



Optics Products

Handling Instruction Sheet

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Change History

Revision #	Reason	Date
1.0	Initial Release	03/2025
1.1	Imagery Update	05/2025

Associated Documents

Document	Description
Documents located on www.samtec.com	
Insertion Tool Instructions	CAT-IN-ECUO-02 – FireFly insertion tool instruction sheet

Support

Please do not hesitate to reach out to us if you have any questions.

Area	Contact Information
Pricing and availability	FireFly@samtec.com
Technical support	FireFlyTPS@samtec.com
Customization requests	FireFlyOTP@samtec.com
Post-sales support	FireFlyCQC@samtec.com

1 Handling and Endface Best Practices

1.1 Handling Practices

FireFly units are shipped in a plastic clamshell. The raised center of the clamshell shows the minimum bend radius of the fiber. Bending the part at a tighter angle than shown in Figure 1 may result in the glass core of the fiber cracking or breaking, especially under tension. Breaks are often seen on the farthest ends of the cable, where the ferrules and engines are located, as these are the spots where the fibers are most often handled. When installing or removing, take special care not to subject these areas to tension, pinching, torsion, or twisting.



Figure 1. Minimum Bend Radius Example

1.2 Endface Practices

As standard in the optics industry, Samtec recommends cleaning all endfaces before mating. If mated before cleaning, dirty endfaces can cause signal issues such as debris embedding itself into the endface. Debris not only damages the affected part but also risks damage to all parts mated to the dirty endface. Samtec uses the USCONNECT OPTIPOP R Cleaning Cassette, though there are other options on the market. Figure 2 shows a channel before and after a simple clean.

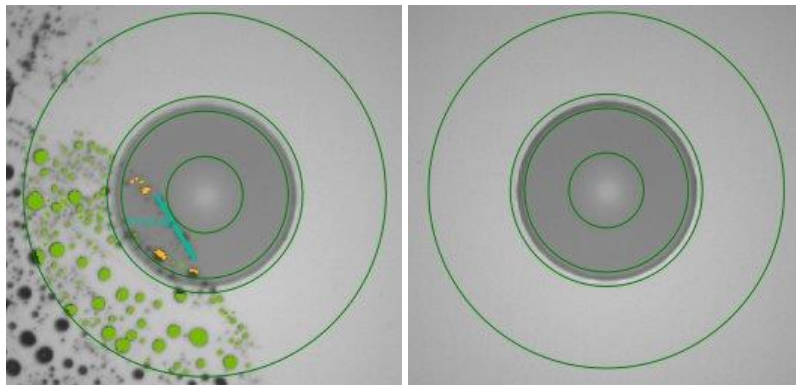
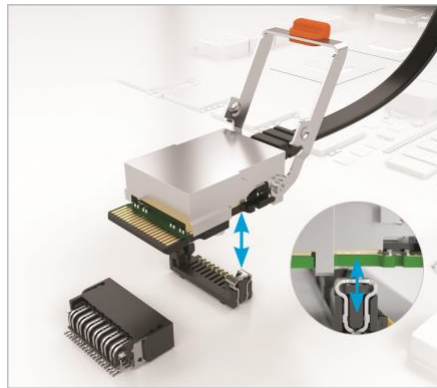


Figure 2. Fiber Channel Before (Left) and After (right) Cleaning

2 Insertion & Removal Instructions

2.1 Swing Latch Operation Instructions



1. Begin with unmated assembly (latch in open position). Align the assembly so that notches in PCB are over the positive latching receptacle.

