or 4x4 Fiber-Duct™ Channel. Provides 1" (25.4mm) bend radius control at the exit. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables. Includes drilling template.	—	1	5
4x4 Up Spout				
FRUPS4X4YL	Allows cable to be directed upward out of the channel deployed directly below racks and cabinets in underfloor installations. Provides 2" (50.8mm) bend radius. Snaps directly onto the channel and can be positioned to allow cables to be laid in. A 1" (25.4mm) top bezel is included. Other fittings can be installed for specific applications including FTR4X4YL and FIDT4X4BL.	—	1	5

For other colors replace suffix YL (Yellow) with OR (Orange) or BL (Black).

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FiberRunner® Accessories

FR38DR

FR716DR

FR516DR

FRUIB-X

FRSSM2

FRSTRCLIP

FRTBKT-X

Part Number	Part Description	For Threaded Rod Size	Std. Pkg. Qty.	Std. Ctn. Qty.
3/8" Nut Driver				
FR38DR	Used to dissassemble 4x4, 6x4, and 12x4 FiberRunner® QuikLock™ Couplers when required.	—	1	10
7/16" Nut Driver				
FR716DR	7/16" nut driver for use with the FiberRunner®, GridRunner™, and Wyr-Grid™ Systems.	—	1	10
5/16" Nut Driver				
FR516DR	Used to disassemble 2x2 FiberRunner® QuikLock™ Couplers when required.	—	1	10
Universal Innerduct Bracket				
FRUIB-X	Used to secure any size corrugated tubing or inner-duct to any surface including equipment racks and channel or fittings. Two 1/4" (6.3mm) holes must be drilled through to secure brackets.	—	10	100
Slack Spool Manager with 2.37" Bend Radius Diameter				
FRSSM2	The slack spool manager can be mounted in 12x4, 6x4, and 4x4 FiberRunner® Channels and in 4x4 Fiber-Duct™ Channel to create an in-channel slack management. It can be deployed in a vertical or horizontal channel run and can withstand a 20 lb. load without pulling away from the base. Mounting fasteners are included.	—	1	5
Strut Clip Kit				
FRSTRCLIP	Strut mounting clip assembly allows FiberRunner® Channel to be attached directly to standard 1 5/8" wide strut structures. Contains two clips and all hardware for assembly. Bolts release with 7/16" nut driver.	—	1	10
1/4" T-Bolt Kit				
FRTBKT-X	T-bolts can be used for additional attachment when securing FiberRunner® Channel to mounting brackets. For example, a T-bolt can be inserted thru a 12x4 mounting bracket and positioned within the center rib structure on the underside of 12x4 channel. By tightening the nut, the 12x4 channel is more securely fastened to the mounting bracket.	—	10	100

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PANDUIT® **PHYSICAL INFRASTRUCTURE SYSTEMS**

FiberRunner® Accessories (continued)

