NG4access

Optical Distribution Frame (ODF) Platform

2nd Edition

TE connectivity

NG4access ODF Platform

Meeting the Challenges of Tomorrow's High Fiber Count Networks

Today's data-intensive services are driving the need for ever-increasing network speeds and bandwidth capacity in the central office, head end and data center environment. This is creating the need for more connections between active equipment, and more fiber is being brought in to serve those connections. For service providers, these higher fiber counts and fiber densities can create challenges at the optical distribution frame, particularly where it comes to ease of access and identification of fibers and connectors.

Today's ODF solutions need to be engineered and configured for fast deployment, ease of connectivity and with the least amount of risk to the network as possible, as well as the ability to reconfigure, expand the network and implement new services. TE Connectivity's NG4access optical distribution frame (ODF) platform was built from the ground up to provide superior access to high density fiber terminations. With innovations such as TE's access trays, universal adapter packs, cabled modules and MPO modules, installing and maintaining large amounts of fiber can be done faster, easier and less expensively than any previous ODF solution available on the market.

TE's NG4access ODF Platform delivers the crucial elements of fiber cable management: connector and cable accessibility, bend radius protection, cable routing paths and physical protection. If these elements are executed correctly, the network can deliver its full competitive advantages.

- Connector and Cable Access: Allowing easy access to connectors and installed fibers is critical in maintaining proper bend radius protection. The NG4access ODF ensures that any fiber can be installed or removed without inducing a macrobend on an adjacent fiber. The accessibility provided by features such as TE's craft friendly access trays can have a significant impact on network reconfiguration time. Accessibility is most critical during network reconfiguration operations and directly impacts operation costs and network reliability.

- Bend Radius Protection: Simply put, optimal signal flow ensures network performance and reliability. TE's NG4access ODF ensures that the proper bend radius is maintained to prevent attenuation and deliver the highest possible performance as well as long-term reliability.

  Note: Reduced bend radius cable solutions, while offering a tighter bend radius, are not a substitute for well-engineered cable management.

- Cable Routing Paths: Improper technician routing of fibers is one of the major causes of bend radius violations. The NG4access ODF is extremely craft friendly, and provides routing paths that are clearly defined and easy to follow—leaving no room for guesswork and ensuring that technicians can easily trace and locate fibers.

- Physical Protection: All fibers should be protected throughout the network from accidental damage by technicians and equipment. Fibers routed between pieces of equipment without proper protection are susceptible to damage, which can critically impact network reliability. TE's robust fiber cable management technology ensures that every fiber is well protected and designed to withstand daily wear and tear.

NG4access ODF Platform

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Frame
TE's NG4access ODF frame is Telcordia® GR-449-CORE, Issue 3 compliant and designed to meet today's high-density network needs. The frame is designed with an emphasis on superior cable management and ease of use, including features such as ample trough space for cable and jumpers, front and rear access to cable and connectors and storage for jumpers. The frame sections are shipped from the factory fully equipped with all cable management hardware including integrated jumper slack storage. The frame will hold six universal chassis.

Chassis
TE's NG4access universal chassis supports configurations up to 576 terminations with LC adapter packs or 288 terminations with SC adapter packs. Each chassis includes 24 access trays that can hold adapter packs, cabled modules, MPO modules, or a combination of each. Craft-friendly design, the chassis features the same interface on the front and back side of unit.

Adapter Packs
Adapter packs are available in LC-12 and SC-6 pack configurations. Two adapter packs snap into a single access tray. Each chassis can be loaded with up to 48 adapter packs. Adapter ports are staggered for easy connector insertion/removal, and help to clearly identify individual adapter ports. A single adapter pack will promote universal applications, including singlemode and multimode, and angled and ultra polished connectors.

Cabled Modules
LC and SC cabled modules enable the routing of fiber cable to the frame, where multiple connectors are terminated to the frame with a single click. Cabled modules with integrated connectors ensure the cables are kept in sequential order, and help prevent accidental fiber breakage or disruption to adjacent fibers during installation. Cabled modules are available in a pigtail version for splicing on frame or preterminated to 24-fiber microcable or conventional IFC cable.

MPO Modules
The MPO module offers the same craft-friendly interface for LC and SC connectors as the cabled module, but include a rear low-loss MPO adapter to allow the installer to connect an MPO trunk cable to turn up services in rapid installation applications.

Value-Added Modules
NG4access VAMs help enhance optical transport systems by providing flexible, easy to incorporate optical components into the network for increasing fiber capacity, troubleshooting, or distributing signals to multiple subscribers.

1.2 mm Patch Cords
The NG4access ODF leverages TE's revolutionary 1.2 mm patch cords. These microcable patch cords require half the space of traditional 1.6 mm patch cords and a third of the space of traditional 2.0 mm patch cords, while maintaining equal performance and handling. 1.2 mm cable incorporates reduced bend radius fiber technology, which is less susceptible to attenuation caused by handling and macrobends.

Splice Chassis and Trays
The optional splice chassis installs on the NG4access frame and holds up to 48 splice trays. Each tray provides up to 72 fibers, for a total of 3,456 fibers per splice chassis. The splice chassis can be installed without sacrificing overall frame termination density.

Product Overview

A detailed list of product specifications are available in the application and planning guide TECP-90-701.

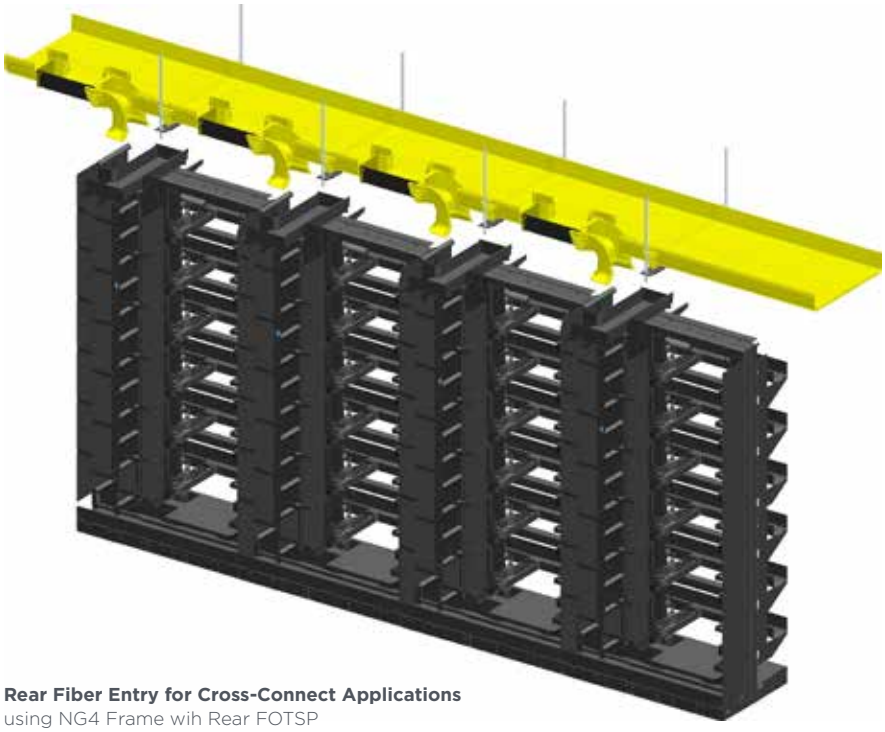
Recommended applications	Medium to large fiber count applications. GR-449-CORE, Issue 3 compliant
Description	High density ODF uses 24-position access trays in configurations of up to 576 terminations in a single chassis
Number of Fibers, future growth potential	Up to 3,456 per frame
Flexibility/ability to grow	Yes
Footprint	30" W x 24" D
Interconnect	Excellent
Cross-connect	Excellent
Accommodates on-frame splicing	Yes. Up to 3456 splices without sacrificing termination capacity
Rear access	Yes
Front access	Yes
Density – terminations per frame	3456 LC terminations per frame, 1728 SC terminations per frame
Slack storage location	On-frame (integrated jumper slack storage). Optional rear storage panel
Connector access	Access tray front and rear
Horizontal trough space available to accommodate a 20 bay line-up	Yes, using 1.2 mm jumpers. 10 sq. inches trough x 6 troughs = 60 sq. inches total space.

