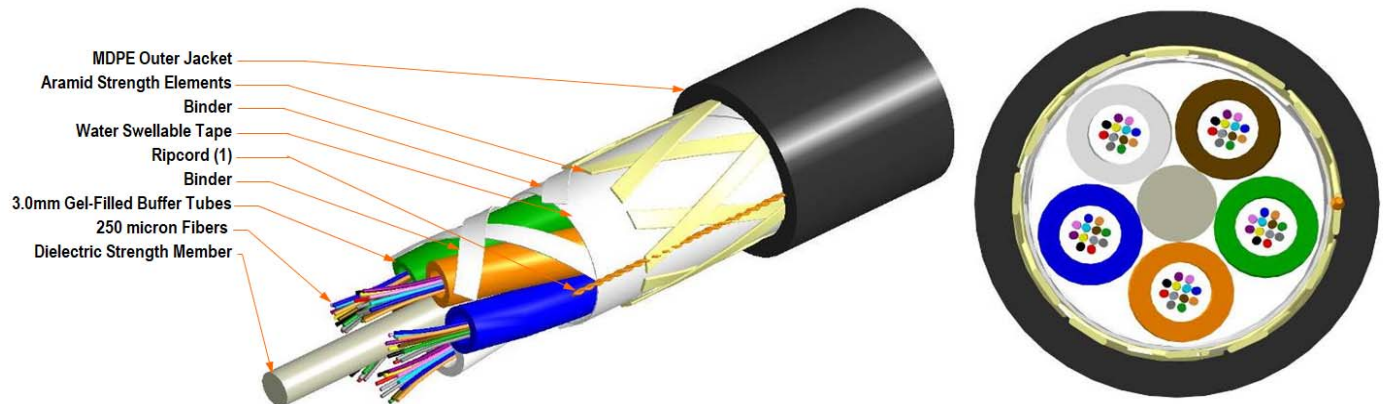


All-Dielectric Self-Support ADSS Outdoor Cable

2 - 60 Fiber Arid-Core® Construction

Stranded Loose Tube

12-Fiber Subunits



Physical Specifications

Fiber Count	Catalog Number	Cable Outer Diameter	Subunits	Weight	Minimum Bend Radius		Max. Tensile Window		Maximum Vertical Rise
					Loaded	Unloaded	Short Term	Long Term	
2 - 60	S-XXX-LN-XY-FZZNS/NFB*	11.9 mm; 0.47 in	5	101 kg/km; 68 lbs/kft	17.9 cm; 7.0 in.	11.9 cm; 4.7 in.	4270 N; 960 lbs	3447 N; 775 lbs	3,495 m; 11,467 ft

* Replace XXX with Number of Fibers

Replace XY with Fiber Type and Grade (See Optical Performance Sheet)

Replace ZZ with Number of Fibers per Tube

† For multiple fiber types, replace AA with Fiber Type and Grade #1 and replace BB with Fiber Type and Grade #2; replace aaa and bbb with number of fibers for each fiber type.

Environmental Specifications

Installation Temperature	-30°C to +70°C; -22°F to 158°F
Operating Temperature	-40°C to +70°C; -40°F to 158°F
Storage Temperature	-40°C to +75°C; -40°F to 167°F

Mechanical Test Specifications

Test	Requirement	Test Method
Compression	22 N/mm; 125 lbf/in	FOTP-41; IEC 60794-1 E3
Flex	35 Cycles	FOTP-104; IEC 60794-1 E6
Impact	Cable Diameter Dependant	FOTP-25; IEC 60794-1 E4
Strain	See long & short term tensile loads	FOTP-33; IEC 60794-1 E1
Twist	10 Cycles	FOTP-85; IEC 60794-1 E7
Water Penetration	24 Hours	FOTP-82; IEC 60794-1 F5

Environmental Test Specifications

Test	Requirement	Test Method
Cable Freeze	-2°C; 28°F	FOTP-98; IEC 60794-1 F15
Drip	+70°C; 140°F	FOTP-81; IEC 60794-1 E14
Heat Age	-40°C to +85°C; -40°F to 185°F	IEC 60794-1 F9
Low High Bend	-30°C to +60°C; -22°F to 140°F	FOTP-37; IEC 60794-1 E11
Temperature Cycle	-40°C to +70°C; -40°F to 158°F	FOTP-3; IEC 60794-1 F1

CommScope Optical Cables are qualified under the general guidelines of the following specifications:

ANSI/CEA S-87-640; Telcordia GR-20; EN 187105

Cable Identification

Cable Jacket - Black medium density polyethylene

Color Identification

Fiber Subunits & Fibers are identified with standard color coding:

1-Blue, 2-Orange, 3-Green, 4-Brown, 5-Slate, 6-White, 7-Red, 8-Black, 9-Yellow, 10-Violet, 11-Rose, 12-Aqua

Cable Features/Benefits

- Single Jacket ADSS for Aerial Long Haul and Metro Applications
- Small cable diameter and bend radius for lightweight and ease of handling and installation
- Designed for aerial spans requiring a self-supporting, non-messengered product
- Single Medium Density Polyethylene (MDPE) jacket for fast convenient cable preparation
- Fully qualified in accordance with Telcordia Technologies, EIA/TIA and IEEE Standards

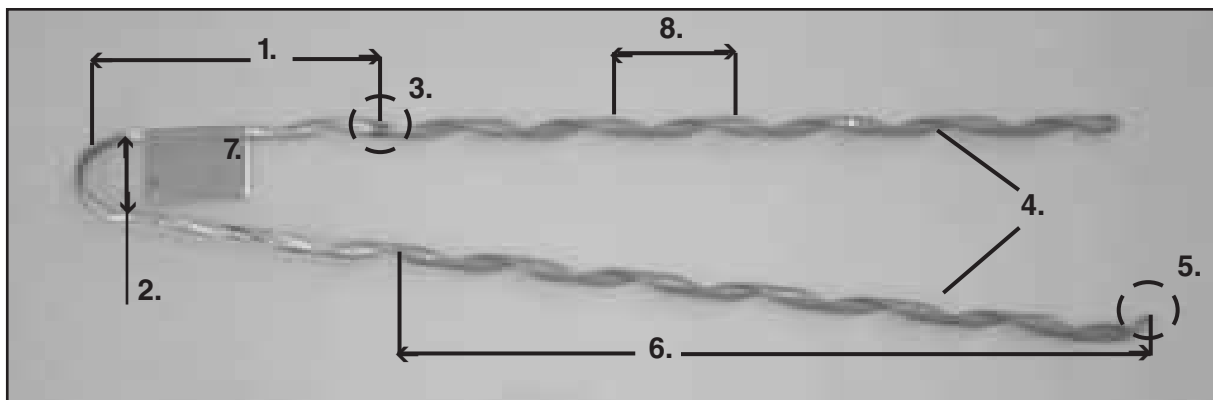
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FIBERLIGN® Lite Tension Dead-end

For use on All Dielectric Self-Supporting (ADSS) Fiber Optic Cable

Be sure to read and completely understand this procedure before applying product. Be sure to select the proper PREFORMED product before application.



FIBERLIGN® Lite Tension Dead-end Nomenclature

NOMENCLATURE

- | | |
|------------------------------------|--|
| 1. Loop Length—minimum 8" (203 mm) | 6. Latex Coating
(length of coverage shown) |
| 2. Loop Diameter | 7. ID Tag |
| 3. Color Code and Crossover Mark | 8. Pitch Length |
| 4. Dead-end Legs | |
| 5. Flared Rod Ends | |

DESCRIPTION

The FIBERLIGN® Lite Tension Dead-end (FLTDE) is designed to terminate short span, low tension ADSS fiber optic cables in low voltage environments. Consult PLP for suitability of the FLTDE unit for each application to determine whether it meets system load requirements. NOTE: If loads are too high, PLP will make an alternative hardware recommendation.

