

FlexNAP™ Outside Plant System

CORNING

Features and Benefits

Factory-installed, sealed splice points (2, 4, 6, 8 or 12 fibers per tether)

Drastically reduces field splicing with a predetermined loss at each waterproof tether attachment point (TAP)

Flexible preterminated access points

Utilize traditional field-installation techniques for aerial, below-grade, and duct applications

Maximum of two tethers per attachment point

Up to 24 fibers at each designated TAP point

Distribution cables available in ALTOS® Loose Tube Gel-Free Cable, ALTOS Figure-8, ALTOS Lite™ Gel-Free Armored Cable and RPX® Ribbon Cable

Field familiarity with traditional network cable types

OptiSheath® MultiPort Terminals may be configured with four, six, eight or 12 OptiTap® Connector Adapters

Allow multiple configuration variations that are suitable for aerial, below-ground and duct applications

Corning FlexNAP™ outside plant system provides the most cost-effective method of deploying optical fiber in outside plant distribution networks at speeds significantly faster than traditional field installations. The FlexNAP system utilizes optical fiber cables upon which network access points are pre-installed at customer-specified locations along the length of the cable. The cable and network access points are tested and shipped as a complete distribution cable/terminal system.

Compatible with both aerial (overlash, dedicated messenger and self-support) and below-ground (direct-buried and 1.25 in duct) outside plant distribution applications, Corning FlexNAP can be installed up to five times faster per network access point.

The increased speed of network deployment, along with the reliability of factory testing, offers significant value to the end user in the following key areas: deployment velocity, risk avoidance, workforce efficiency, capital avoidance, and deferment.

