

## SUMITOMO RECOMMENDED PROCEDURE

### SRP SP-F01-017

#### Cable Ribbon Breakout Kit Installation (48f – 288f)

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## 1.0 General

1.1 This procedure describes the standard techniques for installing the Sumitomo Electric Lightwave (SEL) Cable Ribbon Breakout Kit.

1.2 The Cable Ribbon Breakout Kits are used to manage, protect, and divide 48 - 288 fiber cables using 12-fiber oval shaped tubes in the various fiber colors. Each tube can contain either standard flat ribbon or SEL's Freeform Ribbon and can be routed to a splice tray, FOX cassette, or transitioned to a splice on connector.

## 2.0 Safety Precautions

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

## 3.0 Reference Documents

3.1 SRP SP-F02-011 – *Ribbon Splitting Procedure*

3.2 SRP SP-F02-018 - *Ribbon Plenum Cable Preparation*

3.3 SRP SP-F02-043 - *Pliable Ribbon Plenum Cable Preparation*

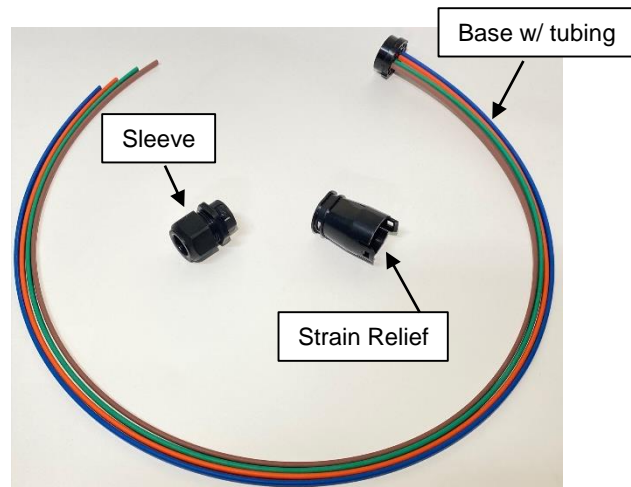
## 4.0 Equipment / Tools Required

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

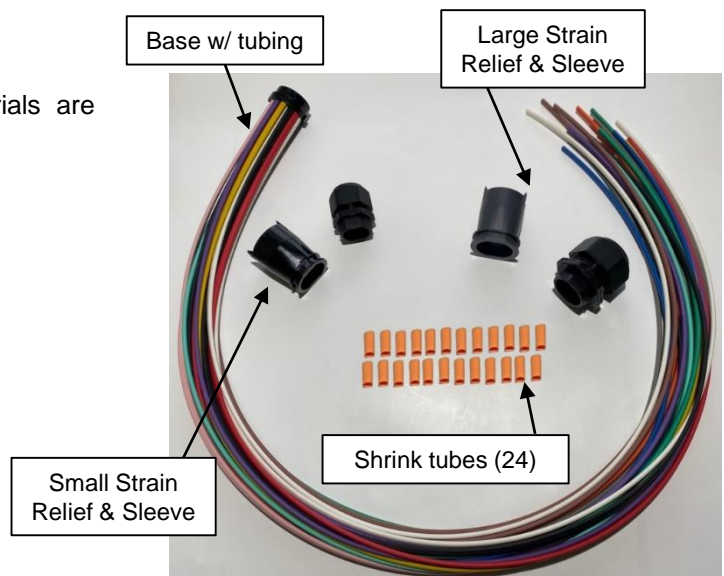
1. 48f – 288f cable.
2. Cable Ribbon Breakout kit
3. Riley RCS-114 Cable Stripper
4. Tape Measure.
5. UCTS-001 Universal Tube Slitter Tool
6. Scissors
7. Marker
8. Safety glasses
9. Gloves

## 5.0 Ribbon Breakout kit Components

5.1 The 48f – 144f Cable Ribbon Breakout kits consist of a base with colored ribbon furcation tubing, a sleeve, and a strain relief. The 288f Breakout kit includes two sizes of sleeves, two sizes of strain reliefs, and 24 orange shrink tubes to identify the second twelve ribbon set of 12 fiber ribbons within the breakout kit. (Two shrink tubes per ribbon furcation tube)



48f / 72f / 96f / 144f kit components



288f kit components

## 5.2 Preparing the Cable

**5.2.1** The 48f – 288f cables can consist of either 12 fiber standard ribbon or SEL's Freeform Ribbon. Each 12 fiber ribbon is numbered.

