

SUMITOMO RECOMMENDED PROCEDURE**SRP SP-F04-051****FIELD TERMINATION PROCEDURE FOR FB48 FIBER BUNDLES INTO
BOTH FT48FBK-SU & -MU BREAKOUT KITS**

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1.0 General

1.1 This procedure describes the standard techniques for installing the Sumitomo Electric Lightwave (SEL) *FutureFLEX* Air-Blown Fiber (ABF) FB48 Fiber Bundles containing 4 – 12 fiber sub-units into a FT48BK Field Termination Kit.

1.2 The Field Termination Kits are used at locations where fiber bundles are to be terminated to Multi-fiber-Push-On (MPO) Splice-On-Connectors (SOC) or pre-terminated MPO “Pigtails.” The MPO terminated ribbons can then be connected to fiber optic patch panels, switches, or transmitter / receiver locations.

This procedure also describes how to terminate ribbon breakout kits into ribbon Fiber Optic eXchange(FOX) cassettes.. You will need to order FTA-02 ribbonizing kit and the FOX cassettes or MPO connectors separately.

2.0 Safety Precautions

2.1 Wear safety glasses when working with bare optical fibers / fiber ribbons.

2.2 Handle cutting tools with care.

3.0 Reference Documents

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

3.2 LYNX2-MPO for Round Cord with 12 or 8 Individual Fiber (ETK1123092E)

3.3 Sumitomo Recommended Procedure, *FutureFLEX 48 Fiber Bundle 900um Breakout Procedure*, **SRP SP-F04-040**

4.0 Equipment / Tools Required

The following equipment, tools, and materials are required to complete this procedure:

4.1 FB48xx Fiber Bundle

4.2 FT48BK-SU(or-MU) Field Termination Kit (Base Unit with Cover, four 3.8mm OD Breakout Assemblies and one 3.8mm Bushing. **See Figure 5.**

4.3 Adhesive Tape.

4.4 Measuring Tape.

4.5 Clean Work Surface / Table.

4.6 Kevlar Cutting Tool (scissors or shears).

4.7 FTA-02 ribbonizing kit and instructions (if terminating into ribbon FOX cassette/MPO)

4.8 Two 24-capacity (xx24RBNxxx) or four 12-capacity (xx12RBNxxx) FOX cassettes (if terminating into ribbon FOX cassette)

4.9 Mass Fusion Splicer and related accessories (cleaver, strippers, cleaners, etc.) for termination.

5.0 FT48FBK Field Termination Kit

5.1 FT48FBK Field Termination Kit consists of a Base Unit, Base Unit Cover, Four (4) Breakout Unit Assemblies, and a 3.8 mm bushing **See Figure. 6.**

5.2 Base Unit cavity will hold four (4) stackable Breakout Unit Assemblies.

5.3 Breakout Unit Assemblies consist of four(4) rectangular black plastic break-out blocks, each with 1 color 3mm OD tubing attached. The tubing colors can be aqua for multimode or yellow for single mode. These colors are dependent on the type of breakout kit ordered.

5.4 Twelve Fiber subunits are threaded through each tube, then terminated using SEL splice on connectors. These units stack, one on top of the other, into the Base Unit cavities, 2 on each side.

5.5 The 3.6mm bushing secures the 48-fiber bundle in the Base and Cover Units preventing pullout.

5.6 The Cover and Base Units snaps together, securing the Breakout Unit Assemblies and protecting the fibers.

Note: Both single mode and multi-mode fibers follow the same installation procedure when using a FT48FBK Field Termination Kit **See Figures 1 and 2.**

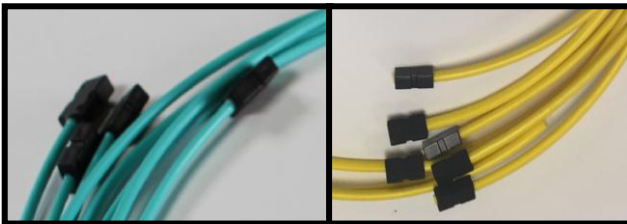


Figure 1

Aqua Furcation Tube
for Multimode

Figure 2

Yellow Furcation Tube
for Single mode

6.0 Prepare the Fiber Bundle

6.1 Each 48 fiber bundles consist of 4 X 12-count sub-units and ripcord, all enclosed in a Polyethylene Extruded Foam (PEF) outer jacket.