Standards

Design and Test Criteria GR-3122, GR-771, GR-3120, GR-3152



OptiSheath MultiPort Terminal - 6/8-Port
| Photo TRCLS026

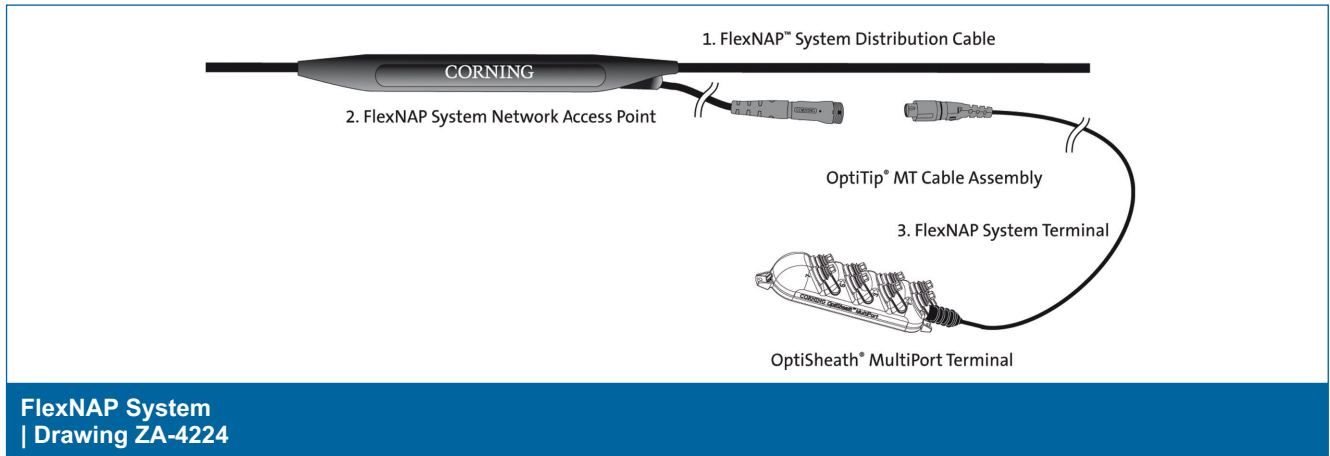


OptiTip MT Cable Assembly
| Photo CCA202

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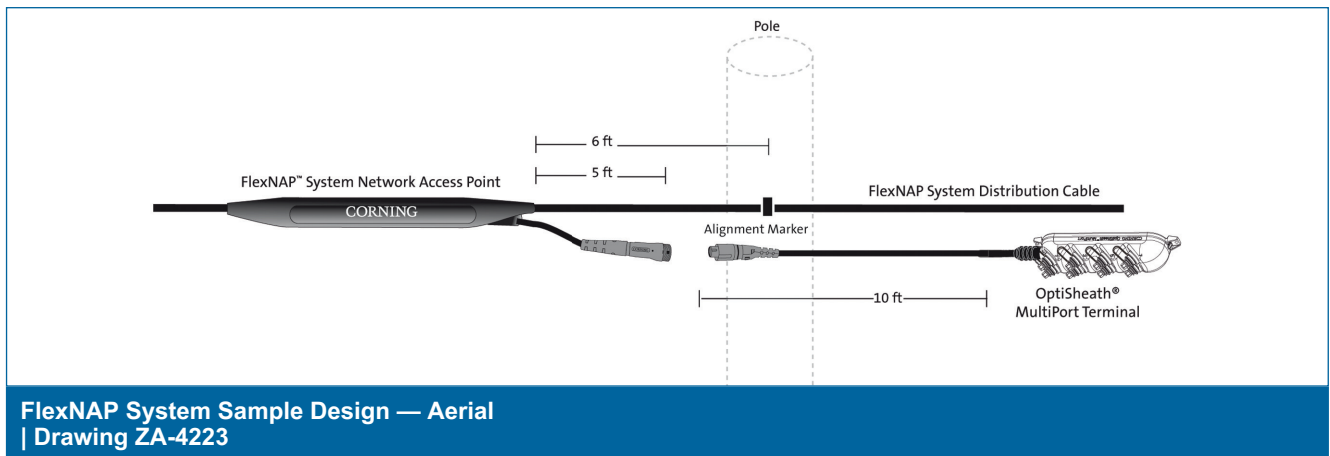
Designing A FlexNAP™ System



A FlexNAP System cable consists of three components:

1. FlexNAP System distribution cable
2. FlexNAP System network access points (with OptiTip® MT Cable Assembly)
3. FlexNAP System terminal (with OptiSheath® MultiPort Terminal) and OptiTip MT Cable Assembly (ordered separately)

