Document: SP-F04-010
Date Issued: 01/08
Revision: 5

SUMITOMO RECOMMENDED PROCEDURE

SRP SP-F04-010

FutureFLEX®

FIELD TERMINATION KIT PROCEDURE FOR 900µm SUB-UNIT KIT

SUMITOMO ELECTRIC LIGHTWAVE CORP.
78 TW Alexander Drive, Research Triangle Park, NC 27709
(919) 541-8100 or 1-800-358-7378
www.futureflex.com
SEL is a Member of the Sumitomo Electric Industries, Ltd. Group

1.0 General

1.1 This procedure describes the standard techniques for installing the FutureFLEX Air-Blown Fiber (ABF) 2-, 4-, 6-, 12-, and 18-fiber bundle Field Termination Kits with 900µm sub-units / colored-coded tubes.

Note: *24-fiber bundle Field Termination Kit installation procedures are described in Sumitomo Recommended Procedure, FutureFLEX Field Termination Kit Installation Procedure for FTFLD24 900 µm Sub-Unit Kit, SRP SP-F04-036.*

1.2 Field Termination Kits are used at locations where fiber bundles containing 250µm fibers are to be terminated and connectorized at fiber optic patch panels, switches, or transmitter / receiver locations.

2.0 Safety Precautions

2.1 When stripping jacketing materials from fiber bundles, use care and properly dispose of any individual fiber ends that are removed. The fiber ends are easily misplaced and can pierce the skin resulting in splinters that are not easily removed.

2.2 The use of safety glasses is strongly recommended during this procedure.

3.0 Reference Documents

3.1 Sumitomo Recommended Procedure, *FutureFLEX Fiber Bundle Stripping Procedure*, SRP SP-F04-006.

4.0 Equipment / Tools Required
The following equipment, tools, and materials, are required to complete this procedure:

4.1 Field Termination Kits with 900µm sub-units
- FTFLD02 for 2-fiber ribbon bundle
- FTFLD04 for 4-fiber bundle
- FTFLD06 for 6-fiber bundle
- FTFLD12 for 12-fiber bundle
- FTFLD18 for 18-fiber bundle

4.2 Adhesive Tape

4.3 Pliers

4.4 Appropriate clean work surface / table

5.0 Preparing the Fiber Bundle

5.1 Provide at least 6" – 8" of additional fiber bundle strip length beyond the actual fiber length required. SEL's 2- through 18-fiber bundle Field Termination Kits have an approximate 24" buffer tube length. Fiber bundle jackets should be stripped back at least 30" – 32".

5.2 **Important Step.** When terminating the 2-, 4-, and 6-fiber bundles, before stripping outer foam jacket, slide plastic tube provided in the FTFLD02, FTFLD04, and FTFLD06 Field Termination Kits over end of bundle. Position it slightly beyond the 30" – 32" point. **See Fig. 1.**

Note: *2-, 4-, and 6-fiber bundles have a 2mm OD outer foam jacket which is not large enough to fit comfortably in the Retainer Clip of the Breakout Unit Assembly. Plastic tube is required to increase outer foam jacket OD for a good fit in the Retainer Clip.*

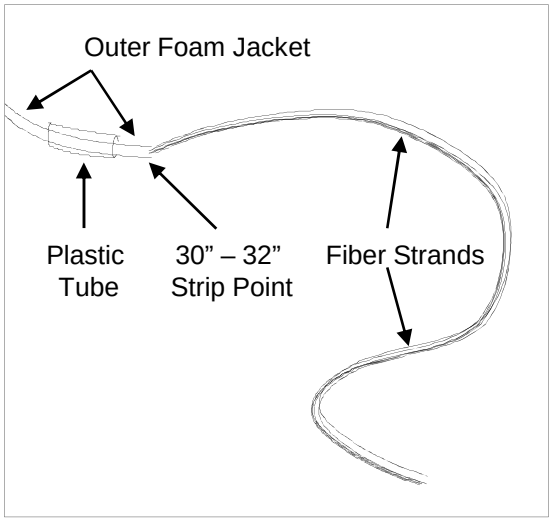


Figure 1
Slide Plastic Tube Beyond
2-, 4-, & 6-Fiber Bundle Strip Point

5.3 Refer to SRP SP-F04-006 for detailed fiber bundle stripping procedures and techniques. Remove outer foam jacket, access sub-unit ripcord, and remove inner nylon jacket.