Jumper Capacities

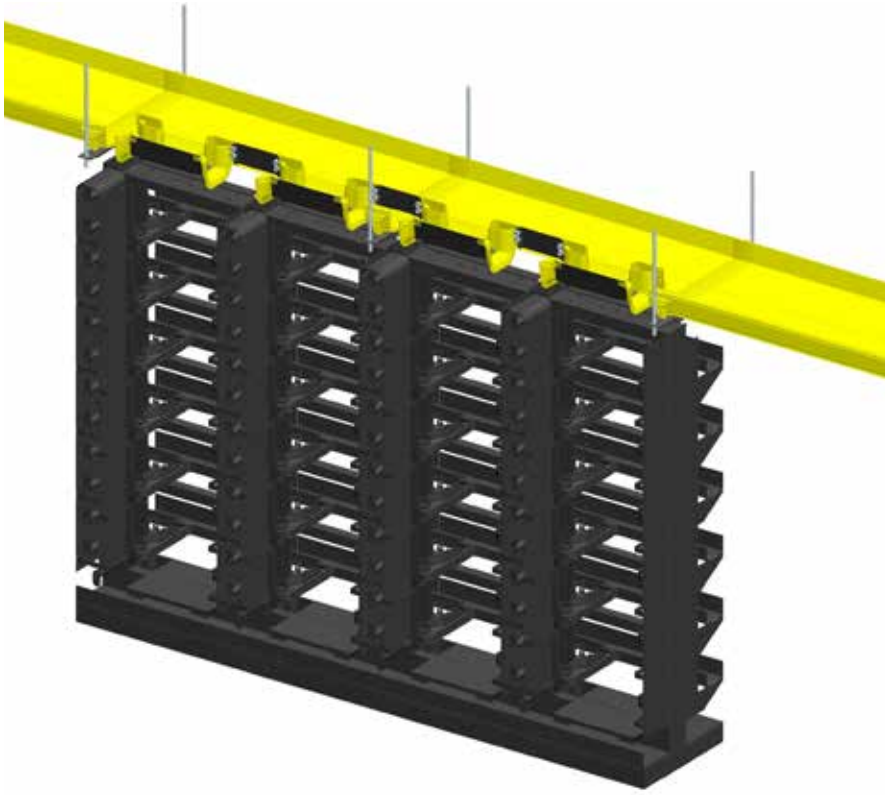
Front side NG4access ODF jumper wireways are optimized when using 1.2 mm diameter patchcords. At full frame capacity, 1.2 mm patchcords can be used in both interconnect or cross-connect applications while maintaining compliance with the interoperability objectives of GR-449 CORE. Based on packing densities defined by GR-449 CORE, the adjacent chart outlines frame capacities when using different patchcord sizes. Only patchcords using reduced bend radius fiber (G.657.A2) should be used in NG4access ODF's. Rear side NG4access wireways will accept patchcords up to 2.0 mm while achieving maximum capacities for both interconnect and cross-connect applications.

	Jumper Diameter (mm)	Cross Connect	Interconnect
SC/1728 Terminations	1.2	100%	100%
	1.6	100%	100%
	1.7	100%	100%
	2.0	100%	78%
LC/3456 Terminations	1.2	100%	100%
	1.6	100%	61%
	1.7	100%	54%
	2.0	78%	39%

OVERHEAD FIBERGUIDE LAYOUTS



Rear Fiber Entry for Cross-Connect Applications
using NG4 Frame wih Rear FOTSP



Dual Front Fiber Entry for Interconnect Applications

How to Order

MAIN COMPONENTS OF THE NG4ACCESS ODF PLATFORM	PART NUMBER	QUANTITY
1. Select number of frames		
– NG4access frame - Page 13	_____	_____
2. Select number of chassis		
– Universal chassis - Page 14	_____	_____
3. Define number of desired adapter packs - Page 15		
– SC adapter SC6 packs (2 packs per kit)	_____	_____
– LC adapters LC12 packs (2 packs per kit)	_____	_____
4. Select number of desired module types - Page 16-24*		
– LC or SC cabled modules with preterminated IFC - Page 17	_____	_____
– LC or SC cabled modules with 24-fiber microcable - Page 18		
– LC or SC MPO modules - Page 20	_____	_____
– Value-Added Modules - Page 21-24	_____	_____
5. Are you performing on frame splicing?		
– If yes, see ordering info - page 25		
ACCESSORIES		
6. Splice Protection Sleeves - Page 26	_____	_____
7. Cable Clamp Kit - Page 26	_____	_____
8. Raised Floor Cable Entry Clamp Kit - Page 26	_____	_____
9. Ribbon Breakout Kits - Page 27-31	_____	_____
10. AC Outlets - Page 31	_____	_____
11. End Guard. - Page 32	_____	_____
12. Frame Installation Kits - Page 32	_____	_____
13. Frame Transition Kits - Page 32	_____	_____
14. Frame Extender - Page 32	_____	_____
15. Isolation Pad - Page 33	_____	_____
16. Replacement Access Tray - Page 33	_____	_____
17. Rear Chassis Door Kits - Page 33	_____	_____
18. Designation Cards - Page 33	_____	_____
19. 1.2 mm Patch Cords - Page 34	_____	_____
20. Attenuators - Page 35	_____	_____
21. Touch-up Paint - Page 35	_____	_____

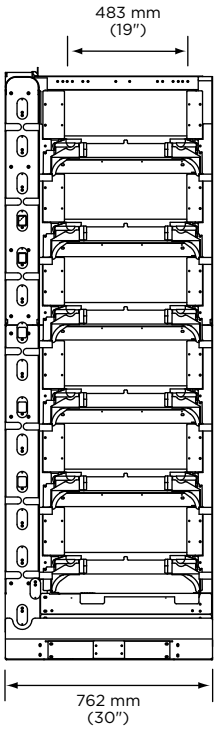
* When ordering MPO or cabled modules, adapter packs are not required.

NG4access ODF Platform

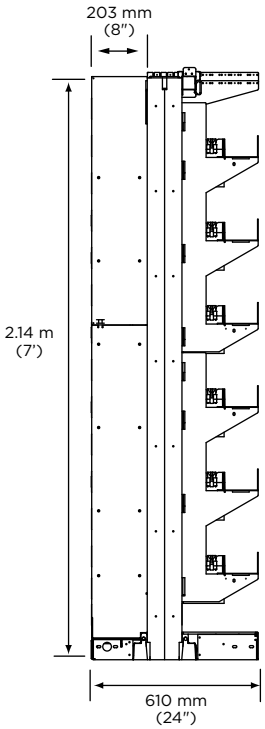
Empty Frame

The NG4access frame is the cornerstone of the NG4access ODF product line. This seismic zone 4 rated frame utilizes an industry-standard base frame and has six horizontal rear troughs and lower trough. This abundant trough space minimizes fiber pileup and congestion, leading to easier jumper traceability and removal. The frame has mounting positions for (6) NG4access 7-inch high chassis, which will hold up to 576 LC or 288 SC connections. On the rear of the frame, a mounting location is available for a single splice chassis without sacrificing an available chassis position for standard chassis. The vertical cable guides and slack storage system are designed to accommodate 3,456 LC terminations using 1.2 mm patch cords while maintaining a 15 mm bend radius protection at all bending locations. For additional flexibility in cable routing, the frame also includes a built-in jumper storage area on the left side. The NG4access frame meets interoperability standards covered in GR-449-CORE, Issue 3 and accommodates standard 19-inch wide frame mount equipment.