Sample Design Layouts Aerial FlexNAP™ System Portfolio

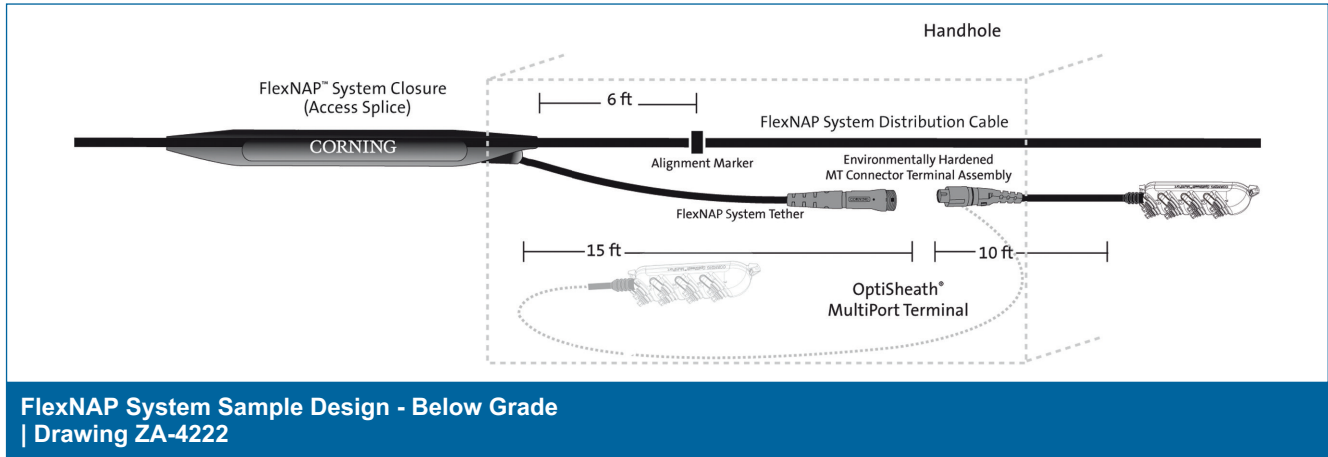


- 12 to 432 fibers
- 2-, 4-, 6-, 8- and 12-fiber MT-based tether attachment points (TAPs)
- Loose tube cable, Figure-8 cable, and RPX ribbon cable
- TAP tether length — 5 ft
- Terminal assembly length — 10 ft minimum

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Buried/Duct FlexNAP System Portfolio



- Buried application
 - Direct buried/Duct: 12 to 432 fibers
 - 1.25-in duct: 12 to 72 fibers
- 2-, 4-, 6-, 8- and 12-fiber MT-based tether attachment points (TAPs)
- Loose tube cable, Armored loose tube cable, and Toneable RPX ribbon cable
- TAP tether length — 15 ft
- Terminal assembly length — 10 ft minimum

Specifications

| Temperature Range | |
|-------------------|---|
| Storage | -40 °C to 70 °C (-40 °F to 158 °F) |
| Installation | -30 °C to 70 °C (-22 °F to 158 °F RPX cable -18° to 70°C) |
| Operation | -40 °C to 70 °C (-40 °F to 158 °F) |

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| Type | Maximum Distribution Cable Fiber Count | Minimum Duct Size (in) | Maximum Fibers per Access Point | Maximum Tether Assemblies per Access Point | Nominal Overmold Outer Diameter mm (in) | Minimum Bend Radius Loaded cm (in) | Minimum Bend Radius Installed cm (in) | Maximum Tensile Load Short-Term N (lbf) | Maximum Tensile Load Long-Term N (lbf) |
|---|--|------------------------|---------------------------------|--|---|------------------------------------|---------------------------------------|---|--|
| FlexNAP System – Loose Tube Dielectric | | | | | | | | | |
| Low-Profile | ≤ 72 | 1.25 | 24 | 2 | 28 (1.1) | 158 (6.2) | 105 (4.1) | 2700 (600) | 890 (200) |
| <i>*Note: Dual-tether locations will have two individual single-tether access points.</i> | | | | | | | | | |
| Standard | ≤ 72 | 2 | 24 | 2 | 36 (1.4) | 158 (6.2) | 105 (4.1) | 2700 (600) | 890 (200) |
| High-Fiber-Count | 96 | 2 | 24 | 2 | 44 (1.7) | 183 (7.2) | 122 (4.8) | 2700 (600) | 890 (200) |
| | 144 | 2 | 24 | 2 | 44 (1.7) | 237 (9.3) | 158 (6.2) | 2700 (600) | 890 (200) |
| | 216 | 2 | 24 | 2 | 44 (1.7) | 240 (9.4) | 160 (6.3) | 2700 (600) | 890 (200) |
| | 288 | 3 | 24 | 2 | 55 (2.2) | 273 (10.7) | 182 (7.2) | 2700 (600) | 890 (200) |
| | 432 | 3 | 24 | 2 | 65 (2.2) | 318 (12.5) | 212 (8.3) | 2700 (600) | 890 (200) |
| <i>*Note: 288F and 432F cables only allow tethers to be built in the outer layer of buffer tubes.</i> | | | | | | | | | |