The FLTDE has a pliable latex coating and flared rod end treatment that helps prevent possible damage to the cable jacket during and after installation.

The loop diameter of the FLTDE will fit over a minimum diameter of 1-1/2" (38.1mm) and a maximum diameter of 2-1/4" (57.2 mm). The FLTDE is designed to accept common guy wire dead-end pole fittings like thimble eyes and guy hooks. The extended loop length reduces the need for an extension link, however, PLP can provide other FIBERLIGN® fittings including extension links (with thimble clevis) if desired.

INSTALLATION ISSUES

FIBERLIGN® Dielectric Dead-ends are designed and manufactured for optimum performance. Removing wires, shortening the length, or deforming the product will affect product performance. WARNING: Do not alter the product in any way.

STRINGING-IN Tension: For initial stringing tension that can represent the long-term load condition, the FLTDE is rated for 585 (2.6 kN) pounds. Higher loads approaching 600 pounds (2.7 kN) may be achieved depending on the brand and construction of cable. Contact PLP® for further information.

LOADED TENSION: For NESC heavy loaded tension that represent the short term load in a cold temperature environment, the FLTDE is rated for 800 pounds (3.5 kN). Performance may vary depending on brand and construction. Contact PLP® for further information.

CAUTION: For warm temperature climates designated as NESC light or medium districts, cable manufacturers may expand the cable rating to higher stringing-in loads that approach the loaded tension levels in heavy districts. At high temperatures the cable jacket can soften and consequently prohibit higher holding strength for the FLTDE. Do not exceed the load levels referenced above without contacting PLP for more information.

To attach the dead-end to the structure, an appropriate fitting with proper groove dimensions must support the loop of the dead-end. The photo below shows acceptable fittings that may be used as long as the groove seat diameter falls in the range 1-1/2" through 2-1/4" (38.1 mm to 57.2 mm). Preformed Line Products offers the TC-5A Thimble Clevis, and the TE-5 Thimble Eye – both having proper groove seat dimensions.



Appropriate Fittings

Re-application: The FLTDE may be used only once as a pulling-in grip, removed then reapplied only once more for permanent installation, for a total of two applications. **DO NOT** reuse after initial, permanent installation is completed.

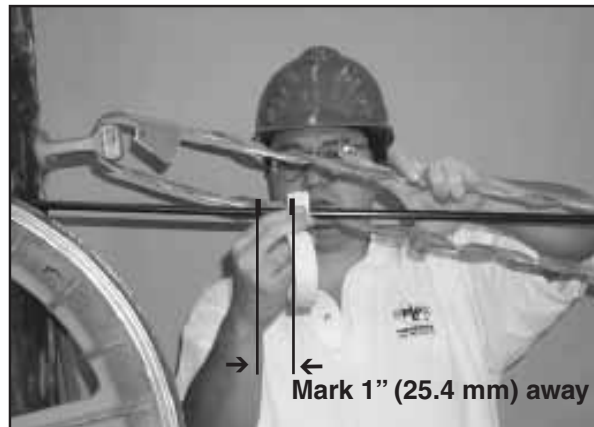
CAUTION: Most fiber failures occur during dead-ending. It is imperative to understand the above installation issues and the following application procedure before proceeding.

APPLICATION

Step #1 The FIBERLIGN® Lite Tension Dead-end (FLTDE) begins contact with the fiber optic cable at the dead-end crossover mark. Mount or connect the appropriate attachment fitting (thimble clevis, guy hook, etc.) to the structure and insert the dead-end loop into the groove of the fitting. Position the assembly parallel to the cable to place a reference mark on the cable.

With the cable near its final position (considering sag and tension if required), place a reference mark on the cable approximately one inch beyond the FLTDE crossover mark (away from the structure). Use a thin layer of tape or soft tip marker to mark the cable.

Carefully tension the cable enough to bring the reference mark on the cable in line with the color mark (crossover mark) of the FLTDE.



Place Mark on Cable to Locate Dead-end Application.

Step #2 Begin application by wrapping the dead-end legs over the cable starting at the crossover marks as shown in the photo. It may be possible to wrap one leg at a time although even pressure on the cable is maintained by wrapping both legs simultaneously.



Begin wrapping at dead-end color mark.

Step #3 Continue the installation by wrapping the leg(s) around the cable as shown in the photo. Whether you wrap one leg at a time or both simultaneously, make sure the gap between both legs is evenly spaced.



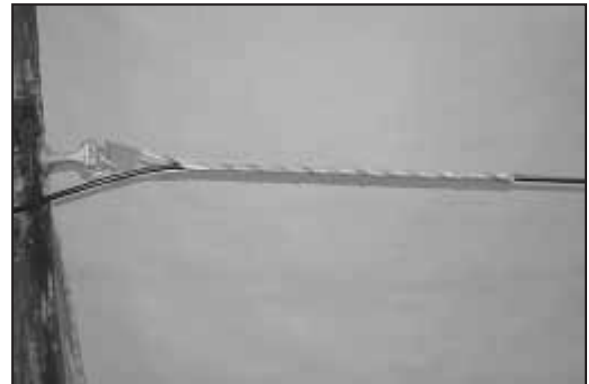
Continue to wrap both dead-end legs.

Step #4 To ease final installation, the last two leg pitches of the dead-end can be split as shown in photo below



Split legs of last few pitch lengths.

Splitting the legs reduces the effort to overcome the stiffness of a full leg as it is wrapped over the cable. Wrap the legs completely onto the cable making sure that no rods are crossed and that all rod ends are snapped into place (See photo below).



Completed Installation and alternate tension removed.

SAFETY CONSIDERATIONS

This application procedure is not intended to supersede any company construction or safety standards. This procedure is offered only to illustrate safe application for the individual. **FAILURE TO FOLLOW THESE PROCEDURES MAY RESULT IN PERSONAL INJURY OR DEATH.**

This product may be removed and reinstalled during the initial installation if it is in good condition. After extended service life, it is recommended the product not be reused once removed from service.

Do not modify this product under any circumstances.

This product is intended for use by trained technicians only. **This product should not be used by anyone who is not familiar with, and not trained to use it.**

When working in the area of energized lines, extra care should be taken to prevent accidental electrical contact.

For proper performance and personal safety, be sure to select the proper size PREFORMED product before application.

PREFORMED products are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.



PREFORMED LINE PRODUCTS

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SP2903-1



FIBERLIGN® Lite Support

For use on all Dielectric Self-Supporting (ADSS) Fiber Optic Cable.

Be sure to read and completely understand this procedure before applying product. Be sure to select the proper PREFORMED™ product before application.

1.00 NOMENCLATURE (Figure 1)

1. Housing Halves (2)
- 2a. Small Cushion Insert (1)
- 2b. Large Cushion Insert (2)
3. Hardware Kit for Banding Applications (optional). Includes: 5/8"-11 x 4" long carriage bolt, 5/8" round washer, lock washer and 5/8"-11 nut.