Front View



Front View



Side View

Rear View

ORDERING INFORMATION

Description	Dimensions (HxWxD)	Max. Termination Capacity	Part Number
Empty NG4access frame	2.14 m x 762 mm x 610 mm (7' x 30" x 24")	3,456 LC or 1728 SC terminations or per frame	NG4-FR100000

See page 12 for more information on the chassis. See page 13 for more information on the adapter packs.
See page 19 to order frame installation kits.

Rear FOTSP*

The rear fiber optic terminal storage panel is a filler that mounts next to the NG4access frame and provides storage capacity for up to 3.6 meters (12 feet) of excess jumper slack. The panel is mounted to the right side of the frame (looking from rear of the frame) it is serving and is accessed from the rear of the frame.

*Not required when ordering integrated NG4access frame, NG4-FR1000A1

ORDERING INFORMATION

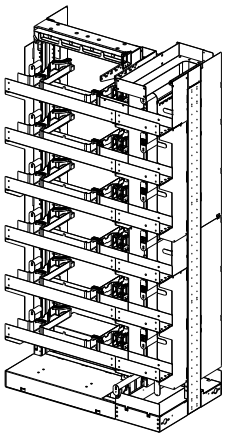
Description	Dimensions (H x W x D)	Part Number
Rear FOTSP; for use with single and dual jumpers	2.14 m x 305 mm x 610 mm (7′ x 12″ x 24″)	NG4-ACCFOTSP

Front View

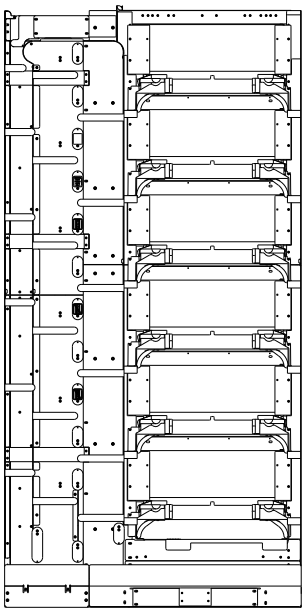
Rear View

Empty Frame with Integrated FOTSP

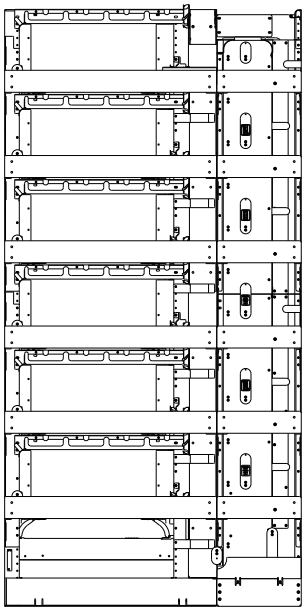
For applications where a rear FOTSP will be used next to an NG4access frame, consideration should be made to order the Empty NG4access Frame with Integrated FOTSP. In this configuration, the functions of the two items are captured under a single ordering number with the added benefit of enhancing the front side cable management. Specifically, the integrated frame with FOTSP allows for larger front side vertical wireways on the slack storage interbay management panel. The rear side jumper storage wireways and slack management system are identical in size regardless of ordering the empty frame with integrated FOTSP part number or ordering the empty frame and FOTSP as separate items. The overall width (42 inches wide x 24 in deep) is also the same if ordering the integrated version or if ordering the two items separately.



Rear View

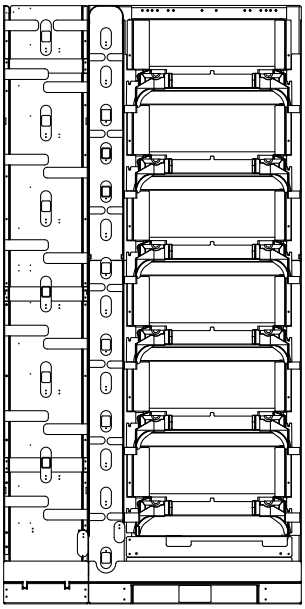


Front View

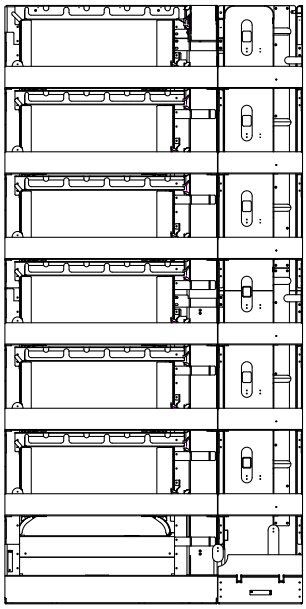


Rear View

Integrated FOTSP



Front View



Rear View

Separate FOTSP and Frame

ORDERING INFORMATION

Description	Dimensions (WxDxH)	Max. Termination Capacity	Part Number
Empty NG4access frame with integrated FOTSP	2.14 mm x 1.07 m x 610 mm (7′ x 42″ x 24″)	3,456 LC or 1,728 SC terminations per frame	NG4-FR1000A1

NG4access ODF Platform

Universal Chassis

The 7" universal chassis will hold up to 576 LC or 288 SC terminations. Each chassis includes 24 access trays. A single access tray can hold (2) LC12 or SC6 adapter packs, or a cabled module, MPO module or VAM module, any of which can be mixed and matched in the same chassis. Designed for easy technician access, the chassis features the same user interface on the front and back side of unit. During service turn-up and maintenance, the access trays pull open and lock in place for easy access to connectors. Pivot points on the access trays prevent the fiber from moving when opening and closing trays, which helps prevent any unwanted disturbances to live services. A front door with designation cards ships with every chassis. The chassis will install in a 19" standard equipment rack and occupies (4) 1.75" rack spaces.

Front Chassis View

Front Chassis View
Door Open

Rear Chassis View
Access Tray Open

ORDERING INFORMATION

Description	Dimensions (WxDxH)	Part Number
Universal chassis with access trays; front door and designation cards	483 x 457 x 175 mm (19.0" x 18.0" x 6.9")	NG4-CH100000

Access Trays with (2) LC 12 and (2) SC 6 Adapter Packs Installed

Universal Adapter Packs

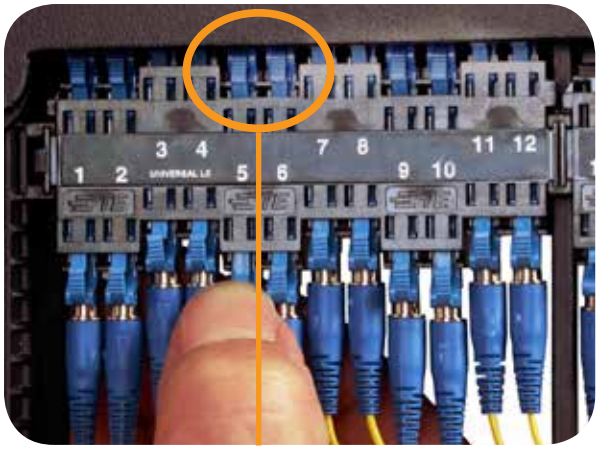
Adapter packs are designed to accept a variety of connector types, including singlemode and multimode, angled and ultra polished connections. The flexibility of the adapter pack helps service providers reduce ordering SKU's and total inventory requirements. The staggered adapter pack design help installers access connectors without pinching or moving adjacent connections; they also eliminate the need for installers to use extraction tools, and help clearly identify individual fiber ports. Two LC12 or SC6 adapter packs can be installed per tray, and up to 48 total adapter packs per chassis. A specially designed latch window on the rear of the LC adapter pack (see photo below) and key slot window on the SC adapter pack allow easy identification of the connector type on the opposite side of the unit. As a result, technicians will always know the connector type installed in the adapter, no matter if they are working from the front or rear side of the ODF.