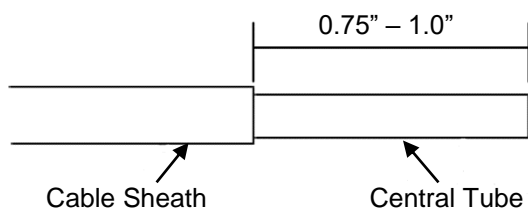
**5.2.2** Prepare the cable for entry. The length of cable that will need to be removed will be determined by how the ribbons will be installed.

**5.2.3** If ribbons are to be connectorized, remove 42" and add an additional 6" for splice on connectors.

**5.2.4** If ribbons are to be installed in a cassette or a splice tray, remove 42" and add an additional 32" – 36". This will allow excess ribbon length to be stored in the cassette or splice tray.

**5.2.5** For proper cable entry, refer to Sumitomo's Recommended Procedures that pertain to the cable that is being installed.

**5.2.6** Leave 0.75" – 1.0" of central tube from the edge of the cable sheath. See **Figure 1**.



**Figure 1**

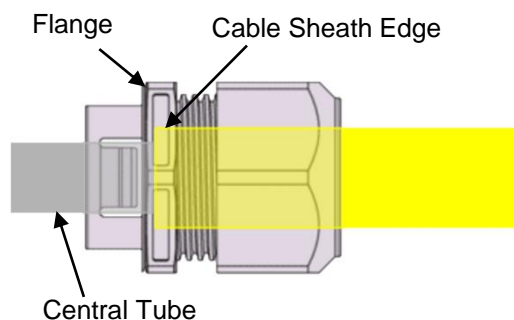
**5.2.7** Once cable sheath has been removed, first slide the strain relief and then the sleeve onto the cable sheath. Be sure to slide the strain relief and sleeve onto the cable in the correct orientation so that they can be snapped together. See **Figure 2**.

**5.2.8 288f Only** – The 288f Breakout kit comes with 2 different sizes of strain relief and sleeve. The Small strain relief and sleeve are to be used for 288f cables with Freeform Ribbon. The Large strain relief and sleeve are to be used with 288f with standard ribbon.



**Figure 2**

**5.2.9** Align the edge of the cable sheath with the flange of the strain relief and tighten.



**5.2.10** Snap the sleeve onto the strain relief.

## 6.0 48f / 72f / 96f Ribbon Installation

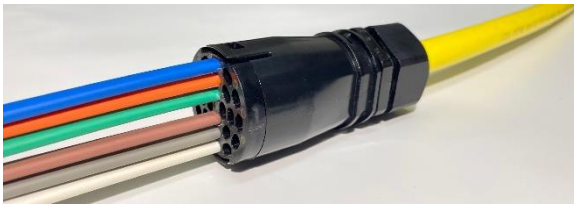
**6.1** With the ribbons exposed, begin installing the ribbons into the corresponding color furcation tube.

**6.2** The 48f – 96f ribbon breakout kits will start with the BLUE furcation tube and work your way through the colors.

**6.3** Beginning with Ribbon #1, insert each ribbon into the appropriate colored furcation tube one at a time. See **Appendix 2** for more details.

**6.4** With all ribbons installed, grab all of the ribbons at the ends of the furcation tubes and slowly begin to pull them. While pulling the ribbons, guide the breakout kit base toward the sleeve assembly.