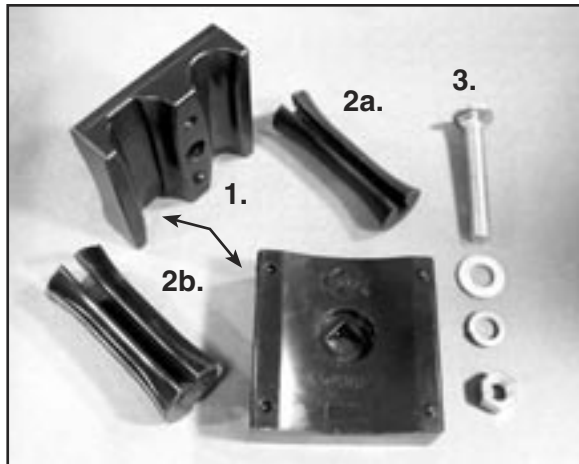


FIGURE 1: KIT CONTENTS & NOMENCLATURE

2.00 DESCRIPTION

- 2.01** The FIBERLIGN Lite Support (FLS) system is designed for low voltage environment, short span (300' [91.4 m]), low tension ADSS fiber optic applications. Consult PLP for suitability of the FLS unit for each application to determine whether it meets structural loading requirements. NOTE: If loads are too high, PLP has alternative hardware recommendations.
- 2.02** PLP developed special inserts to accommodate ADSS drop cables in round, flat and figure 8 styles. See the tables in Section 8 of this procedure for cable diameter ranges.

- 2.03** The FLS housing is made from high strength composite material that is extremely resistant to abrasion. It can be used as a replacement for a stringing traveler during stringing and sagging operations.

3.00 INSTALLATION ISSUES

- 3.01** The Cushion Insert of an FLS is molded for a specific cable OD range and should be used only on cables within that range. The numeric range is molded in the end of each insert for reference.
- 3.02** Unbalanced Loading: The FLS cushion inserts provide gentle gripping and low longitudinal holding strength depending upon the specific cable. CONSULT PLP FOR SPECIFICS. PLP can provide other products for increased capability including the FIBERLIGN Dielectric Support, FIBERLIGN MIDspan Support/Suspension, and FIBERLIGN Dielectric Suspension.
- 3.03** Through-bolt: For mounting the FLS, select a 5/8"-11 (M16) through-bolt of sufficient length and insert into the pole at a right angle to the line for tangent lines, or bisect the angle on angled structures. The FLS has a hole (see Figure 1) through the center of the housing. The assembly is captured with appropriate washers and nut against the pole.

Banding: A banding groove (see Figure 1) is molded in the large cavity of the FLS housing to mount one half of the FLS against the structure. The other housing half is retained with a 4" (100 mm) carriage bolt, round washer, lock washer and nut. Position the housing as described for the through-bolt, i.e., perpendicular to the tangent lines or bisect the angle on an angled structure.

3.04 Stringing Cable: The large molded cavity of the FLS can be used for stringing-in cable. This cavity (without the cushion insert) provides enough clearance for a pulling-in rope and swivel assembly typically used in field installations. The smooth surfaces of the FLS cause little friction, thus enabling use as a stringing device.

3.05 Maximum Line Angle: When used as a stringing device, the maximum recommended sag or line angle of the FLS is approximately 10 degrees for most ADSS cables. When used as a permanent installation, the maximum recommended sag or line angle is approximately 20 degrees for most cables. These recommended sag and angle limits can be effected by cable size, brand, stringing tension and loading conditions. CONSULT PLP FOR EXCEPTIONS WHEN GREATER ANGLES ARE REQUIRED.

3.06 For Safety Considerations please refer to the end of this application procedure.

4.00 APPLICATION: BOLTED INSTALLATION

4.01 Install a standard 5/8" (M16) through-bolt on the pole or structure. The bolt should be long enough to provide a minimum of 4" (100 mm) of exposed thread. (Figure 2)

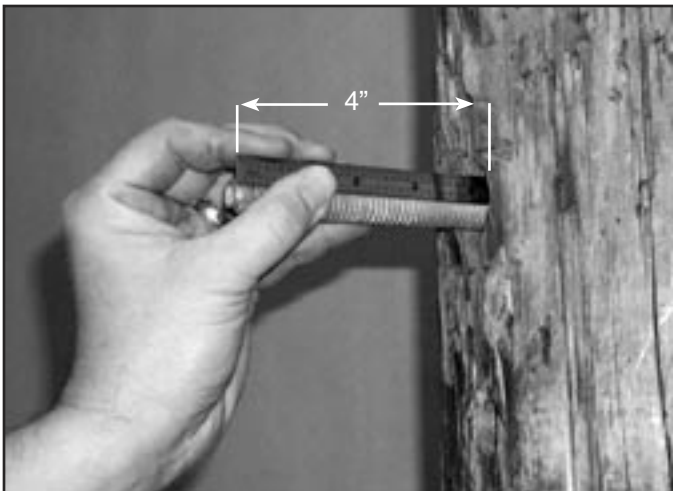


FIGURE 2 - MINIMUM THROUGH-BOLT CLEARANCE

4.02 The FLS housing halves are identical each containing a molded slip-through mounting hole. Slip both housing halves onto the 5/8" (M16) through-bolt. Loosely capture the housing halves with a 5/8" (M16) flat washer, 5/8" (M16) lock washer and 5/8" (M16) nut. (Figure 3)



FIGURE 3 - LEAVE HOUSING HALVES LOOSE

4.03 For permanent installations, align the cushion insert with the FLS housing and ADSS cable to determine the approximate insert location on the cable. The width of the open slot that runs the full length of the insert is slightly smaller than the cable diameter. Place the slot of the insert against the cable and carefully squeeze the insert into position with one hand while supporting the cable with your other hand. (Figure 4)



FIGURE 4 - ONE HAND SQUEEZES CABLE INTO INSERT AND THE OTHER HAND SUPPORTS THE CABLE AND PRESSES INSERT WITH THUMB

Orient the slot of the insert upward. (Figure 5)
Once in place, the insert will hold its position on the cable.

CAUTION: Orienting the slot of the cushion insert upward is designed to provide the proper support for the cable.



FIGURE 5 - ORIENT AND INSERT WITH SLOT UPWARD

4.04 Lift the cushion insert with the cable into the proper cavity of the FLS housing. The small cavity accepts cable diameters up to .699" (17.8 mm) and the large cavity accepts cable diameters up to 1.029" (26.1 mm). Slide the housing halves against the structure to keep the insert and cable in position, and then tighten the nut snug against the housing.

4.05 Torque the nut to 30 ft-lbs (41Nm) maximum against the housing to complete the installation. (Figure 6)



FIGURE 6 - TORQUE TO 30 FT-LB

5.00 APPLICATION: BANDED

5.01 Each housing half has a molded groove (see Figure 1) in the large cavity that will accept a 3/4" (19 mm) metal band. Install the designated band loosely on the pole or structure and apply tape to hold position if necessary.

5.02 Install the carriage bolt into the housing half that will be banded against the structure. The housing hole is molded to accept a standard carriage bolt and prevent it from turning. You may tape over the carriage bolt-hole to keep it in place during assembly. (Figure 7)



FIGURE 7 - INSTALL CARRIAGE BOLT

- 5.03** Capture the housing half against the structure with the band and tighten the band to the manufacturers' recommended torque level. Be sure that the band rests completely inside the molded groove. (Figure 8)

PLP TIP: You may temporarily tape the band against the housing half during this step, but be sure to remove the tape once the half is tight against the structure.