FRQMC-X

TR1-12-X
TR1-58-X

TRC18FR-X8Y

CLT150F-X3

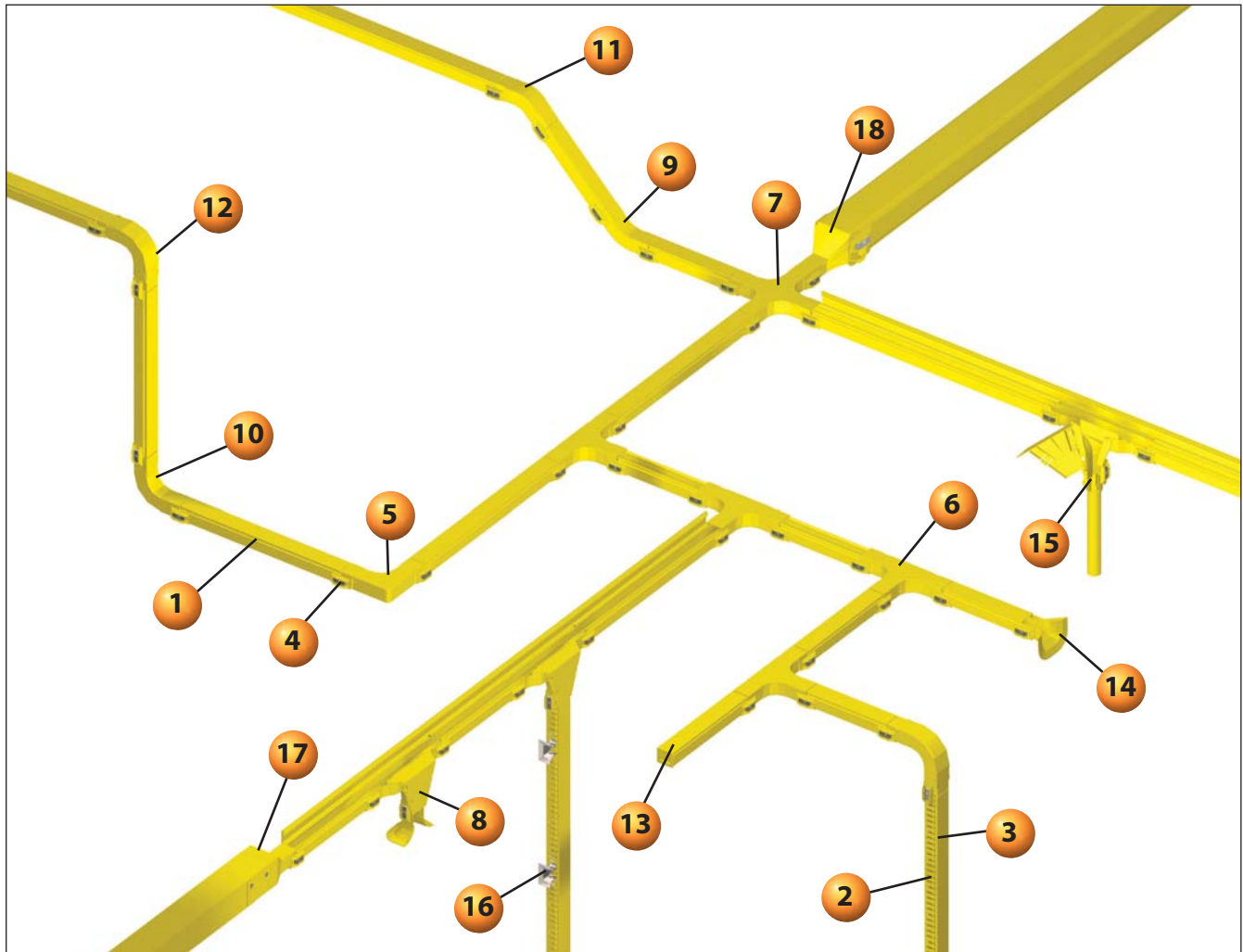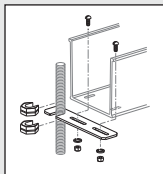| Part Number	Part Description	For Threaded Rod Size	Std. Pkg. Qty.	Std. Ctn. Qty.
FiberRunner® Quick Mount Clips				
FRQMC-X	Used wherever additional FiberRunner® Slide Clamps would be helpful. For example, use on 12x4 FiberRunner® QuikLock™ Brackets to accommodate dual runs of 6x4 or 4x4 FiberRunner® Channel.	—	10	100
Threaded Rod in One Foot Lengths				
TR1-12-X	Threaded rod can be used with various mounting brackets. Length = 12" (305mm).	1/2"	10	—
TR1-58-X	Threaded rod can be used with various mounting brackets. Length = 12" (305mm).	5/8"	10	—
Threaded Rod Cover				
TRC18FR-X8Y	Used to protect cabling from threaded rod. Vertical slit allows easy installation. For indoor use only. Gray.	1/2" – 5/8"	10	100
TRC18FR-X20Y	Used to protect cabling from threaded rod. Vertical slit allows easy installation. Black.	1/2" – 5/8"	10	100
Slit Corrugated Loom Tubing				
CLT150F-X3*	Slit corrugated loom tubing provides a vertical pathway as cables transfer from the FiberRunner® Fitting to the equipment below. Inside diameter is 1.48" (37.6mm) and outside diameter 1.73" (43.9mm). Sold in 10' rolls.	—	1	—

*For other colors replace suffix X3 (Orange) with X4 (Yellow) or X20 (Black).