LC12 Universal Adapter Packs

SC6 Universal Adapter Packs

ORDERING INFORMATION

Description	Fibers	Dimensions (HxWxD)	Part Number
Snap-in LC12 universal adapter pack. Kit of 2 packs with labels.	24	84 mm x 33 mm x 10 mm (3.3" x 1.3" x .4")	NG4-APLC120000
Snap-in SC6 universal adapter pack. Kit of 2 packs with labels.	12		NG4-APSC060000



Latch window on LC adapter pack allows for easy connector identification

Adapter packs accept a variety of connector types

Preterminated Cabled Modules

NG4access cabled modules will save operators significant time and cost in their cable deployments. Using the LC cabled module, for example, an installer can route a 24-fiber cable to any access tray in a universal chassis, then rapidly terminate the module's 24-fiber connectors using a single click, rather than installing 24 individual connectors. Cabled modules are available in LC and SC, singlemode configurations. Each module is designed for craft friendliness. Individual adapter ports are labeled for easy identification. Two cable options are available with cabled modules, conventional IFC or 24-fiber microcable IFC cable.

LC Cabled Module with Preterminated IFC

LC Cabled Module with 24-Fiber Microcable

Cabled Modules with Preterminated IFC

With IFC cabled module solutions, multiple cabled modules are preterminated to IFC cable. For example, a 144 LC configuration would include six 24-fiber cabled modules secured to a 144 IFC cable. Rather than handling and installing 144 discrete connectors, the six cabled modules quickly snap into place on the access tray saving installation time and greatly reducing wiring errors and the potential for breaking adjacent fiber connectors. IFC cabled modules are available with stub ends or with connectors or cabled modules on the far end. All IFC cabled modules utilize reduced bend radius fiber and have the appropriate break out length to be installed in any access tray on any chassis in the frame. IFC cabled modules ordered with far end connectors can be used as tie cables to existing legacy ODF's. **The far end breakouts for these assemblies are designated by the last three digits in the ordering configurations. All IFC cabled modules ship with the cable clamp required on the NG4access frame and at the far end if required for double ended assemblies.**

LC Cabled Module with Preterminated IFC

Part Number

NG4-CMD __ __ __ __ __ __ __

1 Cabled Module Connector Type #1

Singlemode	
K	LC ultra polish
M	LC angled polish
7	SC ultra polish
L	SC angled polish

2 Far End Connector Type #2*

Singlemode	
0	No connector/stub end
K	LC ultra polish
M	LC angled polish
7	SC ultra polish
L	SC angled polish
N	Cabled Module**

3

Cable Type		Diameter	
GH	72 ribbon IFC	14 mm	.55″
KS	96 ribbon IFC	14.7 mm	.58″
HS	144 ribbon IFC	17.3 mm	.68″
GQ	72 stranded IFC	11.9 mm	.47″
KQ	96 stranded IFC	13.7 mm	.54″
HQ	144 stranded IFC	17.7 mm	.70″
GR	72 Ribbon Indoor/Outdoor	15.5 mm	.61″
KR	96 Ribbon Indoor/Outdoor	15.5 mm	.61″
HR	144 Ribbon Indoor/Outdoor	15.5 mm	.61″
GL	72 Stranded Indoor/Outdoor	11.9 mm	.47″
KL	96 Stranded Indoor/Outdoor	13.7 mm	.54″
HL	144 Stranded Indoor/Outdoor	17.7 mm	.70″

5 Far End Breakout Style
If not a stub or cabled module, enter an option from below.

Blank	Stub or cabled module
NG3	NG3 72 and 144 position panel
NG	NGF 96 and 144-position FTB
NO	NGF 48 and 72-position FTB
A	7″ FCM
B	8″ FCM
LA	LSX 72 and 96-position panel
LB	LSX 144-position panel

4 Standard Cable Length***

016	16 m (50′)
023	23 m (75′)
031	31 m (100′)
046	46 m (150′)
061	61 m (200′)
092	92 m (300′)

* Far end connector option only available with stranded cable

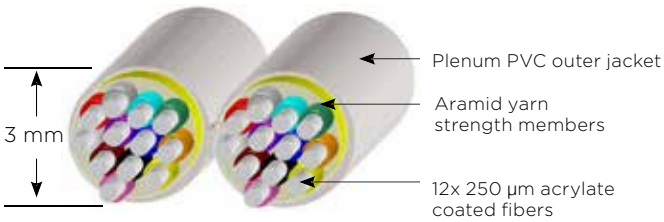
** Far end cabled module connector type is always same as type #1 connector type

*** Use XXX for non-standard lengths in meters

Cabled Modules with 24-Fiber Microcable

For LC configurations, a single cabled module is connected to a 24-fiber microcable. For SC configurations, two cabled modules are connected to a 24-fiber microcable. The 24-fiber microcable is a plenum rated dual zip-cable containing reduced bend radius 250 micron fiber in a loose tube design. The 24-fiber microcable has the same compression, tensile strength and crush rating as conventional IFC cable and is fully compliant with GR-409. It can be secured to overhead cable racking or is flexible to be placed in FiberGuide or any fiber cable management system. Cabled modules are available with a stub end or with connectors on the far end. The breakout length for 24 fiber microcable IFC with far end connectors is 45 inches. **This breakout length will accommodate all legacy TE ODF solutions however, a fanout mounting bracket kit must be ordered separately to match the far end clamping requirements.**

Two SC Cabled Modules with 24-Fiber Microcable
2 Modules Stacked for Photo



ORDERING INFORMATION

Part Number

NG4-CMD __ __ M 2 __ __ __

1	Cabled Module Connector Type #1
Singlemode	
K	LC unltra polish
M	LC angled polish
7	SC ultra polish
L	SC angled polish

2	Far End Connector Type #2
Singlemode	
0	No connector/stub end
K	LC ultra polish
M	LC angled polish
7	SC ultra polish
L	SC angled polish
N	Cabled Module**
E	MPO Connector

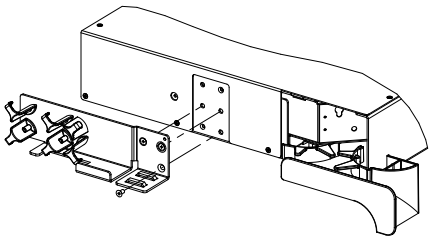
4	Standard Cable Length***
016	16 m (50′)
023	23 m (75′)
031	31 m (100′)
046	46 m (150′)
061	61 m (200′)

3	Cable Type
M2	24-fiber microcable

** Far end cabled module connector type is always same as type #1 connector type
*** Use XXX for non-standard lengths in meters

Microcable Fanout Mounting Bracket Kits for 45” 900 Micron Breakouts

Additional hardware is required if loading cabled modules with 24- fiber microcables with far end connectors into an adapter–only legacy ODF panel. Microcable fanout mounting brackets convert adapter-only panels to accept preterminated microcables with 900 micron breakouts. The bracket kits contain the cable management hardware, brackets and cable clamps to convert the panel to accept microcables and properly secure fanouts.