5.4 Secure outer foam jacket to work surface with adhesive tape.

5.5 Separate and organize fiber bundle strands. At the point where the strands exit nylon sub-unit, carefully arrange them so they are not crossed and carefully separate them along their entire length. **See Fig. 2.**

5.5.1 2-fiber ribbon bundle strands are contained within one (1) nylon sub-unit in the following color-order sequence:
Blue & Orange

5.5.2 4-fiber bundle strands are contained within one (1) nylon sub-unit in the following color-order sequence:
Blue, Orange, Green, & Brown

5.5.3 6-fiber bundle strands are contained within one (1) nylon sub-unit in the following color-order sequence:
Blue, Orange, Green, Brown, Slate, & White

5.5.4 12-fiber bundle strands are contained within three (3) nylon sub-units in the following color-order sequence:
Blue, Orange, Green, & Brown
Slate, White, Red, & Black
Yellow, Violet, Rose, & Aqua

5.5.5 18-fiber bundle strands are contained within three (3) nylon sub-units in the following color-order sequence:
Blue, Orange, Green, Brown, Slate, & Red
Blue, Orange, Green, Brown, Slate, & Yellow
Blue, Orange, Green, Brown, Slate, & Violet

Note: *In 18-fiber bundles, the sixth position white-colored strands in each Sub-Unit are replaced with a Red, Yellow, and Violet colored strand used as a unique sub-unit identifier.*

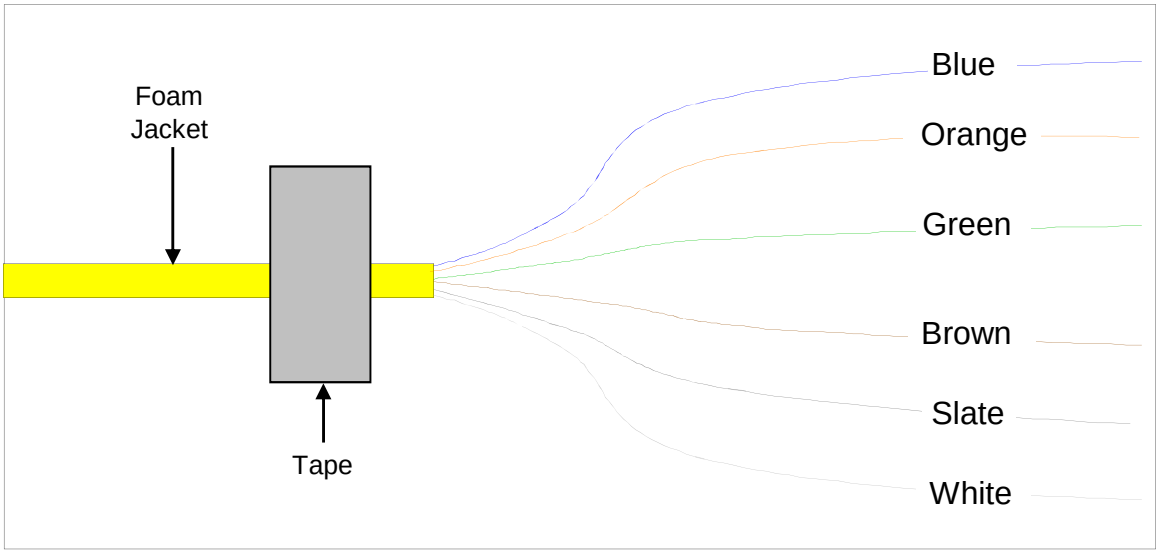


Figure 2
Organizing 6-Fiber Bundle Strands in Color-Order Sequence
(2-, 4-, 12-, and 18-Fiber Bundles Similar)

6.0 Field Termination Kits

6.1 Field Termination Kits consist of a Base Unit, Cover Unit, and Breakout Unit Assembly. **See Fig. 3.**

6.2 Base Unit includes a two (2) prong aluminum Retainer Clip that is press-fit into a retention clip center cavity. Retention Clip secures incoming fiber bundle. Base Unit cavity holds Breakout Unit Assembly.

6.3 Cover Unit snaps onto Base Unit to secure Breakout Unit Assembly and protect exposed bare fibers.

6.4 Breakout Unit Assembly consists of a rectangular black plastic block with color-coded 900µm OD tubing installed in the appropriate holes. Fibers are threaded through the tubes and then terminated using standard fiber optic termination procedures and connectors.