FIGURE 8 - BAND HOUSING HALF TO POLE

- 5.04** Slip the second housing half onto the protruding carriage bolt and install the flat washer, lock washer and nut. Leave the nut loose near the end of the bolt for installation of the insert. (Figure 9)



FIGURE 9 - INSTALL NUT AND LEAVE HOUSINGS LOOSE

- 5.05** For permanent installations, align the cushion insert with the FLS housing and ADSS cable to determine the approximate insert location on the cable. The width of the open slot that runs the full length of the insert is slightly smaller than the cable diameter. Place the slot of the insert against the cable and carefully squeeze the insert into position with one hand while supporting the cable with your other hand. (Figure 4)

Orient the slot of the insert upward. (Figure 5)
Once in place, the insert will stay on the cable.

CAUTION: Orienting the slot of the cushion insert upward is designed to provide the proper support for the cable.

- 5.06** Lift the cushion insert with the cable into the proper cavity of the FLS housing. The small cavity accepts cable diameters up to .699" (17.8 mm) and the large cavity accepts cable diameters .700" (17.9 mm) and above. Slide the second housing half against the banded housing half to keep the insert and cable in position and then tighten the nut snug against the housing.
- 5.07** Torque the nut to 30 ft-lbs (41 Nm) maximum against the housing to complete the installation. (Figure 10)



FIGURE 10 - TORQUE TO 30 FT-LBS (41Nm)

6.00 STACKING THE FLS

- 6.01** The construction of the FLS allows for another support to be "stacked" against the to hold additional cables. (Figure 11)



FIGURE 11 - STACKED FLS

- 6.02** For a stacked bolted configuration, a standard 5/8" (M16) through-bolt is also required. This bolt must provide 7" (178 mm) of exposed length (i.e. length beyond the pole diameter) to accommodate both FLS housings. To install the first FLS, follow the "Bolted" application in Section 4.0 using the longer through-bolt. Once the first FLS is installed and tightened to the pole, the second FLS can be "stacked" against the first and installed in the same manner.

NOTE: On the exterior face of each housing there are four alignment points near the corners of the housing - two are small bumps (nodules) and two are small holes (divots). After securing the first FLS to the pole, the second FLS is aligned by engaging the corner alignment points. (Figure 12)



FIGURE 12 - SECOND FLS INSTALLATION AGAINST THE FIRST

- 6.03** For a stacked banded configuration, a longer carriage bolt 5/8"-11 x 7" (16 m x 178 mm) is required to attach the second FLS to the first. To install the first FLS, follow the "Banded" application in Section 5.0 using the longer carriage bolt. Once the first FLS is installed and tightened to the pole, the second FLS can be "stacked" against the first and installed according to the "Bolted" application in Section 4.0. See section 6.02 regarding four alignment points.

7.00 FLS USED AS A STRINGING DEVICE

NOTE: The maximum line or sag angle for stringing with the FLS is approximately 10 degrees for most ADSS cables.

- 7.01** After installing the housing halves onto the through-bolt or carriage bolt (for banded applications) lay or feed the cable or stringing rope into the empty housing cavity without the inserts. The housings must be tightened against the structure to keep the cable within the smooth surfaces of the insert cavity (20 ft-lbs is adequate for this step). The largest cable, rope, or pulling-in grip that will move freely through the cavity is approximately 1-1/4" diameter. (Figures 13a & 13b)



FIGURE 13a - STRINGING THROUGH LARGE CAVITY



FIGURE 13b - STRINGING THROUGH LARGE CAVITY WITH BANDED FLS

7.02 Once the cable stringing operation is completed, loosen the 5/8" - 11 (M16) nut to free the cable from the cavity and proceed with cushion insert "permanent installation" as described in Section 4.0 for bolted applications or 5.0 for banded applications

8.00 FLS CATALOG NUMBERS & CABLE RANGES

8.01 FLS's have been designed for various types of ADSS and Fiber Optic Drop Cables. As referenced above, the FLS will support 300' (984 m) span lengths for ADSS Short Span cables. FLS catalog numbers for ADSS Short Span cables are shown in Table 1.

TABLE 1 - FIBERLIGN LITE SUPPORTS FOR ADSS SHORT SPAN CABLE					
Catalog Number	Insert	Size	Cable Diameter Range		
		Min (in)	Max (in)	Min (mm)	Max (mm)
4800110	S M A L L	.400	.429	10.2	10.8
4800111		.430	.459	10.9	11.6
4800112		.460	.489	11.7	12.4
4800113		.490	.519	12.5	13.1
4800114		.520	.549	13.2	13.9
4800115		.550	.579	14.0	14.7
4800116		.580	.609	14.8	15.4
4800117		.610	.639	15.5	16.2
4800118		.640	.669	16.3	16.9
4800119		.670	.699	17.0	17.8
4800120	L A R G E	.700	.723	17.9	18.3
4800122		.724	.779	18.4	19.7
4800124		.780	.834	19.8	21.1
4800126		.835	.889	21.2	22.5
4800128		.890	.944	22.6	23.9
4800130		.945	.999	24.0	25.4
4800132		1.00	1.054	25.5	26.8

- 8.02** Aerial Fiber Optic Drop Cables are typically strung directly from the pole to the premise. There are areas however that require pole-to-pole distribution of drop cables. Span lengths are typically 150' maximum (45.7 m) in these areas. Aerial Fiber Optic Drop cables are available in various cross sections including round, flat, and figure 8 styles. Round and flat drops are typically made from all dielectric materials, and the figure 8 drop typically has a metallic strength member. Catalog numbers are listed in tables 2 - 4 according to cable cross section and diameter range.

TABLE 2 - FIBERLIGN LITE SUPPORTS FOR ROUND DROP CABLE					
Catalog Number	Insert Size	Cable Diameter Range			
		Min (in)	Max (in)	Min (mm)	Max (mm)
4800107	SMALL	.250	.280	6.35	7.12
4800108		.281	.304	7.13	7.73
4800109		.305	.375	7.74	9.53
480011817	LARGE	.250	.280	6.35	7.12
480011818		.281	.304	7.13	7.73
480011819		.305	.375	7.74	9.53
480011820	DUAL (Small & Large)	.250	.280	6.35	7.12
480011821		.281	.304	7.13	7.73
480011822		.305	.375	7.74	9.53

TABLE 3 - FIBERLIGN LITE SUPPORTS FOR FLAT DROP CABLE					
Catalog Number	Insert Size	Cable Diameter Range			
		Min L x W (in)	Max L x W (in)	Min L x W (mm)	Max L x W (mm)
4800107	SMALL	.14 x .28	.18 x .44	3.5 x 7.1	4.6 x 11.2

TABLE 4 - FIBERLIGN LITE SUPPORTS FOR FIGURE 8 DROP CABLE					
Catalog Number	Insert Size	Cable Diameter Range			
		Min L x W (in)	Max L x W (in)	Min L x W (mm)	Max L x W (mm)
4800107	SMALL	.3 x .16	.44 x .18	7.6 x 4.1	11.2 x 4.6
480011817	LARGE	.3 x .16	.44 x .18	7.6 x 4.1	11.2 x 4.6
480011820	DUAL (Small & Large)	.3 x .16	.44 x .18	7.6 x 4.1	11.2 x 4.6

SAFETY CONSIDERATIONS

This application procedure is not intended to supersede any company construction or safety standards. This procedure is offered only to illustrate safe application for the individual.
FAILURE TO FOLLOW THESE PROCEDURES MAY RESULT IN PERSONAL INJURY OR DEATH.

Do not modify this product under any circumstances.

This product is intended for use by trained technicians only. **This product should not be used by anyone who is not familiar with, and not trained to use it.**

When working in the area of energized lines, extra care should be taken to prevent accidental electrical contact.