6.1.1 Each 12 fiber sub-unit contains twelve 250µm color coded (Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose and Aqua) buffered fibers.

6.2 Expose the 4 – 12 fiber sub-units by removing PEF jacketing.

Note: Refer to **SRP SP-F04-006** for detailed techniques on PEF jacket removal.

6.2.1 Each breakout kit assembly tubing is 35.5", Because of this, remove at least 40" length of PEF from the Freeform Ribbon™ fiber bundle. Since there are multiple applications for this kit, the length of fiber may vary.

Note: The 48 fiber bundles nylon subunits do not come ribbonized, we recommend organizing the four subunits and ribbonizing them using the fiber arrangement tool according to the FTA-02 manual and video listed on our website before insertion into furcation tube subunit. See Figure 9.

This is recommended if terminating as a ribbon into a FOX cassette or MPO connector before inserting ribbon fiber into breakout kit furcation tubing. It will be difficult to organize fibers for mass fusion splicing past the breakout furcation tubes.

6.3 Install the 3.8 bushing on to the fiber bundle allowing it completely overlap the PEF jack. **See Figure 3**

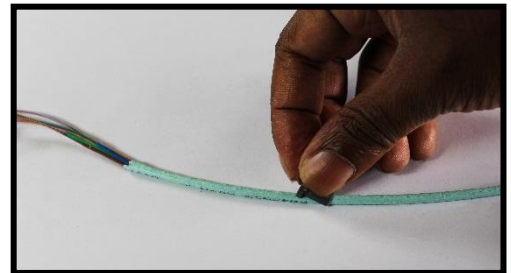


Figure 3

Split bushing allows for placement over PEF jacket

6.4 Move the bushing towards the edge of the stripped portion of the PEF jacket. The Bushing should be the division between the exposed ribbons and the PEF jacket. **See Figure 4**