| Type | Maximum Distribution Cable Fiber Count | Minimum Duct Size (in) | Maximum Fibers per Access Point | Maximum Tether Assemblies per Access Point | Nominal Overmold Outer Diameter mm (in) | Minimum Bend Radius Loaded mm (in) | Minimum Bend Radius Installed mm (in) | Maximum Tensile Load Short-Term N (lbf) | Maximum Tensile Load Long-Term N (lbf) |
|---|--|------------------------|---------------------------------|--|---|------------------------------------|---------------------------------------|---|--|
| FlexNAP System – Loose Tube Armored | | | | | | | | | |
| Standard | ≤ 72 | 2 | 24 | 2 | 44 (1.7) | 182 (7.2) | 121 (4.8) | 2700 (600) | 890 (200) |
| High-Fiber-Count | 96 | 3 | 24 | 2 | 50 (2.0) | 207 (8.1) | 138 (5.4) | 2700 (600) | 890 (200) |
| | 144 | 3 | 24 | 2 | 50 (2.0) | 263 (10.4) | 175 (6.9) | 2700 (600) | 890 (200) |
| | 216 | 3 | 24 | 2 | 50 (2.0) | 266 (10.5) | 177 (7.0) | 2700 (600) | 890 (200) |
| | 288 | 3 | 24 | 2 | 55 (2.2) | 273 (10.7) | 182 (7.2) | 2700 (600) | 890 (200) |
| | 432 | 3 | 24 | 2 | 55 (2.2) | 318 (12.5) | 212 (8.3) | 2700 (600) | 890 (200) |
| <i>*Note: 288F and 432F cables only allow tethers to be built in the outer layer of buffer tubes.</i> | | | | | | | | | |

| Type | Maximum Distribution Cable Fiber Count | Minimum Duct Size (in) | Maximum Fibers per Access Point | Maximum Tether Assemblies per Access Point | Nominal Closure Outer Diameter mm (in) | Minimum Bend Radius Loaded mm (in) | Minimum Bend Radius Installed mm (in) | Maximum Tensile Load Short-Term N (lbf) | Maximum Tensile Load Long-Term N (lbf) |
|--|--|------------------------|---------------------------------|--|--|------------------------------------|---------------------------------------|---|--|
| FlexNAP System – Dielectric or Toneable RPX | | | | | | | | | |
| | 24, 48, 72, 96, 144 | 2 | 24 | 2 | 25.4 (1.0) | 229 (9.0) | 229 (9.0) | 2700 (600) | 890 (200) |
| <i>* Notes:</i> | | | | | | | | | |
| 1) RPX FlexNAP tether fiber counts are 4, 8, 12. | | | | | | | | | |
| 2) All cable types allow two access points three feet apart resulting in four tethers at the same location for a maximum of 48 fibers. | | | | | | | | | |

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| Tether Application | Tether Length (ft) | Connector Style | Cable Type | Available Fiber Counts | Insertion Loss (dB) Typical | Reflectance (dB) Typical | Polish | Alignment Mechanism |
|--|--------------------|-------------------|---------------|------------------------|-----------------------------|--------------------------|----------|----------------------------|
| OptiTip® MT Cable Assembly Tether | | | | | | | | |
| Aerial | 5 | OptiTip MT Pinned | SST flat drop | 2, 4, 6, 8, 12 | 0.35 | ≤ -65 | 8° angle | Stainless steel guide pins |
| Below Ground/Duct | 15 | OptiTip MT Pinned | SST flat drop | 2, 4, 6, 8, 12 | 0.35 | ≤ -65 | 8° angle | Stainless steel guide pins |

Ordering Process

Ordering the FlexNAP system is a three-step process:

1. Design and Measure – Design the distribution cable build-plan and measure distances between poles, handholes, or pedestals to fit your specific application.
2. Create and Submit Build-Plan Online – Contact Corning at 800-743-2675 for access to the online configurator.
3. Place Order – Place order by submitting the single, unique part number generated by the online configurator.

Note: Initial FlexNAP system quote will be generated using this specification sheet to create a component bill of material (BOM).