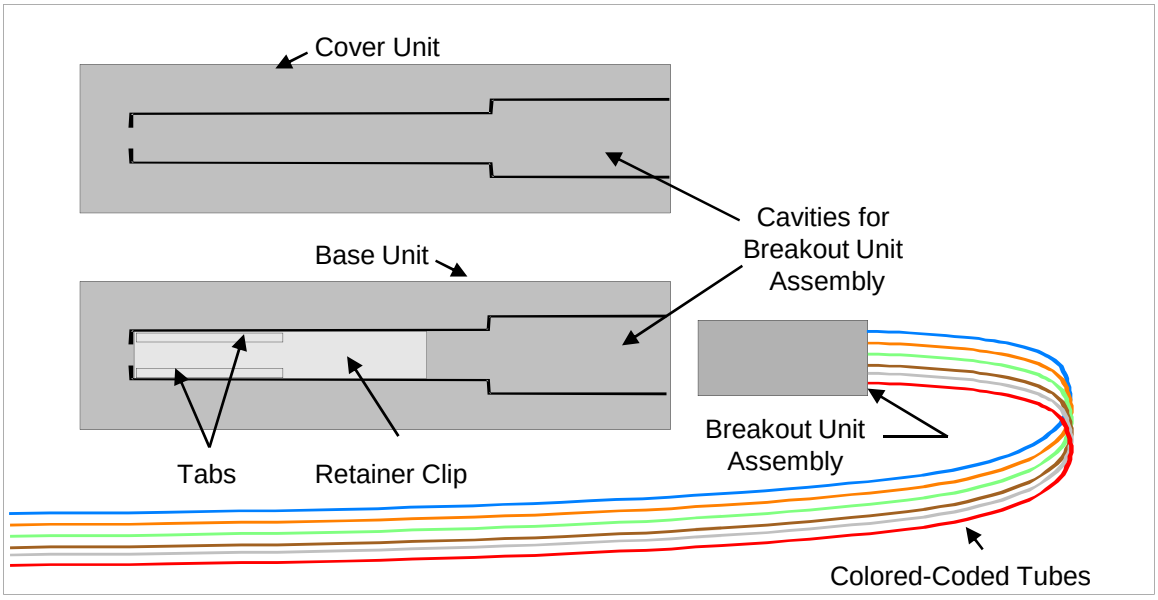


Figure 3
Field Termination Kit Components

Base Unit Specifications
Dimensions (in.): 1.70 L x 0.70 W x 0.150 D
Material: ABS Plastic
Color: Black
Logo: FTFLDxx

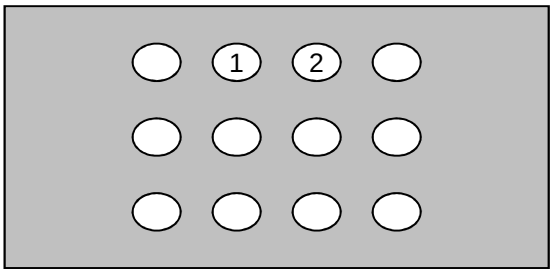
Cover Unit Specifications
Dimensions (in.): 1.70 L x 0.70 W x 0.150 D
Material: ABS Plastic
Color: Black
Logo: Sumitomo Electric

Tubing Specifications
Dimensions: mm / (in.):
ID: 0.50mm +/- 0.05mm (0.020 +/- 0.002)
OD: 0.90mm +/- 0.05mm (0.035 +/- 0.002)
Length: Approximately 24 inches

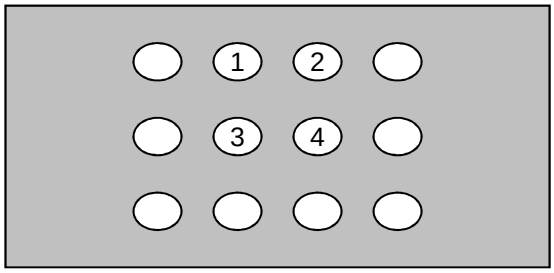
Mechanical:
Max. Tensile Load: 45 Newtons
Min. Bend Radius: 1.3 cm
Crush Resistance: 52 N/cm Max.
Temp. Rating: -40C (-40F) to +85C (+175F)
Material: Thermoplastic Elastomer

6.5 Breakout Unit Assembly tube colors and arrangement match fiber bundle strand colors and arrangement. **See Fig. 4.**

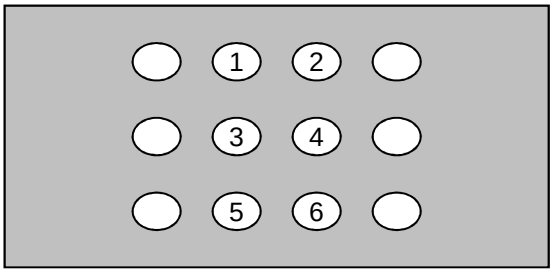
Tube	Color	Tube	Color
1	Blue	7	Red
2	Orange	8	Black
3	Green	9	Yellow
4	Brown	10	Violet
5	Slate	11	Rose
6	White	12	Aqua