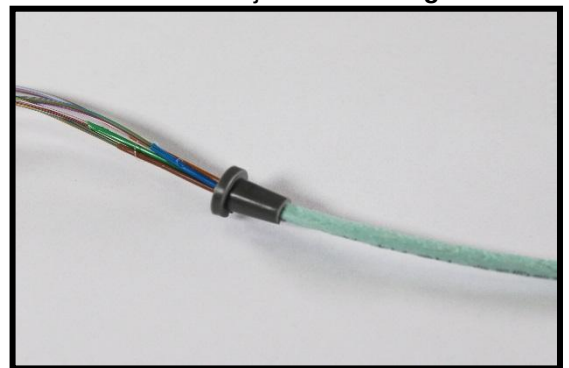


Figure 4

Correct Placement of Fiber Bushing

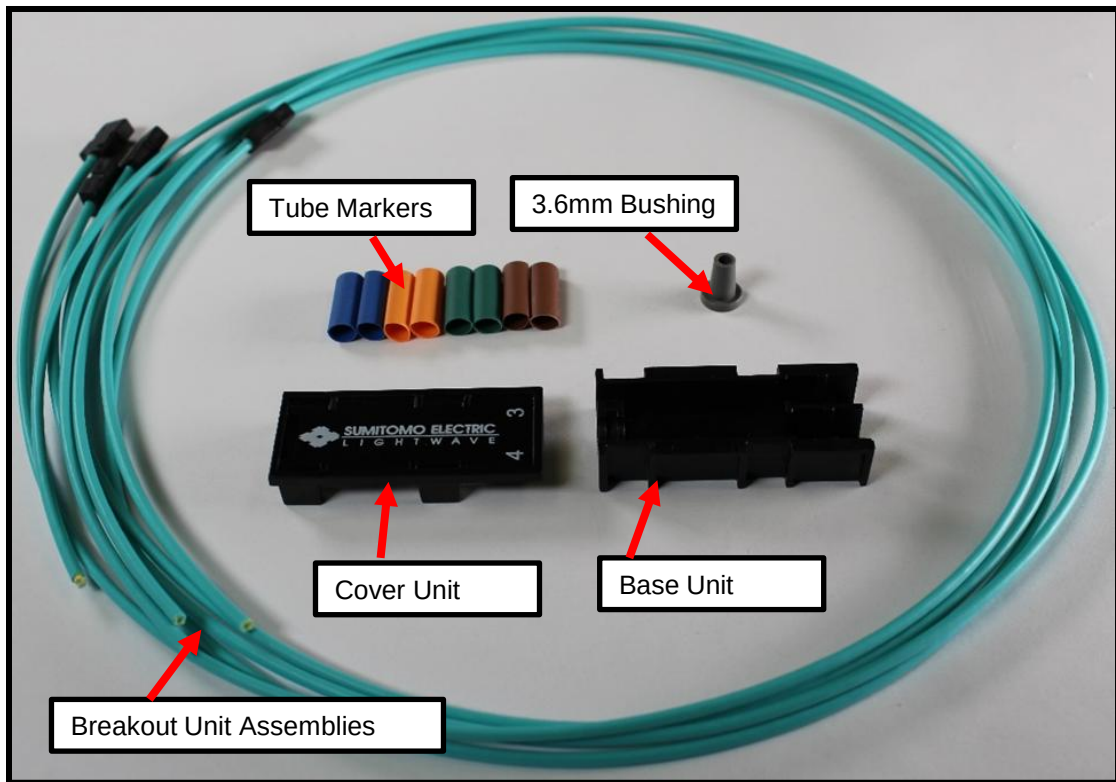


Figure 5
FT48FBK-MU breakout kit

7.0 Prepare an Assembly

7.1 Once the 48 fiber bundle has been prepared, identify the following color pattern to separate each individual sub-unit: Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose and Aqua. **Now would be the time to ribbonize the fiber using FTA-02 kit.**

7.2 Carefully push all the fibers as a group of 12 into Breakout Unit Assemblies until ends of the PEF jacket and inner nylon jackets are within 1/2" of each other inside of the 3.6mm bushing **See Figure 6.**

7.2.1 Once all the fibers of the sub-units are inserted into the tubes, carefully grasp and push all fibers through each Breakout Unit Assembly tubing as a group.

7.2.2 When running fiber into the assembly tubes, ensure that each Breakout Assembly tubes follows the color pattern below. A tube marker can be used on each assembly to help distinguish each fiber bundle. Again, **ribbonizing before placement** in furcation tubes helps organization and aids in termination, but is **not required**.

Assembly One Blue Sub-unit:

Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose and Aqua

Assembly Two Orange Sub-Unit:

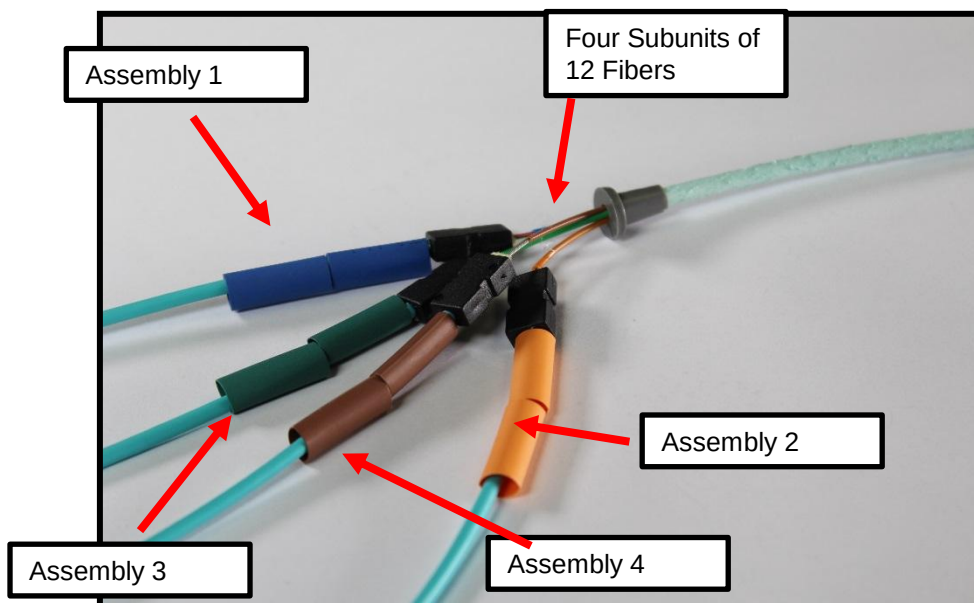
Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose and Aqua

Assembly Three Green sub-Unit:

Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose and Aqua

Assembly Four Brown Sub-Unit:

Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose and Aqua

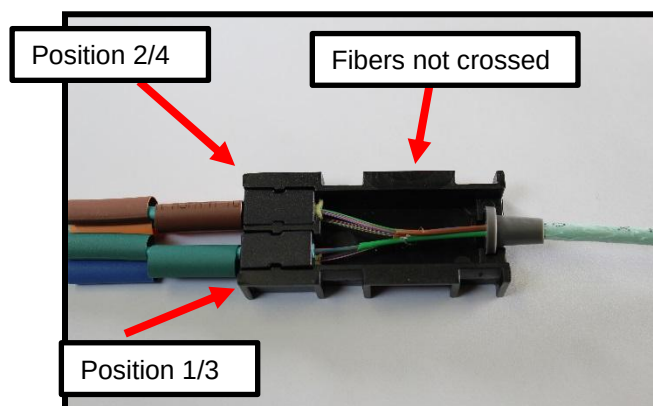
**Figure 6**

Fibers in Color-Order Inserted into Breakout Unit Block,
Pushed through tubes as a group.

8.0 Install each Breakout Assembly into Field Termination Kit

8.1 Carefully place the Breakout Unit Assemblies into the Base Unit cavity to maintain correct number sequence. **See Figure 7 and Section 8.2**

8.2 Install Assembly 1 subunit in position # 1 and Assembly 2 into position 2 of the base unit. Looking from the bushing location, the first assembly goes in the bottom left cavity and second assembly goes into the bottom right cavity. **See Figure 8**

**Figure 7**

Ribbon Furcation Subunits placed in Base Unit.
Positions 1 and 2 are on the bottom.

Note: The Order in which assemblies are placed into the Base is up to the installer. Make sure there are no bends and your using the provided colored tape (blue, orange, green, and brown) over each subunit to help with Identification..

8.4 Install Breakout Assembly Blanks into the Breakout Assembly Base for each assembly position not used. **See Figure 8**

Note: Carefully move the Breakout Assembly while pulling the fiber.

Note: Ensure that any slack ribbon found between the seated Breakout Assembly and the seated Bushing are removed. To remove any visible slack, carefully pull the ends of the fiber from the end of the tubes until the fibers become taut.

8.5 Complete the FT48FBK Field Termination Kit assembly by snapping Cover Unit onto Base Unit. **See Figure 9.**

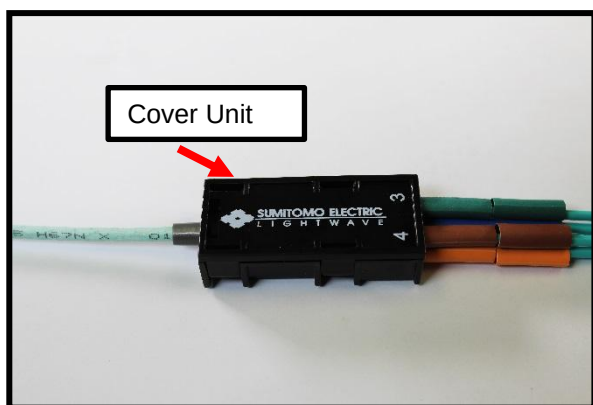


Figure 8

48 fiber 900µm Breakout Kit completed

8.0 Ribbon termination of 48 Fiber Bundle in xx24(or12)xxx FOX Cassettes

For more Information on FOX Cassette components see SRP SP-F04-040. You need two 24-capacity (or four 12-capacity) ribbon(2- xx24RBNxxx or 4- xx12RBNxxx) FOX cassettes.

8.1 Refer to **6.1,6.2, and 6.3** to strip the 48 fiber bundle and organize into 4 subunits of 12 fibers. Each of these subunits will be organized into a ribbon.

8.2 48 Fiber ABF bundles can be made into four 12 fiber ribbons subunits. Since the 48 fiber bundles do not come ribbonized, we recommend organizing the four subunits and ribbonize them using the fiber arrangement tool according to the FTA-02 manual and video listed on our website. **See Figure 9.**

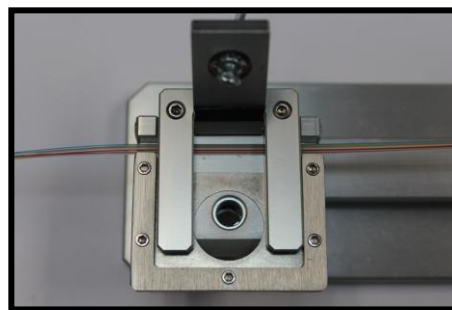


Figure 9

Ribbonizing 12 strands into fiber from a nylon subunit.