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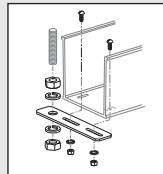Index

PANDUIT®

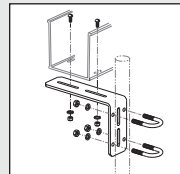# PHYSICAL INFRASTRUCTURE SYSTEMS

2x2 Routing System Roadmap

Fiber-Duct™ Mounting Brackets

FTRBE12 – Existing Threaded Rod Bracket (page J.63)

FTRBN12 – New Threaded Rod Bracket (page J.63)

FUSB – Underfloor Pedestal Bracket (page J.63)
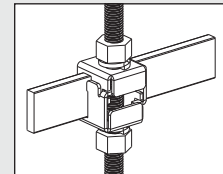
F2PCLB12 – Two-Piece Ladder Rack Bracket for Attaching Threaded Rod to 1 1/2" – 2" Ladder Rack (page J.64)
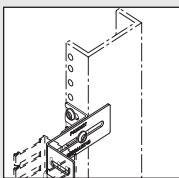
FZBA1.5X4 – Adjustable "Z" Bracket (page J.64)
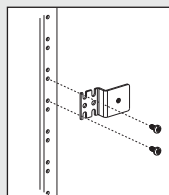
FZBLP – Low Profile "Z" Bracket (page J.64)

FLB – "L" Wall Mount Bracket (page J.63)

FLRB – Ladder Rack Bracket (page J.63)

ABE Above Board Electronics, Inc.

Request Info

1-800-453-1692
www.aboveboardelectronics.com

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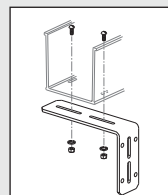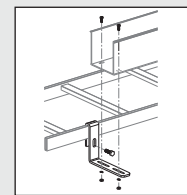
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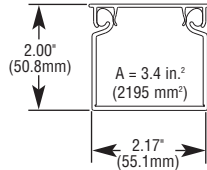Labeling & Identification

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17   FRF42** – 4x4 to 2x2 Fiber-Duct™ Reducer Fitting (page J.60)

18   FRRF4FD2** – 4x4 FiberRunner® to 2x2 Reducer Fitting (page J.43)

**Available colors include: YL (Yellow), OR (Orange), BL (Black), and LG (Light Gray).

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2x2 FiberRunner® Routing System

Cable Fills for 2x2 FiberRunner® Cable Routing System

The maximum amounts may vary according to the cable fill installation methods, straightness of cables, etc.

2.00"
(50.8mm)

A = 3.4 in.²
(2195 mm²)

2.17"
(55.1mm)

2x2 FiberRunner® Cable Routing System								
Fill/Pile Up	Internal Area (in²)	Diameter 1.6mm 0.063"	Diameter 2.0mm 0.079"	Diameter 3.0mm 0.118"	Fiber Optic Ribbon Interconnect Cable Diameter 5.20mm 0.205"	Category 6A (SD) Diameter 6.1mm 0.240"	Category 6A Diameter 7.6mm 0.300"	Category 6 Diameter 6.1mm 0.240"
40% Fill								
2" Pile Up	3.40	436	279	124	41	30	19	30
50% Fill								
2" Pile Up	3.40	546	349	155	52	38	24	38
60% Fill								
2" Pile Up	3.40	655	419	186	62	45	29	45

Channel cutting instructions: For optimum results, use a miter box and saw. For larger quantities use a plastic cutting saw blade for clean, burr-free cuts. Recommend: Carbide 80T and 100T; .090" thickness, .125" kerf.

The above cable diameters represent the nominal Panduit cable diameter per performance level.
For specific cable fill information based on specific part numbers, please contact Panduit customer service.

2x2 FiberRunner® Routing System – Channels and Cover

- 2x2 system ideal for use with smaller cable counts
- Multiple spillout options provide versatility to mate to various equipment and rack configurations
- QuikLock™ Couplers reduce system installation time dramatically
- Channel, covers, fittings and other non-metallic system components made from V-0 flame class rated material

- Compatible with all sizes of Panduit® FiberRunner® and Panduit® Fiber-Duct™ Routing Systems, cable management, and racks
- 2x2 FiberRunner® Hinged and Slotted Channels can be used with 2x2 Fiber-Duct™ fittings (see page J.52) and brackets (see pages J.55 and J.56)
- Compliant with the applicable tests in Telcordia GR-63-CORE Network Equipment Building Systems (NEBS) Level 3

HS2X2

H2X2

HC2

WR2H-C

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
2x2 FiberRunner® Hinged Channel			
HS2X2YL6NM	Used to carry the cables throughout the system. Accepts hinged cover HC2YL6. Use QuikLock™ Coupler FBC2X2YL to attach channel and/or fittings.	6	120
2x2 FiberRunner® Hinged Slotted Channel			
H2X2YL6	Used to carry the cables vertically to the front or the back of equipment racks throughout the system. Accepts hinged cover HC2YL6. Extra supports required when used in horizontal applications. Use QuikLock™ Coupler FBC2X2YL to attach channel and/or fittings.	6	120
2x2 Snap-On Hinged Cover			
HC2YL6	Optional snap-on cover for hinged channel HS2X2YL6 or H2X2YL6. The innovative cover can hinge open to 90° from either side of the channel and be removed completely if desired.	6	120
Cable Retainer for 2x2 System			
WR2H-C	Cable retainer can be installed between the slotted channel (H2X2YL6) fingers to retain cables. It can be used with cover and installs anywhere on channel. One retainer should be used approximately every 18" (457mm). Black color only.	100	1000