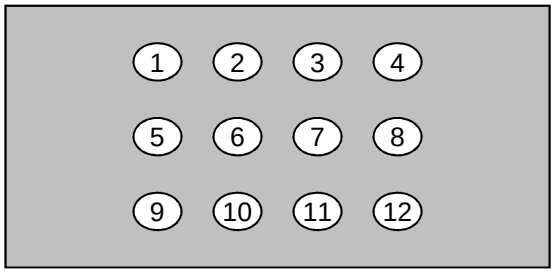
2-Fiber Ribbon Breakout Unit Assembly



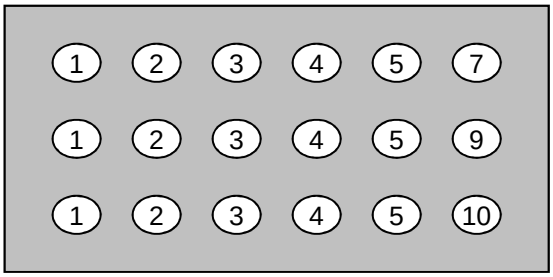
4-Fiber Breakout Unit Assembly



6-Fiber Breakout Unit Assembly



12-Fiber Breakout Unit Assembly



18-Fiber Breakout Unit Assembly

Figure 4
Breakout Unit Assembly Tube Colors & Arrangement

7.0 Assembling the Field Termination Kit

7.1 Remove Breakout Unit Assembly by separating Cover and Base Units.

7.2 Choose one of the fiber bundle nylon sub-units and, on a clean work surface, lay out the strands in a staggered color-order sequence. Work carefully and ensure strands are not crossed or twisted. **See Fig. 5.**

7.3 Insert each strand into its colored-coded tube. Begin with the longest (blue) strand first, followed by the longest remaining strand (orange), and so on until all fibers are started into the Breakout Unit Assembly tubes.

7.4 Once all the strands of a sub-unit are started, carefully grasp and push all sub-unit fibers through Breakout Unit Assembly tubing as a group.

Note: *12- and 18-fiber bundles have three (3) sub-unit groups of fiber strands. Each sub-unit group should be installed individually.*

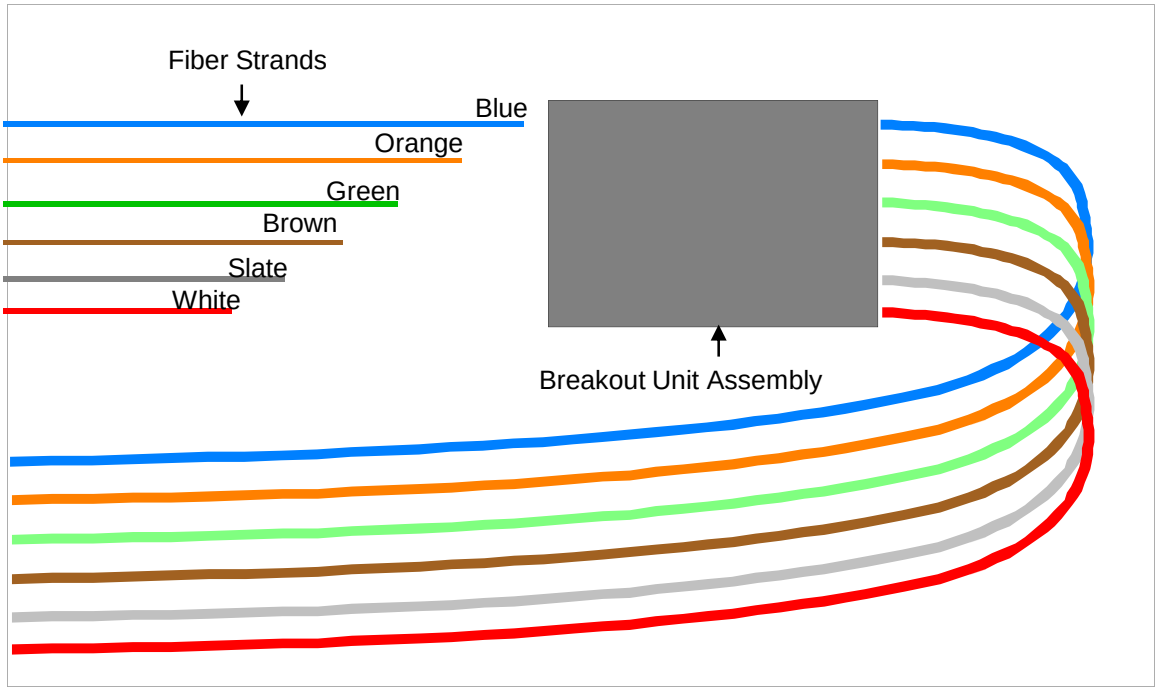


Figure 5
Fiber Strands in Color-Order and Staggered Arrangement
Ready to be Inserted into Breakout Unit Block One at a Time
Then Pushed Through Tubes as a Group
(6-Fiber Bundle Shown)