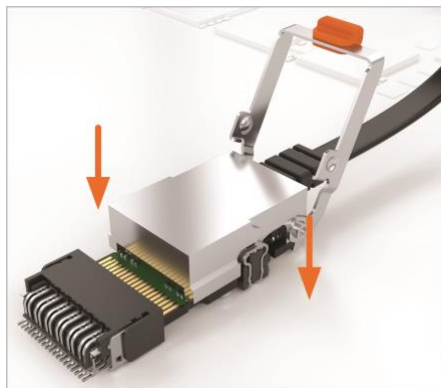
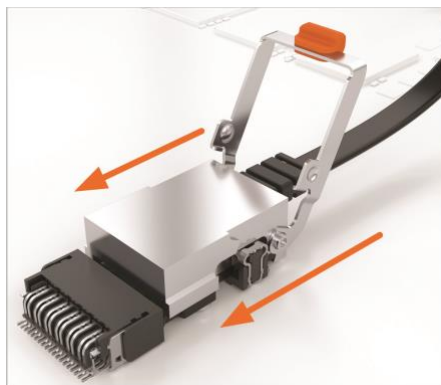
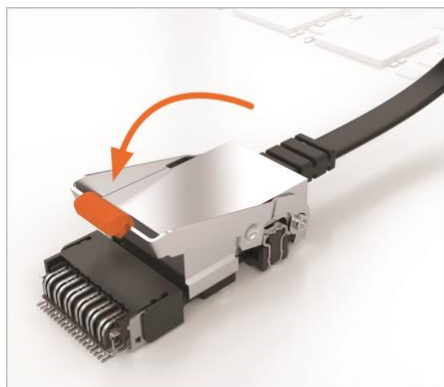


Figure 3. Swing Latch, Bad Insertion Example

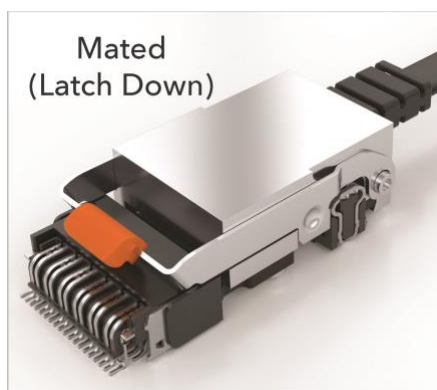
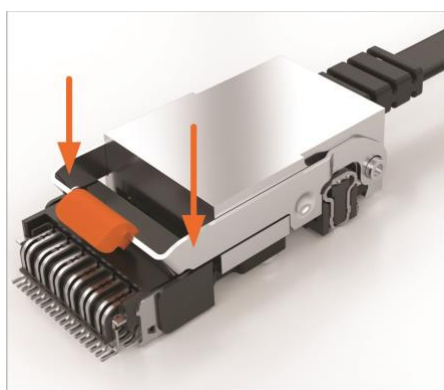
2. Drop cable assembly down keeping it parallel to the board.



3. Slide cable assembly forward until engaged, keeping it level with the board.

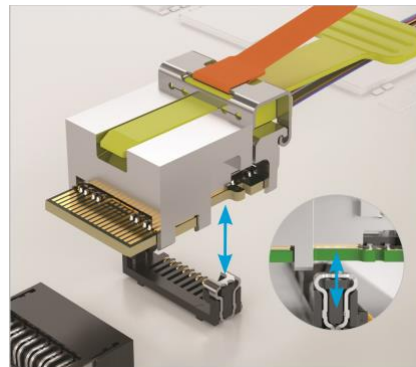
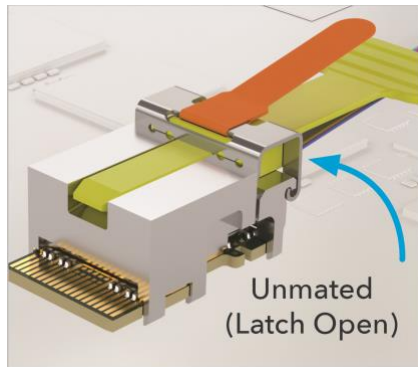


4. Rotate latch downwards until parallel to board.



5. Depress latch to lock cable assembly into the connector. Removal is reverse of installation.

2.2 Instructions Without the Insertion Tool



1. Begin with unmated assembly (latch in open position). Align cable assembly so that the notches in the PCB are over the positive receptacle.