NG3 Panel Bracket Kit

ORDERING INFORMATION

Description	Dimensions (WxDxH)	Part Number
Microcable Fanout Kits	7″ FCM panels	RCP-CLPKITSBFCM
	8″ FCM panels	RCP-CLPKITFCM
	LSX panels (all sizes)	RCP-CLPKITLSX
	NGF Left 144 FTB	NGF-ACCRCMSLU
	NGF Right 144 FTB	NGF-ACCRCMSRU
	NG3 panel	RCP-CLPKITNG3

MPO Modules

The MPO module offers a craft-friendly interface for 24 LC or 12 SC connectors to MPO adapters—enabling a rapid connection to electronics or a fiber tie panel such as TE's Rapid fiber panel solution. Leveraging an MPO architecture, technicians can route and install higher fiber counts faster and easier, while simplifying cable inventory and ordering requirements. The MPO module occupies one access tray position and easily snaps into place.

Left Exit LC MPO Module
with 2 rear MPO Adapters

Right Exit SC MPO Module
with 1 Rear MPO Adapter

ORDERING INFORMATION

NG4-MMD __ __ __ __ 000

1	MPO Module Connector Type #1
Singlemode	
K	LC ultra polish
M	LC angled polish
7	SC ultra polish
L	SC angled polish

2	Connector Type #2
Singlemode	
E	MPO 12 fiber

3	Exit Direction
OL	Left exit (for MPO module)
OR	Right exit (for MPO module)

Universal Chassis
Rear View

NG4access ODF Platform

Value-Added Modules

The NG4access Value-Added Modules (VAMs) product family features an array of monitor, CWDM and DWDM devices for use in TE's NG4access optical distribution frame (ODF). NG4access VAMs help enhance optical transport systems by providing flexible, easy to incorporate optical components into the network for increasing fiber capacity, troubleshooting, or distributing signals to multiple subscribers.

Technician-friendly, the NG4access VAMs features staggered adapter ports for easy connector access and identification without pinching or moving adjacent connections – minimizing unwanted disturbances to live services. Craft-friendly module design promotes easy integration into TE's NG4access ODF: one NG4access VAM can be loaded per tray, with up to 24 total VAMs per chassis. The VAMs are available in 24 LC connector interfaces with angled and ultra polished configurations.

NG4access VAM

NG4access ODF Platform
(Sold Separately)

MODULE TYPES

- Monitor VAMs
- CWDM VAMs
- DWDM VAMs

APPLICATIONS

- Non-intrusive circuit monitoring
- Service turn-up verification and troubleshooting
- CWDM/DWDM upgrades for metro networks
- CWDM/DWDM upgrades for wireless backhaul

Monitor VAMs

Monitor VAMs are used for non-intrusive monitoring and testing of fiber optic network signals. VAM modules provide a wide range of tap ratios to accommodate specific application requirements.

The ability to easily monitor both directions at a single point greatly reduces the time necessary to analyze traffic patterns, locate failures, and monitor signal degradation. NG4access monitor VAMs occupy one access tray in the universal chassis and easily snap into place. The NG4access universal chassis holds up to 12 left and 12 right orientation VAMs.

ORDERING INFORMATION

Catalog Number

NG4-V M __ __ __ __ __

Connector Type

K	LC UPC
M	LC APC

Module Orientation
(As viewed from rear of chassis)

L	Left
R	RIght

Port Configuration

F	All Front

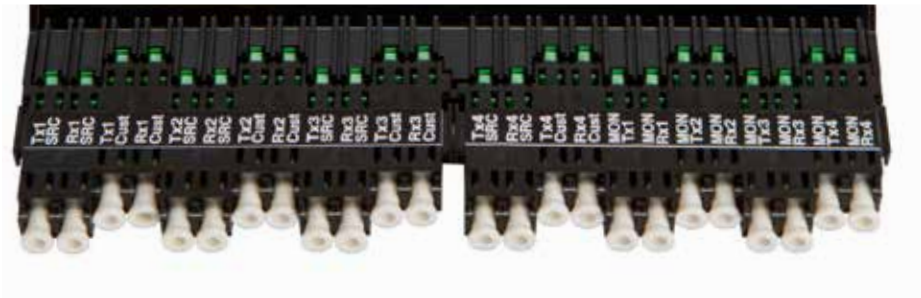
Tap Ratio (Thru/Monitor Tap %)

B	95/5
A	90/10
E	80/20
H	70/30
J	60/40
C	50/50
M	60/20/20 (3 circuits only)

Number of Circuits

3	Three
4	Four

EXAMPLE SHOWN:
NG4-VMMRF4A (NG4access VAM Monitor, LC UPC, Right Orientation, All front ports, four circuits, 90/10 tap ratio)



CWDM VAMs

Coarse Wavelength Division Mulitiplexing (CWDM) VAMs are used to combine (or separate) two or more signals with different wavelengths. CWDM VAM modules provide a wide range of wavelength combinations (e.g. 4 or 8 channels) to accommodate a range of network designs and requirements. Tap ports are available for signal turn-up and test access. NG4access CWDM VAMs occupy one access tray in the universal chassis and easily snap into place. The NG4access universal chassis holds up to 12 left and 12 right orientation VAMs.

ORDERING INFORMATION

Catalog Number

NG4-V C __ __ __ __ __ __ 0 __ __ __

Connector Type

K	LC UPC
M	LC APC

Module Orientation
(As viewed from rear of chassis)

L	Left
R	RIght

Number of Circuits

1	One
2	Two

Number of Channels

4	4 CH
8	8 CH
A	4 CH + upgrade port
B	8 CH + upgrade port
C	4 CH + upgrade port + 1310 port
D	8 CH + upgrade port + 1310 port
E	4 CH + 1310 port
F	8 CH + 1310 port

Test Port Tap %

0	None
K	1%

Test Port

0	None
1	One
2	Two

Upgrade Port Config

0	None
A	Pass 1471-1531
B	Pass 1551-1611

Skip Channels Config

0	None

Starting Channel Wavelength (Lowest)

61	1611 nm	51	1511 nm
59	1591 nm	49	1491 nm
57	1571 nm	47	1471 nm
55	1551 nm	45	1451 nm
53	1531 nm	43	1431 nm

EXAMPLE SHOWN:
NG4-VCMR2F47002K (NG4access VAM CWDM, LC APC, Right Orientation, two circuits, 8-ch + 1310, 1471-1611, 2 test ports, 1% tap)

DWDM VAMs

Dense Wavelength Division Mulitiplexing (DWDM) VAMs are used to combine (or separate) two or more signals with different wavelengths. DWDM VAM modules provide a wide range of wavelength combinations (e.g. 4 or 8 channels) to accommodate a range of network designs and requirements. Standard ITU DWDM wavelength filters are available. NG4access DWDM VAMs occupy one access tray in the universal chassis and easily snap into place. The NG4access universal chassis holds up to 12 left and 12 right orientation VAMs.

ORDERING INFORMATION

Catalog Number

NG4-V D __ __ __ __ __ __ __ __ 0 __ __ __

Connector Type

K	LC UPC
M	LC APC

Module Orientation
(As viewed from rear of chassis)

L	Left
R	RIght

Number of Circuits

1	One
2	Two

Mux or Demux

M	Mux
D	Demux

Number of Channels

4	4 CH
8	8 CH
A	4 CH + upgrade port
B	8 CH + upgrade port
C	4 CH + upgrade port + EXP port
D	8 CH + upgrade port + EXP port

Channel Spacing

A	100 GHz (e.g. 33, 34, 35,...)
B	200 GHz (e.g. 33, 35, 37,...)