7.5 Once all fibers are inserted into Breakout Unit Assembly tubes, confirm that fiber strands are not crossed or twisted over each other between the end of the nylon jackets and the Breakout Unit Assembly block. Crossed fibers may cause additional optical attenuation due to macro-bending. If fibers are crossed, they should be carefully removed from the Breakout Unit Assembly tubes, straightened out, and re-threaded.

7.6 Carefully place Breakout Unit Assembly into Base Unit cavity. **See Fig. 6.**

7.7 Carefully push all the fibers as a group into Breakout Unit Assembly until ends of fiber bundle outer foam and inner nylon jackets are even with or just forward of Base Unit's metal Retainer Clip.

Note: *With 2-, 4-, and 6-fiber bundles, also slide plastic tube along fiber bundle jacket until it is even with or just forward of Base Unit's metal Retainer Clip.*

7.8 Use pliers and carefully squeeze / close Retainer Clip tabs together over fiber bundle. Do not over-compress Retainer Clip tabs. There should be a small (about 1mm) gap between the tabs along their entire length. If the fiber bundle is compressed too much, some fibers may exhibit increased optical attenuation or, in extreme cases, breakage can occur.

7.9 Complete Field Termination Kit assembly by carefully snapping Cover Unit onto Base Unit.

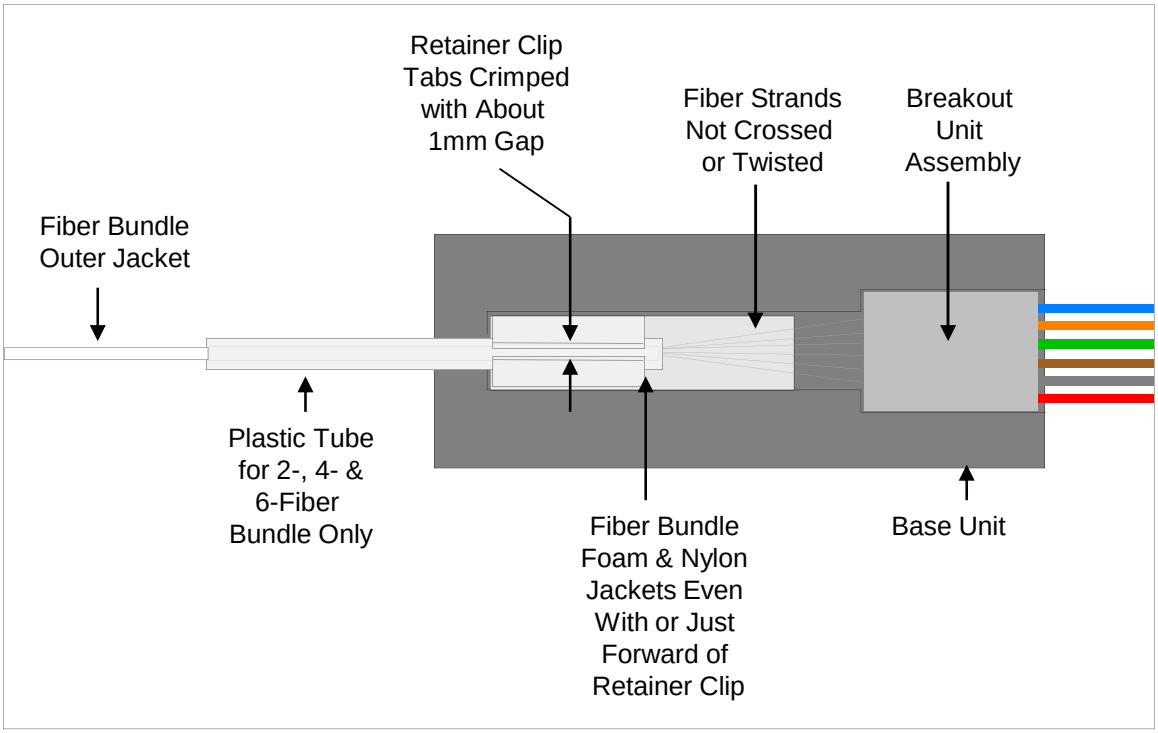


Figure 6
Field Termination Kit Assembled