**6.5** Snap the base into the sleeve assembly.



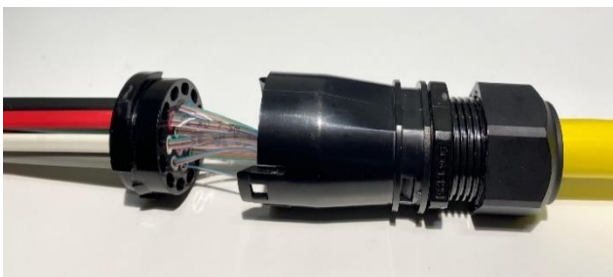
**FOR-072-O-1**

## 7.0 144f / 288f Ribbon Installation

**7.1** With the ribbons exposed, begin installing the ribbons into the corresponding color furcation tube. Refer to **Appendix 1** for ribbon identification.

**7.2** The 144f and 288f ribbon breakout kits will begin with the inner most AQUA furcation tube and work backwards through the colors, going from the inside out.

**7.3** Beginning with Ribbon #12 and working backwards to Ribbon #1, insert each ribbon into the appropriate colored furcation tube one at a time. See **Appendix 2** for more details.



**FOR-144-O-1**

**7.4 288f Only** - With the first twelve ribbons inserted into the tubes, now begin inserting Ribbon #13 - #24 into the corresponding furcation tubes. Place two (2) orange shrink sleeves onto each furcation tube prior to installing each ribbon.



**7.8** With all ribbons installed, grab all of the ribbons at the ends of the furcation tubes and slowly begin to pull them. While pulling the ribbons, guide the base toward the sleeve assembly.

**7.9** Snap the base into the sleeve assembly.



**FOR-288-O-1**

## 8.0 Installation / Termination Options

**8.1** There are three options for termination when using the Ribbon Breakout Kits – splice tray, FOX splice cassette, or MPO splice-on connector.

**8.2** When installing into a splice tray, up to 6 ribbons can be installed in a tray. Secure the furcation tubes with a zip tie as they enter the tray.

**8.3** When installing in a FOX cassette, up to 2 ribbons can be installed in the cassette, depending on connector type.

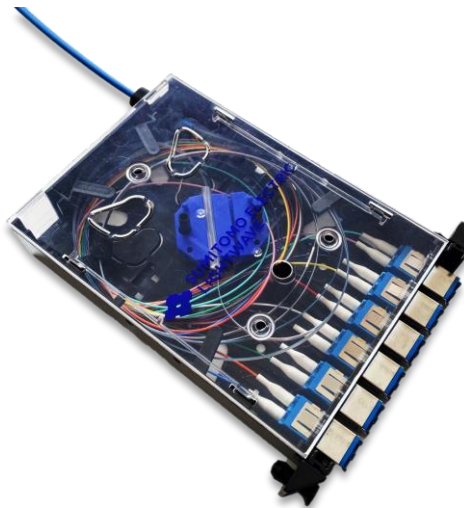
*Be sure not to exceed the minimum bend radius during installation.*

**8.4** Follow manufacturer's instruction when splicing the ribbons.

Splice Tray



FOX Splice Cassette



MPO Splice-On Connector



## Appendix 1

### Standard Ribbon Markings

Ribbon #	Marking	Ribbon #	Marking
1	SE BL 1 SM	13	SE D-BL 13 SM
2	SE OR 2 SM	14	SE D-OR 14 SM
3	SE GR 3 SM	15	SE D-GR 15 SM
4	SE BR 4 SM	16	SE D-BR 16 SM
5	SE SL 5 SM	17	SE D-SL 17 SM
6	SE WH 6 SM	18	SE D-WH 18 SM
7	SE RD 7 SM	19	SE D-RD 19 SM
8	SE 8 BK SM	20	SE D-BK 20 SM
9	SE 9 YL SM	21	SE D-YL 21 SM
10	SE 10 VI SM	22	SE D-VI 22 SM
11	SE 11 RS SM	23	SE D-RS 23 SM
12	SE 12 AQ SM	24	SE D-AQ 24 SM

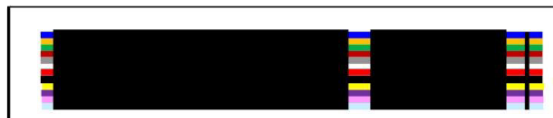
\*\*NOTE: SM (Single-mode) is used in this example. Last two characters indicate fiber type.