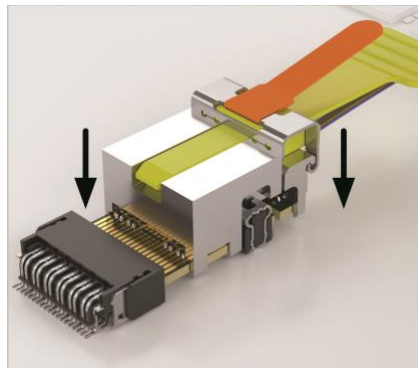
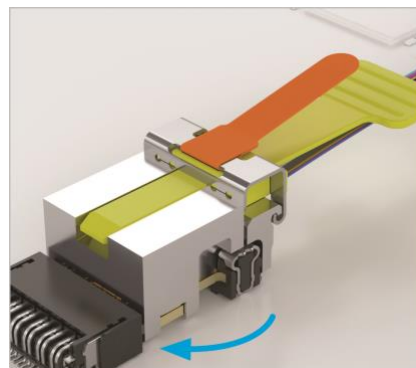
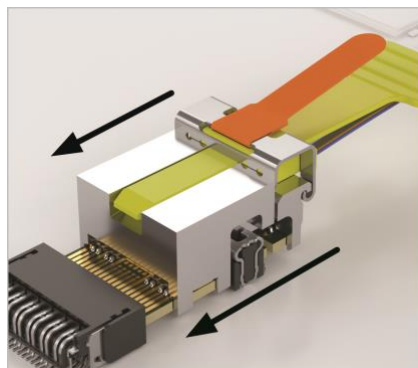


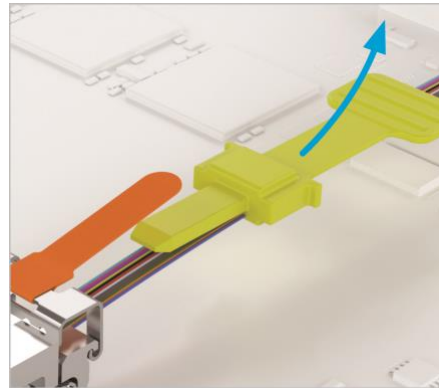
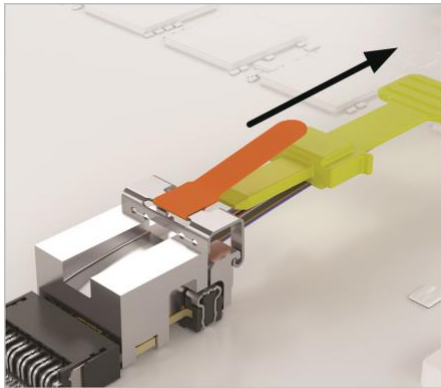
Figure 4. Without Insertion Tool, Bad Insertion Example

2. Drop the cable assembly down keeping it parallel to the board.



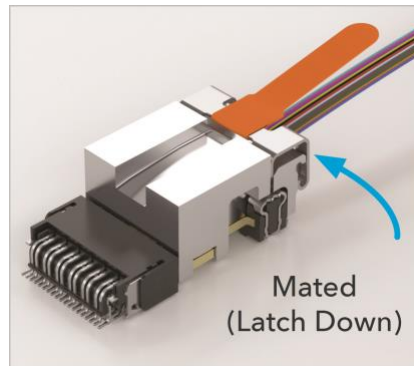
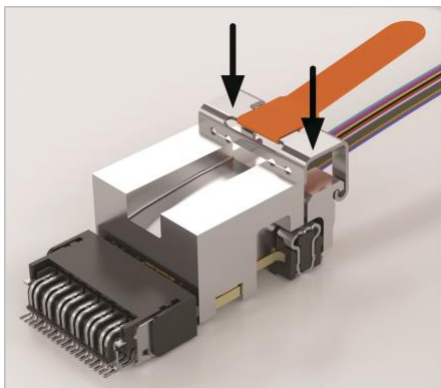
3. Slide the cable assembly forward keeping it level until fully engaged.

Warning: For steps 2 and 3, the FireFly cable assembly **MUST** stay parallel to the board and be pushed straight forward without misalignment to the left or right. Forcing the part down while inserting or trying to “heel-toe” the part into the connector, can result in damage to the FireFly and/or the connector (see Figure 4 for visual).