Component Specifications

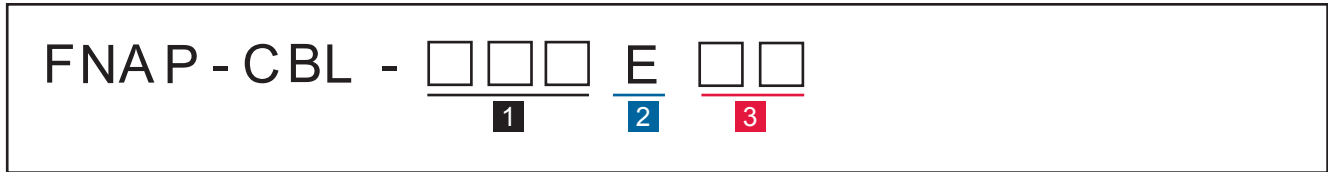
The FlexNAP system configurator is an online tool used to format a build-plan that will be used to process the FlexNAP system design specifications at Corning. The following information is provided to illustrate the available FlexNAP system configurations and to allow for creating a bill of materials (BOM) for planning purposes once a design is uploaded. The BOM created is only for reference and is not a component breakdown for ordering. A single part number used for ordering will be generated by the FlexNAP system configurator that will encompass the components of the BOM.



FlexNAP System Components |

Distribution Trunk Cables

Ordering Information



1 Select fiber count.

- | | |
|-----------------------|------------------|
| 012 = 12 fibers | 072 = 72 fibers |
| 024 = 24 fibers | 096 = 96 fibers |
| 036 = 36 fibers | 144 = 144 fibers |
| 048 = 48 fibers | 216 = 216 fibers |
| 060 = 60 fibers | 288 = 288 fibers |
| <i>See Notes 1-4.</i> | 432 = 432 fibers |

2 Defines fiber type.

E = Single-mode (OS2)

3 Select cable type.

- U4 = ALTOS loose tube gel-free
- UA = Figure-8 loose tube
- V4 = RPX gel-free flat ribbon
- UC = ALTOS Lite gel-free armored
- V2 = RPX toneable
- UF = Loose tube flame retardant

Notes:

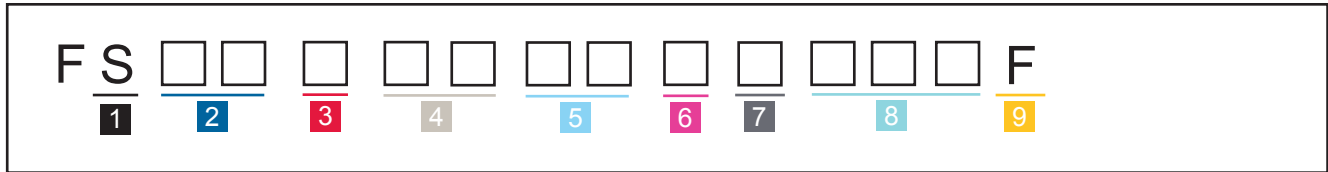
- 1) RPX Cables available in 24, 48, 72, 96 and 144 fiber counts only.
- 2) 216 fiber only in ALTOS All-Dielectric Cable, ALTOS Lite Gel-Free Armored Cable and figure-8 cable.
- 3) 288 and 432 fiber only in ALTOS All-Dielectric Cable and ALTOS Lite Gel-Free Armored Cable.
- 4) 288 fiber cable allows 168 preconnectorized fibers, 432 fiber cable allows 204 preconnectorized fibers.



FlexNAP System Components | (continued)

Tether Attachment Points

Ordering Information



1 Defines fiber type.

S = Single-mode (OS2)

2 Select cable type.

- U4 = ALTOS loose tube gel-free
- UA = Figure-8 loose tube
- V4 = RPX gel-free flat ribbon
- UC = ALTOS Lite gel-free armored
- V2 = RPX toneable
- UF = Loose tube flame retardant

See Note 1.

3 Select TAP type.

- A = RPX cable or standard overmold for loose tube
- C = 1.25-in overmold (≤ 72 fiber; U4 cable only)

4 Select fiber count.

- 02 = 2 fibers
- 04 = 4 fibers
- 06 = 6 fibers
- 08 = 8 fibers
- 12 = 12 fibers

5 Select tether type.

- M2 = OptiTip MT connector (pinned)

6 Select installation environment.

- T = Aerial
- R = Below grade

7 Select end cap type.

- N = No loop back
- L = Loop back dust cap

8 Select tether length in ft.

- 005 = Aerial
- 015 = Below grade and/or duct

9 Defines unit of measure for tether length.

- F = Feet

Note:

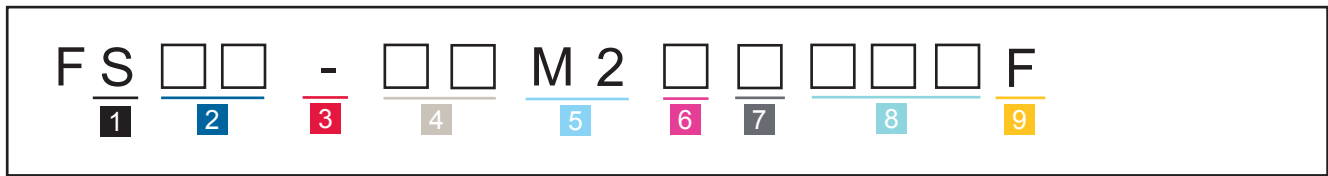
1) RPX Cable FlexNAP tether fiber counts are 4, 8, 12.



FlexNAP™ System Components | (continued)

Second Tether Component Breakdown Second Tether Attachment Points

Ordering Information



1 Defines fiber type.
S = Single-mode (OS2)

2 Select cable type.
U2 = ALTOS loose tube gel-free
UA = Figure-8 loose tube
UC = ALTOS Lite gel-free armored
V2 = RPX toneable
V4 = RPX gel-free flat ribbon
UF = Loose tube flame retardant
See Note 1.

3 Defines TAP type.
- = Second tether attachment point

4 Select fiber count.
02 = 2 fibers
04 = 4 fibers
06 = 6 fibers
08 = 8 fibers
12 = 12 fibers

5 Defines tether type.
M2 = OptiTip MT connector (pinned)

6 Select installation environment.
T = Aerial
R = Below grade

7 Select end cap type.
N = No loop back
L = Loop back dust cap

8 Select tether length in ft.
005 = Aerial
015 = Below grade and/or duct

9 Defines unit of measure for tether length.
F = Feet

Note:
1) RPX Cable FlexNAP tether fiber counts are 4, 8, 12.

FlexNAP™ System Components | (continued)

Pre-term Lateral Installation Details

A pre-term lateral is a factory-terminated solution for quick and easy connection to a parent FlexNAP cable, with the purpose of eliminating a field splice point. This allows passing smaller side streets in a neighborhood of 48 homes or less. The connectivity is achieved by adding one to four non-pinned connectors to the HE/CO/Cabinet side of the cable. These mate directly to the parent FlexNAP cable providing connectivity without a need for tools. Pre-term laterals are available with the fiber counts of 12, 24, 36, or 48 fiber maximum and at least one field side tap.

Ordering Information

| | |
|---------------------------------|---|
| RTX - <u>□□□</u> <u>□□□</u> M 1 | |
| 1 | 2 |

1 Select fiber count.

- 012 = 12 fibers (1 tether)
- 024 = 24 fibers (2 tethers)
- 036 = 36 fibers (3 tethers)
- 048 = 48 fibers (4 tethers)

2 Select cable type.

- EV4 = RPX cable
- EUC = Armored loose tube
- EU4 = Dielectric loose tube
- EV2 = RPX toneable
- EUA = Figure-8 loose tube



Typical FlexNAP with Preterminated Lateral (reverse tether)
| Drawing ZA-4309

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FlexNAP™ System Components | (continued)