For proper performance and personal safety, be sure to select the proper size PREFORMED™ product before application.

PREFORMED products are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.



PREFORMED LINE PRODUCTS

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SP2902-1

SST-Drop™ Single-Tube, Gel-Filled Cable

2 F, Single-mode (OS2)

CORNING

Corning SST-Drop™ dielectric cables offer the ease of installation of standard ALTOS cables in an easy-access, single-tube design. The dielectric version eliminates any bonding and grounding requirements. The cables are RDUP (RUS) listed and offer exceptional crush resistance.

Features and Benefits

Standard ALTOS® Cable tube design in single-tube design

Standard practices and hardware compatibility

Crush resistance

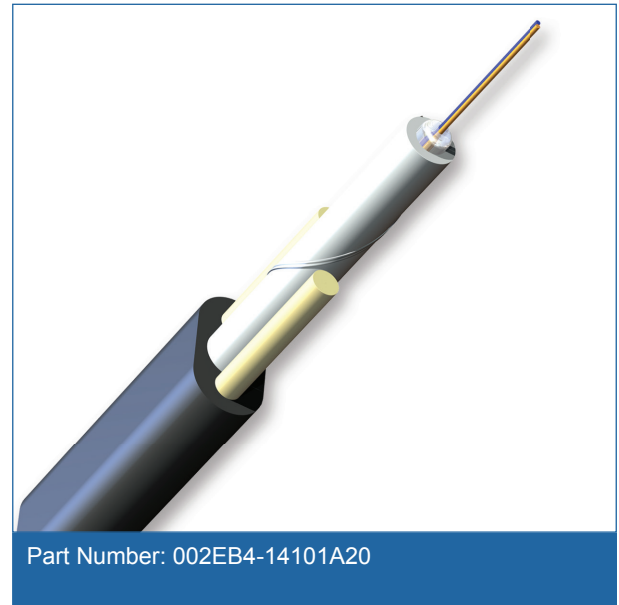
Fiber protection and signal integrity

RDUP (RUS) Listed

Material acceptability

Dielectric

Eliminates bonding and grounding requirements

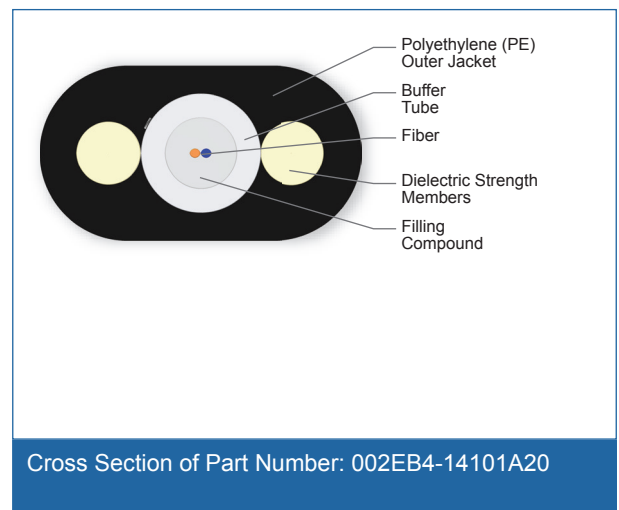


Part Number: 002EB4-14101A20

Standards

Approvals and Listings

USDA Rural Development Programs



Cross Section of Part Number: 002EB4-14101A20

Specifications

General Specifications	
Environment	Outdoor
Application	Self-Supporting
Cable Type	Drop

CORNING

SST-Drop™ Single-Tube, Gel-Filled Cable

2 F, Single-mode (OS2)

CORNING

General Specifications

Product Type	Self-Supporting
Fiber Category	Single-mode (OS2)

Temperature Range

Storage	-40 °C to 70 °C (-40 °F to 158 °F)
Installation	-30 °C to 70 °C (-22 °F to 158 °F)
Operation	-40 °C to 70 °C (-40 °F to 158 °F)

Cable Design

Fiber Count	2
Fiber Coloring	Blue, Orange
Buffer Tube Color Coding	Natural
Buffer Tube Diameter	3 mm (0.12 in)
Tensile Strength Elements and/or Armoring - Layer 1	Dielectric strength members
Outer Jacket Material	Polyethylene (PE)
Outer Jacket Color	Black

Mechanical Characteristics Cable

Max. Tensile Strength, Short-Term	1350 N (300 lbf)
Max. Tensile Strength, Long-Term	400 N (90 lbf)
Weight	30 kg/km (20 lb/1000 ft)
Nominal Outer Diameter	8.1 mm x 4.5 mm (0.32 in x 0.17 in)
Min. Bend Radius Operation	80 mm (3.15 in)

Chemical Characteristics

RoHS	Free of hazardous substances according to RoHS 2011/65/EU
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Fiber Specifications

Optical Characteristics (cabled)

Fiber Name	Single-mode (OS2)
Fiber Category	G.652.D

SST-Drop™ Single-Tube, Gel-Filled Cable

2 F, Single-mode (OS2)

CORNING

Fiber Specifications

Optical Characteristics (cabled)	
Fiber Code	E
Performance Option Code	01
Wavelengths	1310 nm / 1383 nm / 1550 nm
Maximum Attenuation	0.4 dB/km / 0.4 dB/km / 0.3 dB/km

Ordering Information

Part Number	002EB4-14101A20
Product Description	SST-Drop™ Single-Tube, Gel-Filled Cable, 2 F, Single-mode (OS2)
EAN Code	4056418191447

Shipping Information

Convenient Contractor-sized Packaging Length	609.6 m gross weight 65 lbs; no specialized equipment needed (2,000 ft gross weight 65 lbs; no specialized equipment needed)
Traditional Bulk Packaging	up to 12100 m typically require reel payoff equipment; up to 40000 ft typically require reel payoff equipment



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CORNING

Bolts - Varying overall lengths depending on pole diameter

- Material: Hot Dip Galvanized
- 5/8in
- Thread Length: 6"
- Tensile Strength: 13,550 lbs

Drop cable/Lateral clamps

- Flat Fiber Optic Drop Wire Clamp
- Part Number: SI-0972SBL
- Used to strain relieve fiber drop wire
- Removable
- Stainless steel construction
- Black finish to easily distinguish from copper drop clamps
- Unique shim design firmly secures rigid fiber jacketsAccommodates fiber drop cross section of ~.310" W x .200" H, including Corning SST, Corning ROC, Superior Essex Series 6, Superior Essex Series W7 and TE fiber drop cable.

J Hook 7/16" x 4 3/4" J3316P.