4. Pull the latch position retainer to remove.

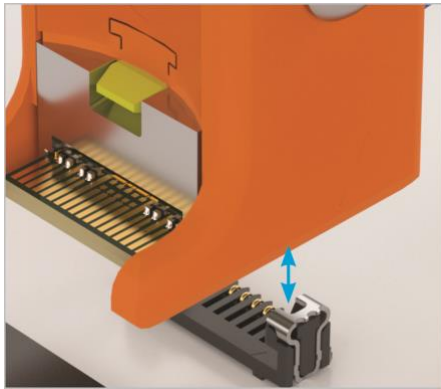
Note: Tall pin fin heatsinks do not have a latch position retainer. Before attempting to insert a FireFly with a tall pin fin heatsink, ensure its latch is pulled fully in the upright position.



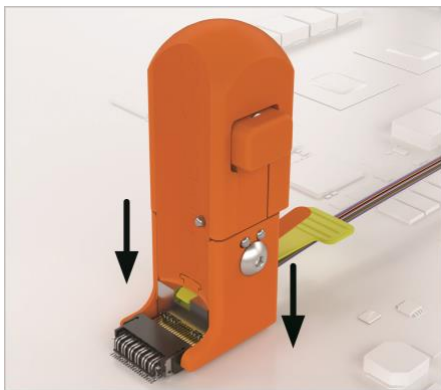
5. Depress the latch to lock the cable assembly into the connector.

2.3 Instructions With the Insertion Tool

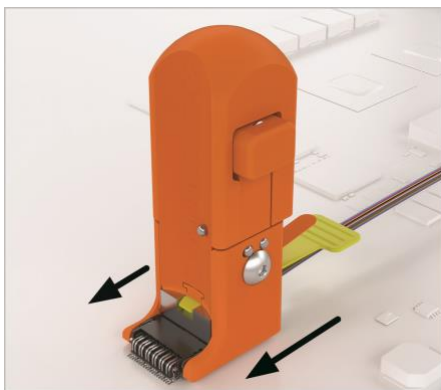
Note: The following instructions require the [FireFly™ Insertion Tool CAT-IN-ECUO-02](#).



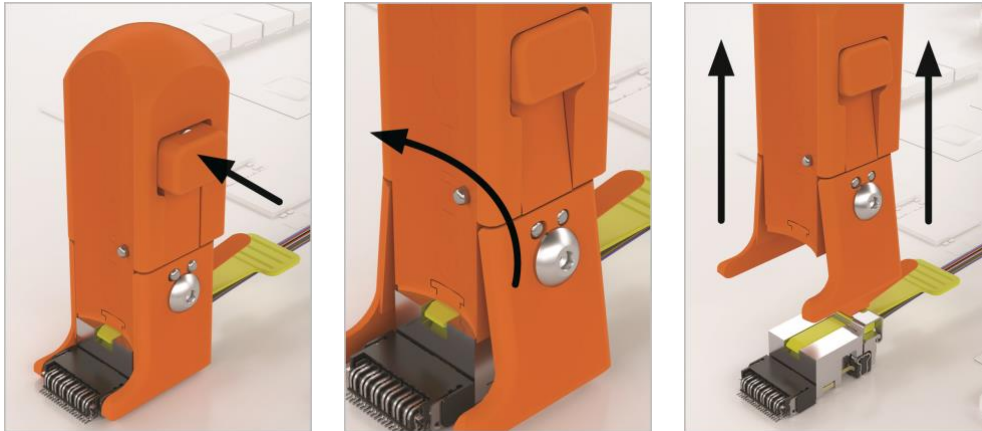
1. Align tooling with cable assembly with cables so that the notches in the PCB are over the positive latching receptacle.