Test Port Tap %

0	None
K	1%

Test Port

1	One
2	Two

Upgrade Port Config

0	None
A	Pass DWDM λs

Skip Channels Config

0	None

Starting Channel Number (Lowest)

20	1561.42 nm
21	1560.61 nm
•	•
•	•
•	•
•	•
58	1531.12 nm
59	1530.33 nm

EXAMPLE SHOWN:
NG4-VDMR2MBA200A2K (NG4access VAM DWDM, LC APC, Right Orientation, two circuits, 8-ch + Upgrade, 100GHz/Channel Spacing, CH20-CH27, Upgrade Port, 2 test ports, 1% tap)

NG4access ODF Platform

Splice Chassis

The splice chassis installs on the back side of the NG4access frame below the bottom horizontal trough and holds up to 48 splice trays. Each tray holds up to 72 fibers, for a total of 3,456 fibers per splice chassis. Pigtail 24-fiber microcable cabled modules connect any universal chassis to the splice chassis.

ORDERING INFORMATION

Description	Dimensions	Part Number
Splice Chassis; empty	686 mm x 314 mm x 406 mm (27″ x 12.36″ x 15.99″)	NG4-CH200000

Individual splice trays not included.

Splice Chassis Installed at Bottom of Frame
(rear cover removed)

Splice Tray

Splice tray holds up to six mass fusion protection sleeves for 72-fiber capacity or up to 24 single fusion protection sleeves. Each tray provides for storage of 6 feet of jacketed cable and an additional 3 feet of unjacketed fiber inside the tray.

ORDERING INFORMATION

Description	Dimensions	Splice Chip	Part Number
Splice tray	148 mm x 191 mm x 19 mm (5.83″ x 7.53″ x .745″)	single fusion	NG4-ACCWHSFS
		mass fusion	NG4-ACCWHMFS

Pigtail not included

Pigtail Cabled Module with 24-Fiber Microcable

Pigtail cabled modules can be installed in any of the 6 universal chassis loaded in a frame and can be routed to the splice chassis to reach the splice tray with appropriate storage.

ORDERING INFORMATION

Description		Part Number
24-fiber pigtail* cabled module	LC ultra polish connectors	NG4-CMDK0M2008
	LC angled polish connectors	NG4-CMDM0M2008
	SC ultra polish connectors	NG4-CMD70M2008
	SC angled polish connectors	NG4-CMDL0M2008

* Stranded microcable construction. When splicing to ribbon IFC/OSP cable, microcable fiber will need to be ribbonized

LC Pigtail Cabled Module

Splice Protections Sleeves

Splice Protector Sleeve

The splice protector sleeve is constructed to protect a splice post fusion. It is made from heat shrinkable material and contains a built-in strength member for physical protection of the fusion splice. The splice protector sleeve is placed on the fiber before making a splice, moved over the splice when the splice fusion is complete and shrunk into place. They are available in either single fiber or mass fusion sleeves.

ORDERING INFORMATION

Description	Dimensions	Part Number
Splice protector sleeve for	Single fiber – single fusion; 40 mm (1.6") length, 1 each	FST-ACC005
	12-fiber – mass fusion – heat shrink; 40 mm (1.6") length, 1 each	FST-ACC006

Cable Clamp Kits

ORDERING INFORMATION

Description	Part Number
Cable Clamp Kit; Includes clamps and grommets for securing 6 OSP or IFC cables with diameters up to 0.8 inches at the top of the frame*	NG4-ACCCLMPEXP1
Large Cable Clamp Kit; Includes clamps and grommets for securing 4 OSP or IFC cables with diameters from 0.8 inches to 1.2 inches at the top of the frame*	NG4-ACCCLMPEXP2

* TE preterminated IFC cabled modules include a cable clamp

Raised Floor Cable Entry Clamp Kit

ORDERING INFORMATION

Description	Part Number
Raised Floor Cable Entry Clamp Kit; Includes mounting brackets, a management spool and clamps and grommets for 24 cables (diameter up to 0.8 inches)	NG4-ACCRFCLMP1
Raised Floor Large Cable Clamp Kit; Includes one cable clamp and grommet for cables with diameters from 0.8 inches to 1.2 inches. This clamp kit mounts to the raised floor cable entry clamp mounting bracket	NNG4-ACCRFCLMP3
Raised Floor IFC Slack Management Kit; Spool kit for managing IFC sub-unit slack. Kit includes one spool.	NG4-ACCSPOOLKIT1

Ribbon Breakout kits contain combinations of bases and protective tubes that are used to protect the fiber ribbon matrix as it transitions from clamped OSP and IFC cables to a splice tray used in the NG4access splice chassis.

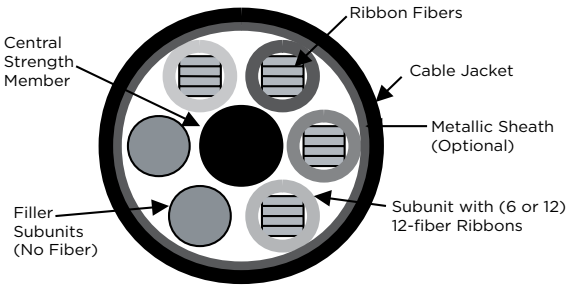


Figure 1
Ribbon buffer tube (RLBT) OSP cable

Breakout Kit for Ribbon in Loose Buffer Tube (RLBT) OSP Cable

Ribbon in loose buffer tube OSP cables are constructed as shown in Figure 1. All RLBT cables feature six subunits surrounding a central strength member. Depending on the fiber count of the cable, some of the subunits may be used as filler subunits (a solid plastic unit without any fiber). Each subunit containing fiber is comprised of six or twelve ribbons featuring 12 fibers per ribbon.

Breakout kits for RLBT cables contain multiple breakout bases, each with 5-meter lengths of protective tubing (see Figure 2). The protective tubing accommodates up to six ribbons. One breakout kit fits into each individual subunit. For mass fusion ribbon splicing applications, TE recommends splicing up to 72 fibers (six ribbons) in a splice tray. The tray should be equipped with an "MT" splice chip (see page 93 for information on mechanical or mass fusion ribbon trays). For single fusion splicing applications, TE recommends 24 fibers per tray using either two single trays or one dual tray. This kit is used to protect fiber ribbons between the cable clamp and the splice tray.

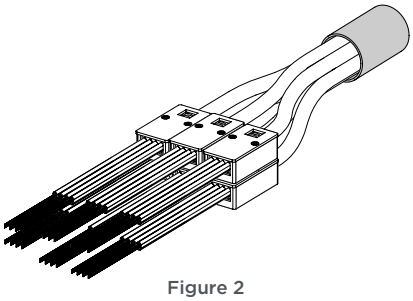


Figure 2
Breakout kit for RLBT OSP Cable

Breakout kits are designed for use in controlled environments only.

Catalog Number

BLK-RLBT-A __ __ __ __

Number of Protective Tubes Per Subunit*	Number of Subunits Containing Fiber
01	01
02	02
03	03
04	04
05	05
06	06

1-6 ribbons may be placed in each protective tube
Protective tubing length = 5 meters

[1] **The number of protective tubes per subunit is calculated as follows:**

Divide the number of fibers per subunit (typically 72 or 144) by the number of fibers (12, 24, 36, 48, 72) to be spliced in each splice tray.

Example: If each subunit has 144 fibers with 36 fibers per tray, then each subunit would require four protective tubes.

Breakout Kit for Ribbon Central Tube (RCT) OSP Cable

Ribbon central tube OSP cables are constructed as shown in Figure 1. The ribbons in RCT cables feature 12 or 24 fibers per ribbon. Cables with 288 or more fibers are typically built with ribbons featuring 24 fibers per ribbon. Each cable consists of a single central tube that encloses the ribbons.