- J hooks are used for supporting bail-type drop wire and deadend clamps from poles and crossarms. The J3316P drive hooks have rolled fetter drive threads and a pilot point for easy starting.
- Material: Galvanized
- Size: 7/16" x 4 3/4"

Lashing Wire

- Alloy: 430
- Diameter: 45
- Coil Diameter: 5.38 in
- Coil Width: 1.81 in



OFDC-A4 Fiber Optic Splice Closure, gel cable sealing, 12splices , no adapters, no splitter

- Advanced gel sealing technology ensures fast and easy field handling without a need for special tools
- Individual access to drop cable connection area and seperate zones for looped cable storage for micro-sheet cables only
- Compact and modular design suited for wraparound drop cable installation, enabling faster deployments
- Allows easy pass-through cabling and integration of optical components, even at later deployment stages

Product Classification

Regional Availability	EMEA
Product Type	Single-ended, rectangular fiber closure
Product Series	OFDC

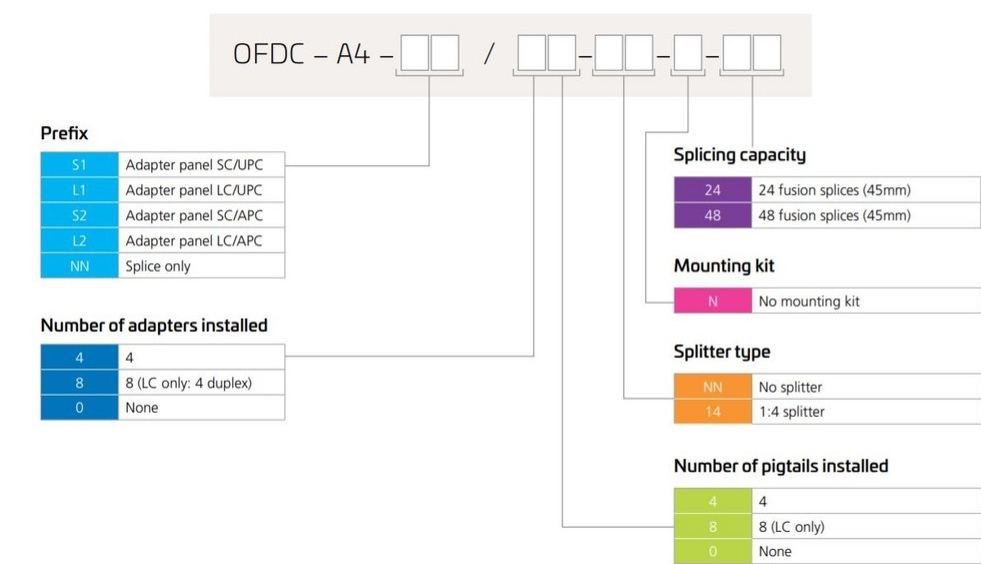
General Specifications

Cable Sealing Type	Compressed gel
Color	Black
Mounting	Manhole Pedestal Strand Wall

Dimensions

Height	70 mm 2.756 in
Width	94 mm 3.701 in
Length	211 mm 8.307 in

Ordering Tree



Material Specifications

Material Type

Rugged polymer

Environmental Specifications

Installation temperature

-5 °C to +45 °C (+23 °F to +113 °F)

Storage Temperature

-30 °C to +60 °C (-22 °F to +140 °F)

Relative Humidity

93%, non-condensing

Environmental Space

Above ground | Below ground

Qualification Standards

IEC 60529, IP68 + 2 m waterhead

UV Resistance

UV stabilized

Packaging and Weights

Packaging quantity

1

Packaging Type

Box | Carton

Regulatory Compliance/Certifications

Agency

Classification

CHINA-ROHS

Below maximum concentration value

ISO 9001:2015

Designed, manufactured and/or distributed under this quality management system

REACH-SVHC

Compliant as per SVHC revision on www.commscope.com/ProductCompliance

ROHS

Compliant





OFDC B8G Fiber Optic Splice/Patch Closure, X-press version, Gel Cable sealing, 1 pre-installed 18-fiber splice tray, 4 pre-installed 12 fiber trays, 8 SC/APC adapters, 1-8 splitter pre-conn at drop side, mounting bracket

- Advanced gel sealing technology ensures fast and easy field handling without a need for special tools
- Individual access to drop cable connection area and separate zones for looped cable storage for most cable types
- Compact and modular design suited for wraparound drop cable installation, enabling faster deployments
- Allows easy pass-through cabling and integration of optical components, even at later deployment stages

Product Classification

Regional Availability	Australia/New Zealand
Product Type	Single-ended, rectangular fiber closure
Product Series	OFDC

General Specifications

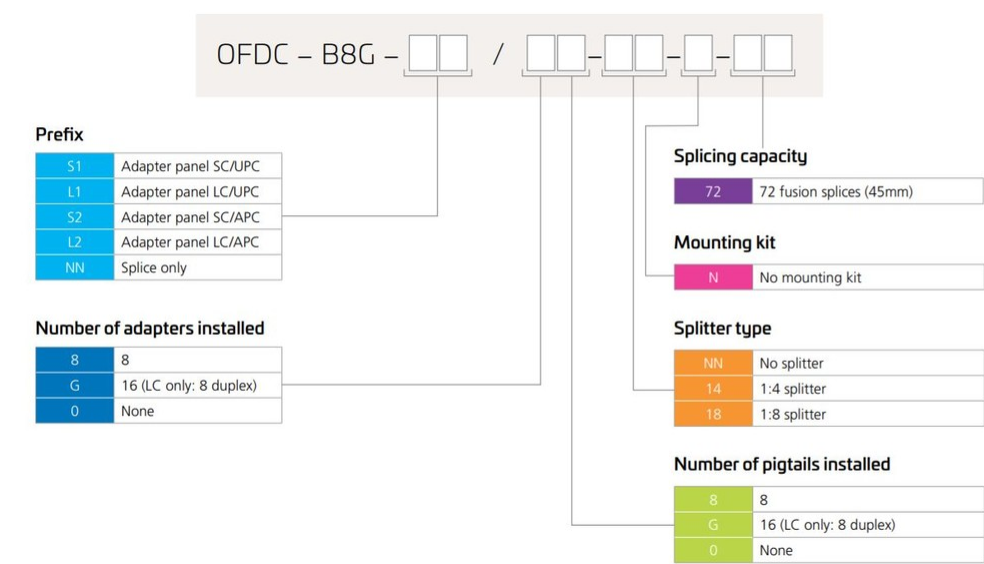
Cable Sealing Type	Compressed gel
Color	Black
Mounting	Manhole Pedestal Strand Wall

Dimensions

Height	128 mm 5.039 in
Width	156 mm 6.142 in
Length	324 mm 12.756 in

Ordering Tree

760241297 | OFDC-B8G-SX2/8-NN-18-BRKT-KIT



Material Specifications

Material Type

Rugged polymer

Environmental Specifications

Installation temperature

-5 °C to +45 °C (+23 °F to +113 °F)

Storage Temperature

-30 °C to +60 °C (-22 °F to +140 °F)

Relative Humidity

93%, non-condensing

Environmental Space

Above ground | Below ground

Qualification Standards

IEC 60529, IP68 + 2 m waterhead

UV Resistance

UV stabilized

Packaging and Weights

Packaging quantity

1

Packaging Type

Box | Carton

Regulatory Compliance/Certifications

Agency

Classification

CHINA-ROHS

Below maximum concentration value

ISO 9001:2015

Designed, manufactured and/or distributed under this quality management system

REACH-SVHC

Compliant as per SVHC revision on www.commscope.com/ProductCompliance

ROHS

Compliant





OFDC C12 Fiber Optic Splice/Patch Closure, Gel Cable sealing, 2 pre-installed 48-fiber splice trays, 2 empty adapter panels, no splitters

- Advanced gel sealing technology ensures fast and easy field handling without a need for special tools
- Individual access to drop cable connection area and separate zones for looped cable storage for most cable types
- Compact and modular design suited for wraparound drop cable installation, enabling faster deployments
- Allows easy pass-through cabling and integration of optical components, even at later deployment stages

Product Classification

Regional Availability	Asia Australia/New Zealand EMEA Latin America North America
Product Type	Single-ended, rectangular fiber closure
Product Series	OFDC