## Freeform Ribbon Markings

Bundle #	Ribbon #	Marking	Bundle #	Ribbon #	Marking
1	1	1 Bar	3	13	1 Long Block + 3 Bars
	2	2 Bars		14	1 Long Block + 4 Bars
	3	3 Bars		15	1 Long Block + 1 Short Block
	4	4 Bars		16	1 Long Block + 1 Short Block + 1 Bar
	5	1 Short Block		17	1 Long Block + 1 Short Block + 2 Bars
	6	1 Short Block + 1 Bar		18	1 Long Block + 1 Short Block + 3 Bars
2	7	1 Short Block + 2 Bars	4	19	1 Long Block + 1 Short Block + 4 Bars
	8	1 Short Block + 3 Bars		20	2 Long Blocks
	9	1 Short Block + 4 Bars		21	2 Long Blocks + 1 Bar
	10	1 Long Block		22	2 Long Blocks + 2 Bars
	11	1 Long Block + 1 Bar		23	2 Long Blocks + 3 Bars
	12	1 Long Block + 2 Bars		24	2 Long Blocks + 4 Bars

<i>Marking Pattern</i>		
<i>1</i>	<i>5</i>	<i>10</i>
  <i>Bar</i>	■  <i>"Short" Block</i>	■  <i>"Long Block"</i>

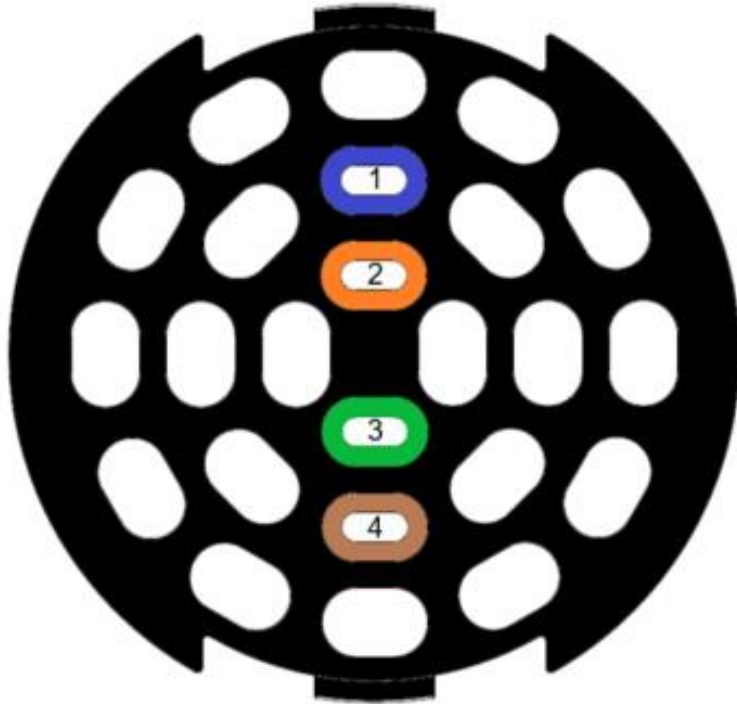


The Above Designates Ribbon #16 (1 Long Block, 1 Short Block, 1 Bar)