Cable with Max Lengths

| Cable Type with Maximum Lengths in Feet and Meters | | | |
|---|--|--------------------|---------------------|
| Cable | Fiber Count | Maximum Length (m) | Maximum Length (ft) |
| ALTOS Loose Tube, Gel-Free, Dielectric and Riser Cable | 12 to 72 fibers | 7000 | 23000 |
| | 96 fibers | 5500 | 18000 |
| | 144 fibers | 3300 | 10000 |
| | 216 fibers | 4000 | 13000 |
| | 288 fibers | 3000 | 10000 |
| | 432 fibers | 2400 | 8000 |
| ALTOS Figure-8 Loose Tube | 12 to 72 fiber | 1500 | 4900 |
| | 96 fibers | 1500 | 4900 |
| | 144 fibers | 1200 | 4000 |
| | 216 fibers | 1200 | 4000 |
| RPX Toneable and Dielectric | 24 fibers | 7000 | 23000 |
| | 48 fibers | 7000 | 23000 |
| | 72 fibers | 6500 | 21000 |
| | 96 fibers | 6500 | 21000 |
| | 144 fibers | 5500 | 21000 |
| | ALTOS Loose Tube, Armored, Gel-Free | 12 to 72 fibers | 4000 |
| 96 fibers | | 3000 | 9600 |
| 144 fibers | | 2000 | 6500 |
| 216 fibers | | 2400 | 8000 |
| 288 fibers | | 2000 | 6500 |
| 432 fibers | | 1600 | 5200 |

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FlexNAP™ System Components | (continued)

Terminal Component Breakdown

Order the appropriate OptiSheath® MultiPort Terminal with OptiTip® MT Cable Assembly separately.

Standard length is 10 ft. For customized lengths up to 500 ft, refer to the ordering information on the following page. For lengths greater than 500 ft, please call a Corning Customer Care Representative at 800-743-2675.

| Terminal Type | OptiTap® Adapter Port Counts | Connector Style | Insertion Loss (dB) Typical | Reflectance (dB) Typical* |
|--|------------------------------|---------------------------------|-----------------------------|---------------------------|
| FlexNAP System Compatible OptiSheath® MultiPort Terminal Specifications | | | | |
| Sealed with OSP cable stub | 4, 6, 8, 12 | OptiTap Port Assembly to SC APC | 0.15 | ≤ -65 |

*Typical performance when mated with a Corning Cable Systems OptiTap Drop Cable assembly.

| Connector Style | Cable Type | Fiber Counts | Insertion Loss (dB) Typical | Reflectance (dB) Typical† | Polish |
|---|---------------|--------------|-----------------------------|---------------------------|----------|
| FlexNAP System Compatible OptiSheath MultiPort Terminal Specifications | | | | | |
| OptiTip MT Non-pinned | SST flat drop | 4, 6, 8, 12 | 0.35 | ≤ -65 | 8° angle |

†Typical performance when mated with a Corning Cable Systems OptiTip MT Pinned Connector

| Description | Dimensions (L x H x W) mm (in) |
|---|---------------------------------------|
| FlexNAP System Compatible OptiSheath MultiPort Terminal Specifications | |
| OptiSheath 4-Port MultiPort Terminal | 27.4 x 6.6 x 7.3 (10.8 x 2.6 x 2.9) |
| OptiSheath MultiPort Terminal (6-, 8-Ports) | 31.2 x 7.6 x 8.6 (12.3 x 3.0 x 3.4) |
| OptiSheath 12-Port MultiPort Terminal | 10.2 x 14.7 x 38.1 (15.0 x 4.0 x 5.8) |

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Ordering Information

M T B - **4 4** **F W** -

1 Select number of OptiTap Cable Assembly ports.
 04 = 4 OptiTap Connector adapters
 06 = 6 OptiTap Connector adapters
 08 = 8 OptiTap Connector adapters
 12 = 12 OptiTap Connector adapters

2 Defines OptiTap Connector Adapter type.
 44 = APC

3 Select cable type.
 FD = SST flat dielectric drop cable
 TD = SST flat toneable drop cable

4 Select cable length (See Table A for additional lengths).
 010 = 10 ft
 025 = 25 ft
 050 = 50 ft
 075 = 75 ft
 100 = 100 ft
 500 = 500 ft

5 Defines unit of measure.
 F = Feet

6 Select packaging.
 P = Individual packaging
 Blank = Bulk packaging

| Table A: Alpha Codes for lengths ≥ 1000 ft | |
|--|--------|
| A00 | = 1000 |
| B00 | = 1100 |
| C00 | = 1200 |
| D00 | = 1300 |
| E00 | = 1400 |
| F00 | = 1500 |
| G00 | = 1600 |
| H00 | = 1700 |
| J00 | = 1800 |
| K00 | = 1900 |
| L00 | = 2000 |