General Specifications

Cable Capacity, Branch	2 Round 5.5–13.0 mm (0.21–0.51 in)
Cable Capacity, Drop	12 Flat 8.0 x 4.5 mm (0.30 x 0.17 in) 12 Round 0–5.5 mm (0–0.21 in) 24 Round 0–5.5 mm (0–0.21 in)
Cable Capacity, Feeder	2 Round 5.5–17.5 mm (0.21–0.68 in)
Cable Sealing Type	Compressed gel
Color	Black
Distribution Type	0 ports
Mounting	Manhole Pedestal Strand Wall
Port Type	No adapter
Port, quantity	0
Splice Tray Included, quantity	2
Splice Tray Type Included	48-way, heat shrink
Splicing Capacity, maximum	96
Splicing Type, Supported	Single fusion

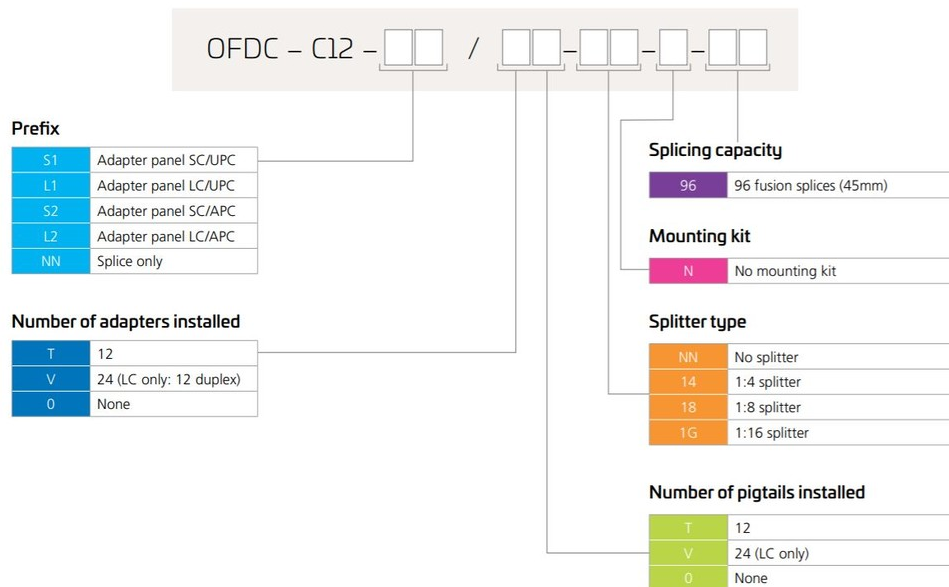
Dimensions

Height	118 mm 4.646 in
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760239757 | OFDC-C12-NN/00-NN-N-96

Width	214 mm 8.425 in
Length	370 mm 14.567 in
Splice Protector Length, maximum	45 mm 1.772 in

Ordering Tree



Material Specifications

Material Type	Rugged polymer
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Environmental Specifications

Installation temperature	-5 °C to +45 °C (+23 °F to +113 °F)
Storage Temperature	-30 °C to +60 °C (-22 °F to +140 °F)
Relative Humidity	93%, non-condensing
Environmental Space	Above ground Below ground
Qualification Standards	IEC 60529, IP68 + 2 m waterhead
UV Resistance	UV stabilized

Packaging and Weights

Packaging quantity	1
Packaging Type	Box Carton

Weight, net2.5 kg | 5.512 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Above maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
REACH-SVHC	Compliant as per SVHC revision on www.commscope.com/ProductCompliance
ROHS	Compliant/Exempted



Total Access 5004

Carrier class Multi-service Access and Aggregation Platform

Product Features

- Native Ethernet core
- Broadest support for FTTx, Packet Optical and Carrier Ethernet application
- Non-blocking service architecture
- Supports TDM, ATM and Ethernet network interfaces
- Copper and fiber transport and access
- Fully redundant, carrier class design
- Digital and metallic test access
- Multiple network management capabilities including full FCAPS support
- Supported by ADTRAN AOE Service Management
- Full turn-key cabinet solutions

The ADTRAN® Total Access® 5004 is a carrier class multi-service access and aggregation platform that extends the portfolio of the world-class Total Access 5000 product line.

With a pure Ethernet core, the Total Access 5004 supports both legacy and emerging service interfaces over copper and fiber, easily scaling to support even the most bandwidth-intensive applications in a compact 2RU form factor. In addition to supporting both legacy and next generation access interfaces, the Ethernet core of the Total Access 5004 provides a scalable and cost-optimized aggregation point in the network, with interfaces ranging from DS1 to 10 and 20 Gigabit Ethernet.

Environmentally hardened, the Total Access 5004 is designed with the service provider in mind and is equally capable of deployment in central office, remote terminal or remote node locations. Similar to the Total Access 5000, the Total Access 5004 chassis provides a truly scalable architecture that is designed to migrate with the network, providing flexible copper and fiber termination options based on network applications. With the simple change of a “personality module,” equipment obsolescence can be avoided and network investments protected with a platform that is also capable of scaling to meet the needs of network evolution for years to come. The

Total Access 5004 supports a variety of access and line modules with supported applications including Broadband Digital Loop Carrier, Fiber-to-the-Home (FTTH), Fiber to-the-Node (FTTN), Carrier Ethernet, Ethernet Aggregation, legacy business and residential aggregation, as well as next generation Optical Networking Edge (ONE) aggregation and transport in a 2RU compact design.

The Total Access 5004 supports a wide variety of management options. Transaction Language 1 (TL1) is used to communicate alarms to legacy Operation Support Systems (OSS). An Ethernet 10/100Base-T or standard RS-232 connector is used for management access and connection to SNMP networks. Additionally, the Total Access 5004 is supported by ADTRAN’s Advanced Operational Environment (AOE). ADTRAN AOE provides a Web GUI management interface and support for XML and TL1 north-bound OSS interfaces. The XML and TL1 north-bound interfaces provide customers the ability to automate flow-through services to the Total Access 5004 platform.

The Total Access 5004 is designed for deployment in 19-inch or 23-inch relay racks and has four access module slots, two resource slots, two dedicated management and switch modules (MSM), and a field replaceable fan.





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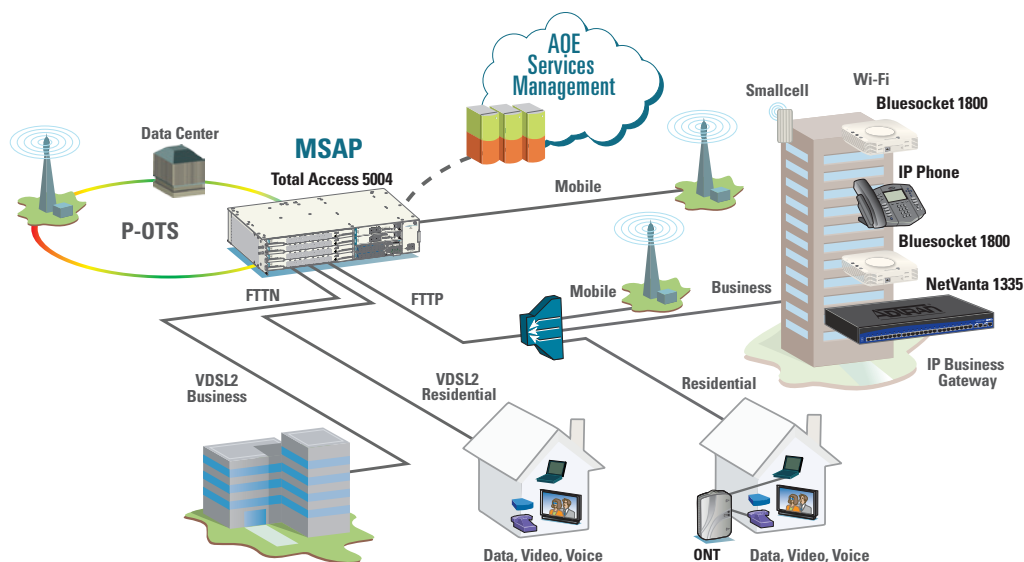
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Total Access 5004