NOTE: Available with mounting holes. To order, delete NM from the part number.
For other colors replace YL (Yellow) with OR (Orange), BL (Black), or LG (Light Gray).
Order number of feet required, in multiples of standard 6' length increments.

Request Info

2x2 FiberRunner® QuikLock™ Coupler

- Pre-assembled to provide fast mechanical assembly of components
- No tools required for installation; bolts loosen for component disassembly

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
FBC2X2YL	Pre-assembled coupler quickly joins two sections of hinged channel and/or fittings. Mechanically attaches without tightening bolts. Bolts release using 5/16" nut driver to allow coupler to be removed if necessary.	1	5

For other colors replace suffix YL (Yellow) with OR (Orange), BL (Black), or LG (Light Gray).

2x2 FiberRunner® System Fitting

Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
FHDEC2X2YL	Used for closing off open ends of the hinged channel or fittings. No coupler required. Push-on installation.	1	5

For other colors replace suffix YL (Yellow) with OR (Orange), BL (Black), or LG (Light Gray).

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2x2 FiberRunner® System Spillouts

- Spill-overs allow safe transition from horizontal to vertical runs
- 2" bend radius control
- Transition to channel, slotted channel, and corrugated loom tubing

FVTHD2X2

FTR2X2

FIDT2X2

FRHD2KT

TRC2HDBL

Part Number	Part Description	Couplers Required	Std. Pkg. Qty.	Std. Ctn. Qty.
2x2 Vertical Tee				
FVTHD2X2YL	Attaches to 2x2 channel to create a 90° vertical drop from a horizontal run. Hinged door included. Accepts channel cover in conjunction with channel. Use QuikLock™ Coupler FBC2X2YL with HS2X2YL6 or H2X2YL6 channels. Use snap rivets NR2WH-L or bolts F14PN-L with S2X2YL6 or E2X2YL6 channels. Also accepts FIDT2X2YL.	(2 pcs.) FBC2X2YL	1	5
3-Sided BRC Trumpet Spillout for 2x2 Exit				
FTR2X2YL	Used to limit the bend radius of the cable to 2" (50.8mm) when exiting from a FiberRunner® Spill-Over FRSPYL or from 2x2 Fiber-Duct™ Channel.	(1 pc.) FBC2X2YL	1	5
1-Port Spillout to 1.5" (38mm) Inside Diameter Corrugated Tubing				
FIDT2X2YL	Used to route cable into one piece of 1.5" (38mm) diameter split corrugated tubing. Used with FiberRunner® Spill-Over FRSPYL, 2x2 Fiber-Duct™ Fittings, and the 2x2 FiberRunner® Hinged Channel. Securely holds split corrugated tubing to ensure system integrity and easy access to add or remove cables.	(1 pc.) FBC2X2YL	1	5
2x2 Hinged Duct Vertical Cable Manager Kit				
FRHD2KTYL	Provides secure, accessible route for cables spilling out from a vertical tee or spill-over junction to rack mounted equipment. Kit includes 6' length of 2x2 FiberRunner® Hinged Channel H2X2YL6, 6' length of 2x2 snap-on hinged cover HC2YL6, four adjustable "Z" brackets FZBA1.5X4, one FiberRunner® 2x2 End Cap FHDEC2X2YL, six hinged duct 2" wire retainers WR2H-C and all required mounting hardware. Attaches to 2x2 vertical tee exit or spill-over junction with a 2x2 exit with a 2x2 QuikLock™ Coupler FBC2X2YL. Also attaches directly to 4x4 or 6x4 vertical tee exits with low profile reducer FRLPR42BL. Yellow and orange colors only.	—	1	—
2x2 FiberRunner® Bend Radius Control Trumpet				
TRC2HDBL	Bend radius control trumpet for exiting at the sidewall of 2" wall heights of type H hinged cover wiring duct channels. Maintains 1" (25.4mm) bend radius control. Black color only.	—	1	10

For other colors replace suffix YL (Yellow) with OR (Orange), BL (Black), or LG (Light Gray).