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FlexNAP™ System Components | (continued)

Terminal Component Breakdown

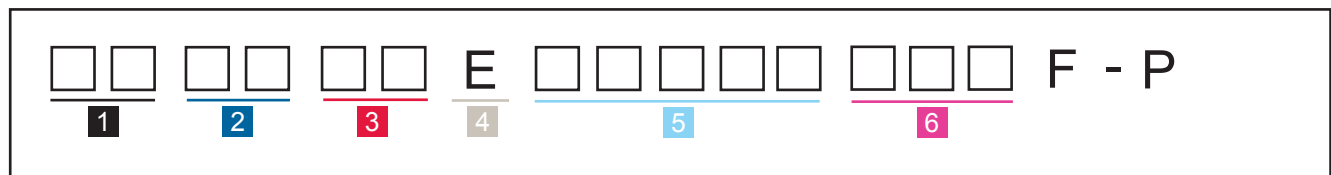
| Standard Multiport Configurations | | |
|-----------------------------------|-----------------|----------------|
| Part Number | Number of Ports | Cable Length |
| MTB-0444FD010FW-P | 4 | 3 m (10 ft) |
| MTB-0644FD010FW-P | 6 | 3 m (10 ft) |
| MTB-0844FD010FW-P | 8 | 3 m (10 ft) |
| MTB-1244FD010FW-P | 12 | 3 m (10 ft) |



FlexNAP™ System Components | (continued)

OptiTip® Assemblies

Ordering Information



- 1** Select connector type one.
- 00 = No connector (pigtail)
 - M1 = OptiTip MT Connector (non-pinned), single-mode (OS2)
 - M2 = OptiTip MT Connector (pinned), single-mode (OS2)

- 2** Select connector type two.
- M1 = OptiTip MT Connector (non-pinned), single-mode (OS2)
 - M2 = OptiTip MT Connector (pinned), single-mode (OS2)
 - 02 = LC UPC, single-mode (OS2)
 - 44 = SC APC
 - 58 = SC UPC, single-mode (OS2)
 - 61 = ST Compatible Connector, UPC, single-mode (OS2)
 - 90 = MTP Connector (non-pinned), single-mode (OS2)
- See Notes 1 and 2.*

- 3** Select fiber count.
- 02 = 2 fibers
 - 04 = 4 fibers
 - 06 = 6 fibers
 - 08 = 8 fibers
 - 12 = 12 fibers

- 4** Defines fiber type.
- E = Single-mode (OS2)

- 5** Select cable type.
- B4D1E = SST-Drop Outdoor Cable
 - B1D1E = SST-Drop Toneable Outdoor Cable
 - BZD1X = FREEDM LSZH Flat Drop Cable


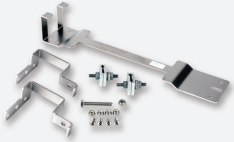



- 6** Select length.
- 025 = 25 ft
 - 050 = 50 ft
 - 075 = 75 ft
 - 100 = 100 ft
 - 150 = 150 ft
 - 200 = 200 ft
 - 250 = 250 ft
 - 500 = 500 ft

Notes:
 1) Codes M1 and M2 are point-to-point trunks when selected as connector type two.
 2) Our assemblies are not available with M2 (pinned) connectors on both ends.

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Accessories

| Part Number | Product Description | Units per Delivery | |
|-------------------|--|--------------------|---|
| MOB-KT-AHD | 4-, 6-, and 8-port Mounting Bracket for aerial strand applications | 1/1 |  |
| MOB-KT-AHD-12 | 12-port Mounting Bracket for aerial strand applications | 1/1 |  |
| MOB-KT-UNIV-BKT | Universal Mounting Bracket Pack for 4- and 12-port housing | 10/1 |  |
| 2104478-01 | Fiber Optic Cleaning Tool, OptiTip® connector | 1/1 |  |
| CLEANER-PORT-OTAP | Single-fiber Port Cleaner for OptiTap® connector end faces | 1/1 |  |

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