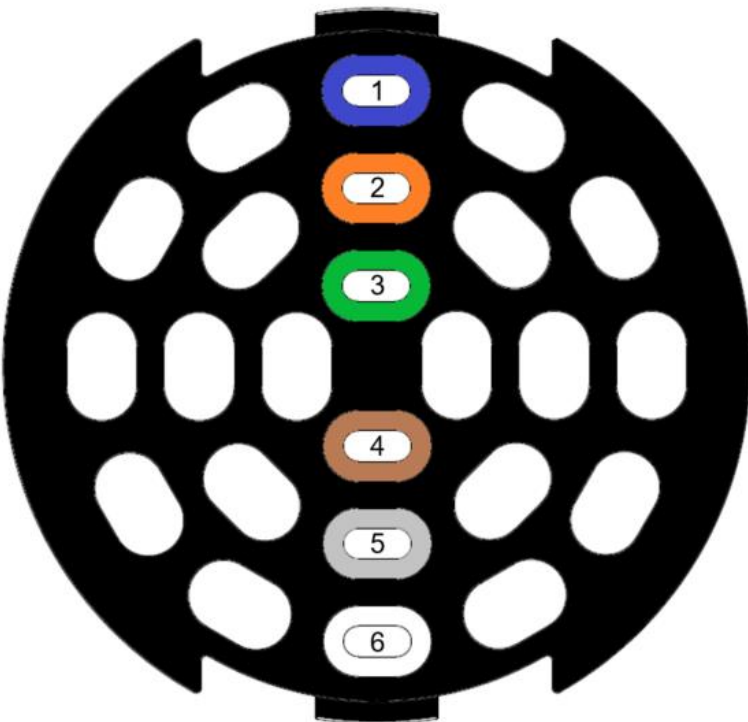
## Appendix 2

**FOR-048-O-1**



Ribbon #	Tubing Color
1	Blue
2	Orange
3	Green
4	Brown

**FOR-072-O-1**



Ribbon #	Tubing Color
1	Blue
2	Orange
3	Green
4	Brown
5	Slate
6	White





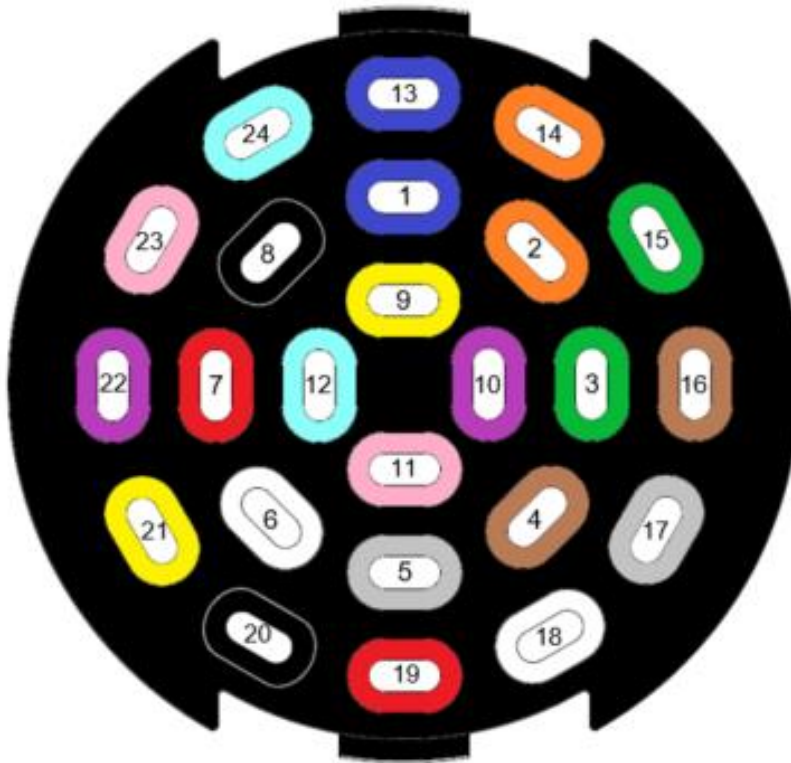
**FOR-096-O-1**

Ribbon #	Tubing Color
1	Blue
2	Orange
3	Green
4	Brown
5	Slate
6	White
7	Red
8	Black



**FOR-144-O-1**

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



**FOR-288-O-1**

Ribbon #	Tubing Color	Ribbon #	Tubing Color
1	Blue	13	Blue (Outer)
2	Orange	14	Orange (Outer)
3	Green	15	Green (Outer)
4	Brown	16	Brown (Outer)
5	Slate	17	Slate (Outer)
6	White	18	White (Outer)
7	Red	19	Red (Outer)
8	Black	20	Black (Outer)
9	Yellow	21	Yellow (Outer)
10	Violet	22	Violet (Outer)
11	Rose	23	Rose (Outer)
12	Aqua	24	Aqua (Outer)