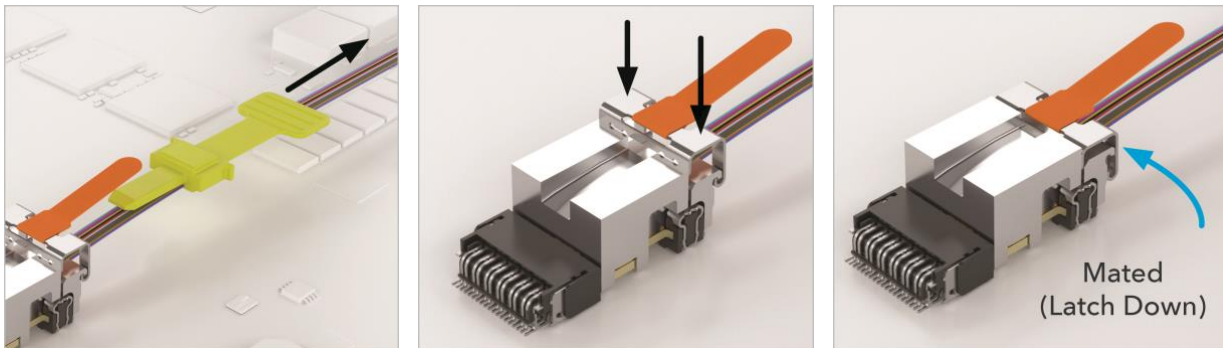
2. Drop the tooling with the cable assembly down keeping it parallel to the board. Note: Make sure the insertion tool clamps are secured to both sides of the FireFly before insertion.



3. Slide the tooling with the cable assembly forward keeping it level until fully engaged.



4. To remove the tool, press the side button (L) and lean the tool slightly to the right (C) and lift the tool upwards (R).



5. Pull the latch position retainer to remove (L), then depress the latch (R) to lock the cable assembly into the connector.

2.3.1 Insertion Tool Compatibility

This installation tool is compatible with the following heatsinks:

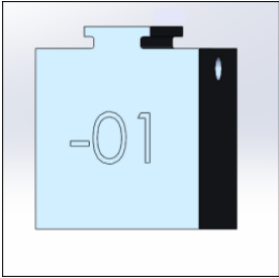
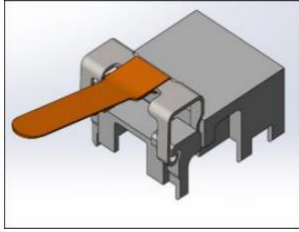
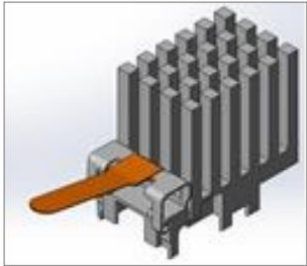
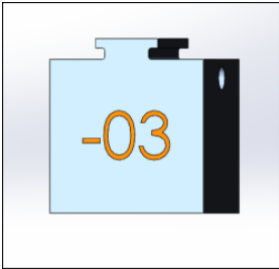
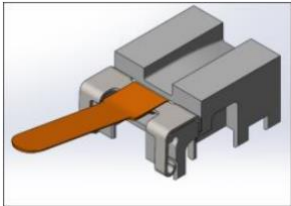

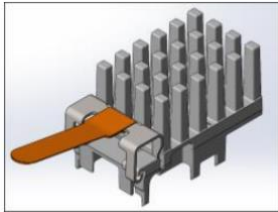
- Flat
- Pin Fin
- Flat with groove
- PCIe® pin fin

The installation tool is **not** compatible with the following heatsinks:

- 1.75 cm tall pin fin
- 1.75 cm tall straight fin
- Orthogonal 1.75 cm tall straight fin

Note: All FireFly with a swing latch are also **not** compatible with the insertion tool.

2.3.2 Insertion Tool Adapter Identification

Adapter	Part Number	Heatsink Type
	E*UO-XXX-XX-XXX-0-1-1-X-XX	Flat 
No Adapter Installed	E*UO-XXX-XX-XXX-0-2-1-X-XX	Pin Fin 
	E*UO-XXX-XX-XXX-0-3-1-X-XX	Flat with Groove 
	E*UO-XXX-XX-XXX-0-4-1-X-XX	PCIe® Pin Fin 

Note: please review the [Insertion Tool Instructions](#) document for more information.