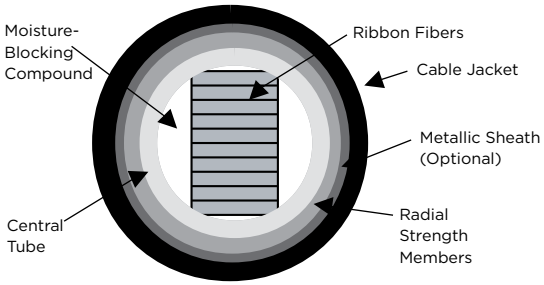


Figure 1
Ribbon central tube (RCT) OSP cable construction

Breakout kits for RCT cables contain a single breakout base attached to the central tube. Protective tubing is attached to the breakout base in 5-meter lengths (see Figure 2). Smaller protective tubing can accommodate up to six ribbons featuring 12 fibers per ribbon. Larger tubing is used for ribbons with 24 fibers per ribbon.

For mass fusion ribbon splicing, TE recommends splicing 72 fibers per tray. For ribbon featuring 12 fibers per ribbon, six ribbons would be spliced in each tray. For ribbon featuring 24 fibers per ribbon, three ribbons would be spliced in each tray.

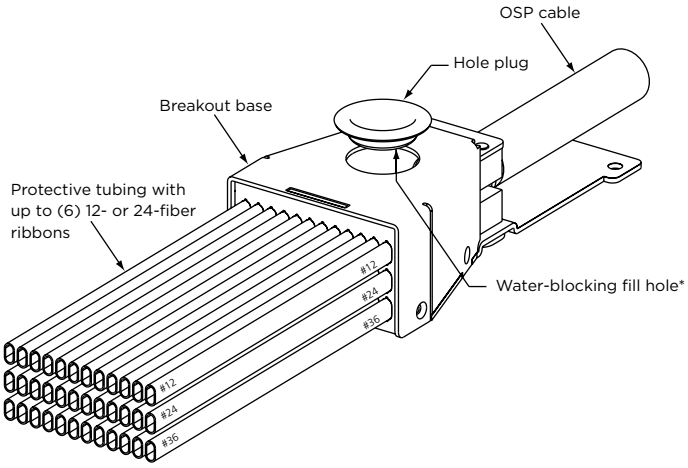


Figure 2
Breakout kit for RCT cable

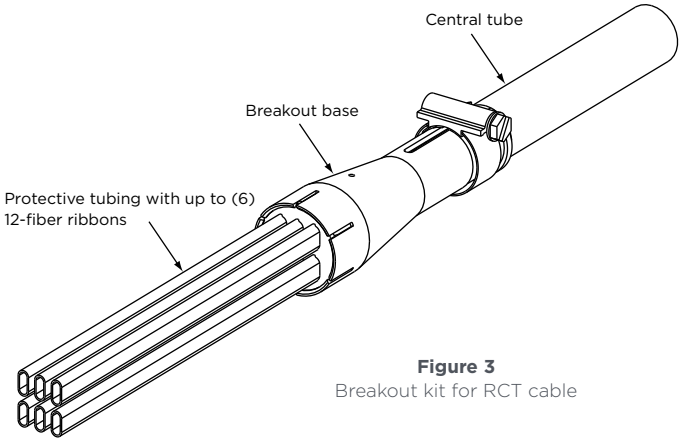


Figure 3
Breakout kit for RCT cable

RCT Breakout Kit Typical Configurations

432- and 864-fiber ribbon in central tube (RCT) OSP cables featuring 24 fibers per ribbon are common. The table below shows the number of protective tubes per breakout base required for 432- and 864-fiber cables based on the number of fibers per tray. This kit is used to protect fiber ribbons between the cable clamp and splice tray.

Number of Fibers per Tray	Number of Ribbons per Protective Tube	432-Fiber Central Tube OSP Cable, 24-Fiber Ribbon	864-Fiber Central Tube OSP Cable, 24-Fiber Ribbon
24	1	18	36
48	2	9	18
72	3	6	12

Breakout kits with 36 protective tubes use a large breakout base, kits with 9–18 protective tubes use a medium breakout base and kits with 6 protective tubes use a small breakout base.

Catalog Number

— — — —

Ribbon Type

A	< /= 12-fiber
B	24-fiber

Number of Protective Tubes per Breakout Base[1]

01	Refer to Figure 3 (p 28) for kit style
02	
03	
04	
05	
06	
09	
12	Refer to Figure 2 (p 28) for kit style
16	
18	
24	
36	

	General Tube Outside Diameter	Fiber Count	Number of Fibers per Ribbon
B	5 mm – 8 mm (0.2″ – 0.33″)	12-96	12
C	8 mm – 11 mm (0.33″ – 0.43″)	108-216	12
D	11 mm – 15 mm (0.43″ – 0.6″)	240-432	24
E	15 mm – 20 mm (0.6″ – 0.8″)	576, 720, 864	24, 36

[1] 1-6 ribbons may be placed in each protective tube with either 12 or 24 fibers per ribbon
Protective tubing length = 5 meters

[1] Divide the number of fibers per central tube (typically between 144 and 864) by the number of fibers (12, 24, 36, 48, 72) to be spliced in each splice tray.

Example: If the central tube has 864 fibers with 36 fibers per splice tray, then the breakout base would require 24 protective tubes.

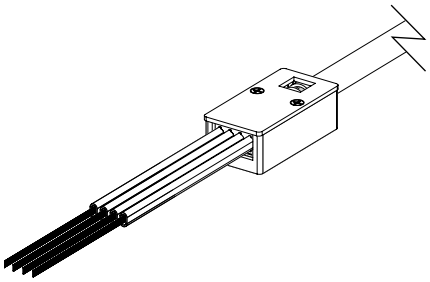
For installation instructions, refer to user manual ADCP-93-305.

Breakout Kit for Intrafacility (IFC) Ribbon Cables

TE's ribbon IFC cables have a central tube construction. The ribbons in IFC cables feature 12 fibers per ribbon. A central tube encloses the ribbons and features fiber counts ranging from 24 fibers to 216 fibers. Central tubes with 72, 96, 144 and 216 fibers are most common.

Breakout kits for these cables can be configured from the information listed on page 31. The breakout kits for IFC cables contain a single breakout base attached to the central tube. Protective tubing is attached to the breakout base in 5-meter lengths and can accommodate up to six ribbons featuring 12 fibers per ribbon.

For mass fusion ribbon splicing, TE recommends splicing 72 fibers per tray. For ribbon featuring 12 fibers per ribbon, six ribbons would be spliced in each tray. For ribbon featuring 24 fibers per ribbon, three ribbons would be spliced in each tray.



Breakout Kit for IFC Ribbon Cables

ORDERING INFORMATION

IFC Cable Fiber Count	Number of Fibers per Tray	Part Number
72	36	BLK-RIFC-A02B0
72	72	BLK-RIFC-A01B0
96	48	BLK-RIFC-A02B0
144	36	BLK-RIFC-A04C0
144	72	BLK-RIFC-A02C0
216	36	BLK-RIFC-A06C0
216	72	BLK-RIFC-A03C0
432	72	BLK-RIFC-A06E0

IFC Breakout Kit Typical Configurations

When splicing IFC ribbon cables, TE recommends 72 fibers per tray.

Catalog Number

BLK-RIFC-A __ __ __

Number of Protective Tubes Per Breakout Base [1, 2]

01
02
03
04
05

Central Tube Outside Diameter

B	5 mm – 8 mm (0.2″ – 0.33″)
C	8 mm – 11 mm (0.33″ – 0.43″)
D	11 mm – 15 mm (0.43″ – 0.6″)
E	15 mm – 20 mm (0.6″ – 0.8″)

[1] 1–6 ribbons may be placed in each protective tube TE recommends 6 ribbon units (72 fibers) per tube. Protective tubing length = 5 meters

[2] **The number of protective tubes per central tube is calculated as follows:**
Divide the number of fibers per central tube (typically between 72 and 216) by the number of fibers (12, 24, 36, 48, 72) to be spliced in each splice tray.
Example: If the central tube has 144 fibers with 36 fibers per splice tray, then the breakout base would require four protective tubes.