8.3 Each ribbon will be thread through the designated color breakout kit subunits that hold 12 fibers. Refer to **Figure 6.**

8.3 Follow section 7.0 and 8.0 for completing breakout kit components.

8.4 Once breakout kit is completed with ribbonized subunits, organize each ribbon breakout subunit according to the table in **Figure 10.** Also Identify FOX cassette subunits shown in **Figure 11.**

8.4.1 The 2 ribbon fiber termination units (**shown in Figure 11**) of the ribbon FOX cassette will each splice to a nylon subunit ribbon at the end of the furcation tubes.

8.4.2 The Blue subunit ribbon will be spliced to Unit one ribbon of the 1st 24 fiber fox cassette. The orange will be spliced to the unit 2 ribbon of the 1st 24 fiber fox cassette. See Figure 10 and 11.

Nylon Bundle Color	24 Fiber Fox Cassette
Blue	Cassette One
Orange	
Green	Cassette Two
Brown	

Figure 10

Nylon Unit organization in 24 capacity FOX cassettes. **Each nylon bundle will have its own cassette for 12 capacity FOX cassettes.**

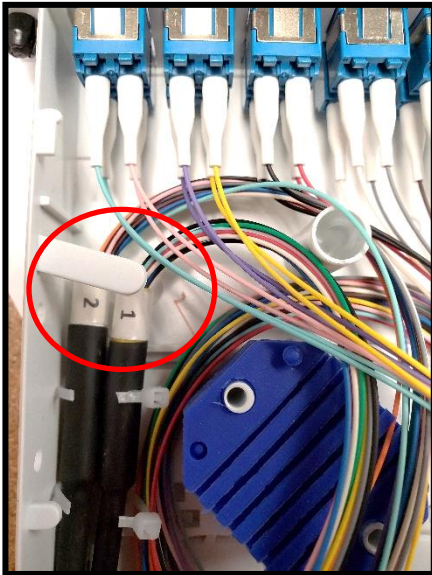


Figure 11

Unit 1 and 2 of a 24 capacity FPC cassette which will EACH splice 12 fibers.

8.5 Strip, cleave, splice, and heat shrink the blue fiber in unit 1 of the cassette and the ribbon fiber in the blue subunit of the breakout kit according to splicer manual. Place protection sleeves (correctly sized shrinks sleeves provided with FOX cassette) in designated splice tray modules as shown in **Figure 12**.

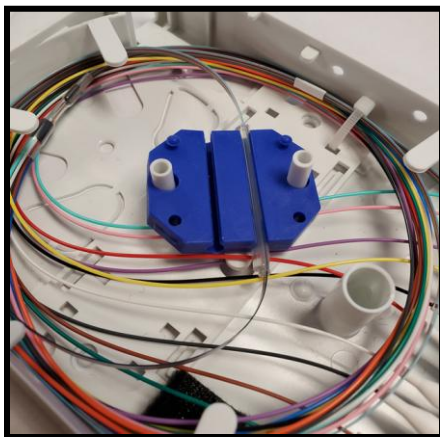


Figure 12

Blue ribbon subunit from the breakout kit spliced to 1st 24-capacity FOX cassette termination ribbon unit 1 and placed in the ribbon splice module

8.6 Repeat for all 4 subunits into cassettes.

8.7 Wrap fiber around cassette as shown in Figure 12 and use using cable ties and Velcro for organization.

8.8 Use the grommet in the fox cassette kit to hold the breakout kit fibers together and in place in the back of the cassette where cable entry occurs. The grommets fit in the removable cable entry punch

8. 8 Close the lid of the cassette. There should be no exposed bare fibers. Two protected furcation tubes should be exposed between the 48 fiber breakout kit and the back of the fox cassette coming out of the grommet. You should have two 24-capacity ribbon cassettes terminating a 48 ABF bundle. (Or 4 12-capacity FOX cassettes with a subunit)