Product Specifications

Mechanical

- **Dimensions:** 3.5 in. x 17.7 in. x 11.6 in. (H x W x D) (89 mm x 450 mm x 295 mm) two Rack Mountable Units (RMU)

Interfaces

- **Transport:** Ethernet
- **Physical:** Varies Per Access Module

Electrical

- **DC Power:** -42 to -72 VDC and +21 to +27 VDC
- **Connection:** Screw terminals (A and B feed)

Regulatory Standards

- RoHS 6 of 6
- NEBS Level III
- Telcordia GR-1089 CORE, Issue 4 and GR-63 CORE, Issue 3
- NRTL Listed; UL 60950 and FCC Part 15, Class A
- International CE Mark
- ETS 300 019 Class 1.2, 2.3, 3.3
- ITU K.20
- IEC60950-1 CB Scheme Report including EN 60950-1 and AS/NZS60950
- ETSI EN 300-132-2 and EN 300 386
- EN 55022 Class A
- EN 61000-4-11
- ACA SO43 (PSD)

Management

- **Electrical:** RS-232 Electrical Interface
- **Ethernet:** 10/100Base-T interface
- **Protocols:** SNMP, TLI, XML, Telnet, and Secure Telnet (SSHv2)

Environmental

- **Operating Temperature:** -40° F to +158° F (-40° C to +70° C)
- **Storage Temperature:** -40° F to +158° F (-40° C to +70° C)
- **Relative Humidity:** Up to 95%, non-condensing

Applications and Services Supported

- FTTH for VoIP, IPTV and Business Ethernet
- FTTN for VoIP, IPTV and Business Ethernet
- Simplified FTTN to FTTH migration/transition
- Compact ONE for Premium Services 10G Aggregation and Packet Optical Transport
- Carrier Ethernet services over any medium (DS1/E1, DS3, SHDSL, ADSL2+, VDSL2, GPON, Fiber, Wavelength)

Ordering Information

Equipment	Part No.
Total Access 5004 Kit with Fan (includes 1187004F1 Chassis, 1187064F1 Power/Alarm, and 1187094F1 Fan)	4187004F1
Total Access 5004 Individual Parts	
Chassis 19-inch	1187004F1
Power/ALM Module	1187064F1
Filter 19-inch Chassis	1187092F1
Fan Mod 19-in Chassis	1187094F1
Total Access 5000 Blanks	
AM Blank (Front)	1187921E1
AM Blank Dual Slot (Front)	1187922E1
AMIO2 Blank (Rear)	1187923G1
AMIO1 Blank (Rear)	1187925G1
Total Access 5004 Blanks	
MSM Blank Panel (Front)	1187927F1
Resource Blank Panel (Front)	1187928F1
Resource-2 Blank Panel (Front)	1187929F1
Managed Switch Module (MSM) Commons	
Total Access 5004 MSM 2-1GE	1187013F1
Total Access 5004 MSM 20-10GE	1187016F1



ADTRAN

611

GPON Simple ONT

SDX Series



Gigabit



Enabled



Zero-Touch



Service Automation

Benefits

- Uniquely supports SFU, SBU, and MDU deployments streamlining installation procedures
- Key part of a wireless residential gateway deployment strategy
- Zero-touch service provisioning eliminates truck rolls for service upgrades
- Traffic management through priority queuing, scheduling, policing and traffic shaping

Overview

Today carriers are dealing with increasing competition, operational costs, and demand for bandwidth. To address these concerns, ADTRAN® offers a complete suite of fiber access solutions. These solutions enable carriers to compete more cost effectively while expanding broadband services to unserved and underserved areas, like those targeted by national broadband initiatives.

Delivering Cost-Effective Converged Residential and Business Services

In a typical indoor ONT deployment, many Ethernet ports are left unused because users migrate to more wireless connections off of a separate residential gateway versus wired Layer 2 connections. The 600 Series of ONTs offers a simpler and more cost-effective architecture that enables service providers to reduce the number of devices they deploy and manage. Simple ONTs leverage fewer ports while retaining all of the data and video functionality expected from a carrier-class product.

In addition to a simplified and cost-effective architecture, the 611 Series of ONTs allows service providers to leverage existing residential gateway vendors that they have depended on for years. We have watched the wireless market continuously evolve over the years. There is no end in sight for wireless evolution, and these simple ONTs allows service providers to easily keep up without unnecessarily replacing the ONT or sending a technician to the home.

The ultra-compact size of 611 ONTs enables easy and inconspicuous wall mounting right where the fiber enters the home, significantly limiting the amount of indoor fiber routing. Since the ONT and residential gateways are separate devices, the residential gateway can be located in a central location to provide consistent wireless coverage throughout the home without requiring fiber all the way to this location.

SDN-Ready Solution

Additionally, the operational cost and complexity to connect a FTTP subscriber can be further reduced to accelerate the expansion of Gigabit broadband services. ADTRAN 600 Series ONTs support provisioning through modern, open APIs, facilitating deployment in next-generation, SDN-based management systems. This, in concert with accelerated mass-market electronics and optics pricing, ensures that cost-sensitive residential broadband will be viable via 10G PON technologies. 600 Series ONTs also support OMCI provisioning, bridging the gap between current and next-gen software-defined access (SD-Access) networks.

ADTRAN 611

Product Specifications

Ethernet Interfaces

- RJ-45 for 10/100/1000Base-T
- 1 Gbps LAN
- Ethernet Port Auto Negotiation or Manual Configuration
- MDI/MDIX Automatically Sense
- Hardware Priority Queues on the Downstream Direction in Support of CoS

Ethernet Services Support

- 802.1D Bridging
- 802.1x Authentication
- Eight Queues, Strict Priority and/or Weighted Fair Queue Schedulers
- Configurable to EtherType and TPID for Service Flexibility
- VLAN IDs 0 – 4095; EVC Configurable in the Range of 2 – 4,094
- Virtual Switch Based on 802.1q VLAN
- VLAN Tagging/Detagging
- VLAN Stacking (Q-in-Q) and VLAN Translation
- Class of Service Based on VLAN-ID, 802.1p Bit
- Marking/Remarking of 802.1p

Mosaic Application Support

- Mosaic Activate
- Mosaic Subscriber Insight

Working Environment

- **Temperature:** 32° F to 104° F (0° C to +40° C)
- **Relative Humidity:** 5% to 95%, Non-condensing

Network Interface

- GPON optical interface BOSA on Board (BoB)
- Compliant with ITU-T G.984.2 GPON standards
- Class B+ optics support

OAM

- OMCI (Embedded Operations Channel Interface) per ITU-T G.988 and Open OMCI standards
- 15 min rolling counters
- Dying gasp alarm

LEDs

- Power
- LAN
- Optical
- Status

Regulatory

- ETSI EN 300 019-1-3.cl3.2 (V2.3.2) for ONT and power supply
- ETSI EN 300 119 for ONT and power supply
- ETS 300 753 for ONT and power supply
- CISPR 32 Class B
- FCC CFR 47 Part 15 Class B

Ordering Information

Equipment	Part No.
ADTRAN 611 GPON Simple ONT	1287833F1
ADTRAN 611 GPON Simple ONT 2.5G	1287834F1



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