For installation instructions, refer to user manual ADCP-93-305.

Please contact TE Technical Assistance Center.

AC Outlet Kits

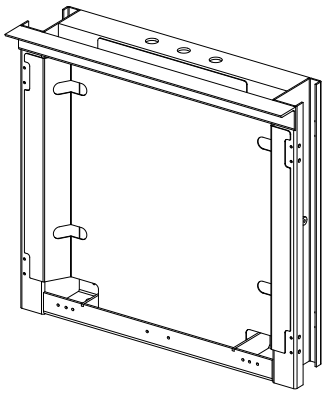
The AC outlet kit includes an outlet box and hardware to attach to the frame.

ORDERING INFORMATION

Description	Part Number
Dual outlet; mounts in base of NG4access frame	ACOK-5

NG4access ODF Platform

Frame Extender



The frame extender is used to extend the height of a 7-foot frame to the appropriate super structure height so that it can be secured overhead. NG4access chassis are designed to be mounted up to 7 feet. Frame extenders to not extend the chassis mounting capacity.

ORDERING INFORMATION

Description	Part Number
Frame Extender 610 mm (24")	NG4-ACCFR1EXT-24
Frame Extender 1.37 m (54")	NG4-ACCFR1EXT-54

End Guard

The end guard provides protection for the fibers entering and exiting frames at the ends of a lineup.

ORDERING INFORMATION

Description	Dimensions (H x W x D)	Part Number
End guard mounts on NG4access frame	2.14 m x 64 mm x 610 mm (7' x 2.5" x 24")	NG4-ACCEGDB1

Frame Installation Kits

Frame installation kits may be used on network frames and are seismic zone 4 rated. Kits include all necessary hardware.

ORDERING INFORMATION

Description		Part Number
Frame installation kits for	Computer floor	FDF-ACC146
	Overhead support	RINST-TOP7
	Concrete floor	RINST-FLR

Frame Transition Kits

Frame transition kits are available to cap and grow from existing legacy ODF line-ups to new NG4access line-ups. Transition kits allow for cross-connect jumpers to route between old and new frames.

ORDERING INFORMATION

Description	Transition Width	Part Number
NG4access to NG3 frames	0"	NG4-ACCNG3TRANS
NG4access to NGF frames	2.5"	NG4-ACCNGFTRANS
NG4access to 8" frames	12"	NG4-ACC8TRANS

NG4access ODF Platform

Isolation Pad

A template for frame installation providing isolation between the frame, fiber optic terminal storage bay, end guard and the floor.

ORDERING INFORMATION

Description		Part Number
Isolation pad for	NG4access frame	NG4-ACCISOPFRM
	Fiber optic terminal jumper storage panel	NG4-ACCISOPFOTSP
	NG4access end guard	NG3-ACCISOPEGD

Replacement Access Tray

Replacement Access Tray

ORDERING INFORMATION

Description	Part Number
Single access tray; (empty) for replacement in NG4access chassis. This kit can replace access trays on either the left or right side of the chassis.	NG4-ACCTRAYKIT1

Replacement Access Tray Door Kit

ORDERING INFORMATION

Description	Part Number
Kit of 5 access tray doors, springs and laser eye protection label	NG4-ACCTRAYKIT5

Rear Chassis Door Kits

Flip down door kits are available for rear chassis installation and include the mounting bracket and designation cards.

Rear Chassis Door Kit and Designation Cards

ORDERING INFORMATION

Description	Part Number
Rear door, bracket and designation labels	NG4-ACCRDOORKIT1

Designation Cards

Designation cards for universal chassis.

ORDERING INFORMATION

Description	Part Number
Kit of 24 cards; for front or rear door	NG4-ACCCARDKIT1

1.2 mm Cable Patch Cords

TE's revolutionary 1.2 mm small form factor patch cords are available with LC or SC connectors and occupies half the space of traditional 1.6 mm patch cords and a third of the space of traditional 2.0 mm patch cords. In environments where space constraints and cable routing prove most challenging, the 1.2 mm patch cords offer the necessary flexibility and quality to realize significant labor and cost savings for service providers.

1.2 mm SC Patch Cord

1.2 mm LC Patch Cord

FEATURES

- SC/UPC, SC/APC, LC/UPC and LC/APC connector versions
- Reduced Bend Radius fiber OFNP cable
- Compatible with industry standard fiber cable and SC and LC connectors
- Same tensile strength and crush rating as 1.6 mm, 2.0 mm or 3 mm patch cords

RECOMMENDED PATCH CORD LENGTH (in meters)

	Number of Adjacent Frames							
	1	2	3-4	5-6	7-8	9-10	11-12	13-14
Without FOTSPs	6	7	8	9	11	13	14	15
With FOTSPs	6	7	9	11	13	15	16	18

ORDERING INFORMATION

Description			Part Number**
Singlemode, ONFP jacket; 1.2 mm fiber jumper	SC – SC	SC/UPC – SC/UPC	FPCA-77YPxxxM
		SC/UPC – SC/APC	FPCA-7EYPxxxM
		SC/APC – SC/APC	FPCA-EEYPxxxM
	LC - LC	LC/UPC – LC/UPC	FPCA-KKYPxxxM
		LC/UPC – LC/APC	FPCA-KMYPxxxM
		LC/APC – LC/APC	FPCA-MMYPxxxM
	Hybrid SC- LC	SC/UPC – LC/UPC	FPCA-7KYPxxxM
		SC/UPC – LC/APC	FPCA-7MYPxxxM
		SC/APC – LC/UPC	FPCA-EKYPxxxM
		SC/APC – LC/APC	FPCA-EMYPxxxM

** xxx = length in meters: 006 = 6 m, 007 = 7 m, 010 = 10 m, 015 = 15 m
Contact TE's Technical Assistance Center for availability of custom lengths.

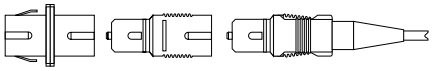
Frame Touch-up Paint

ORDERING INFORMATION

Description	Part Number
Black Bottle with Applicator Brush	NG4-ACCBLKPAINT

Attenuators

A fiber optic attenuator is an optical device that induces a calibrated fixed loss between two connectors, which dampens, or attenuates the fiber optic signal. Attenuation is required if an optical signal has too much power, exceeding the operating range of the equipment, which causes saturation at the receiver and induces system errors or failures. TE's full line of attenuators are manufactured to meet the demands of your network. In-line attenuators are installed between an adapter and a connector; they are fused attenuators, providing exceptional optical performance.



Adapter **In-Line Attenuator** **Connector/** Patch Cord

Attenuation	Tolerance
≤5 dB	±0.75 dB
>5 dB	±10%

In-Line SC Attenuator

ORDERING INFORMATION

Description		Part Number*
LC ultra polish	05 dB	FOA-INLC05
	10 dB	FOA-INLC010
	15 dB	FOA-INLC015
	20 dB	FOA-INLC020
SC ultra polish	05 dB	FOA-INSC05
	10 dB	FOA-INSC10
	15 dB	FOA-INSC15
	20 dB	FOA-INSC20
SC angled polish	05 dB	FOA-INASC05
	10 dB	FOA-INASC10
	15 dB	FOA-INASC15
	20 dB	FOA-INASC20

* Other attenuation values and connector styles are available upon request. Please contact Technical Assistance Center.

www.te.com/NG4access

CATALOG

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Tel: 1-800-366-3891 x73000
1-952-917-3000
Fax: 1-952-917-3237

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