

FTK01 & FMC2105-SU
FTTR Fiber Termination Kit & Field Mountable Connector

Quick Installation Guide

Issue 02
Date 2023-05-22



Copyright © Huawei Technologies Co., Ltd. 2023. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions



HUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: <https://www.huawei.com>

Email: support@huawei.com

Preface

General Safety Precautions

To ensure human and equipment safety, observe all the safety precautions marked on the equipment and provided in this document. The WARNING, CAUTION, and NOTE marks in this document do not cover all the safety precautions that must be followed; they only supplement general safety precautions as a whole. Huawei is not liable for any consequence that results from customers' violation of universal operation requirements or equipment design, manufacturing, and usage safety standards.

Local Laws and Regulations

When operating a device, obey local laws and regulations.





Personnel Requirements


Engineers that are responsible for installing and maintaining Huawei equipment must be trained, and have a thorough understanding of the proper operation methods and safety precautions.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol Conventions

Symbol	Description
	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss,

Symbol	Description
	performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
 NOTE	Calls attention to important information, best practices and tips. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Human Safety

Do not look into the optical port without eye protection.

When drilling holes, take proper protection measures to avoid inhaling dust and prevent dust from hurting your eyes.

When working at heights, take proper measures to prevent objects from falling down.

Change History

Issue	Date	Description
02	2022-05-22	Updated the product introduction and optimized the installation procedure.
01	2022-12-30	This issue is the first official release.

Contents

Preface	ii
1 Product Overview	1
2 Installation Preparation	2
2.1 Installation Tools and Accessories	2
2.2 FMC2105-5U Structure	4
2.3 Installation Process	5
3 Stripping the Optical Cable	6
3.1 1.2 mm x 1.6 mm Transparent Optical Cable	6
3.2 2 mm x 1.6 mm Transparent Optical Cable or Terminal Flexible Optical Cable	8
3.3 2 mm x 3 mm Terminal Flexible Optical Cable	10
4 Processing the Optical Fiber	11
5 Installing the Optical Fiber Connector	15
6 Disassembling Optical Fiber Connector (Optional)	18

1 Product Overview

Overview

The FTK01 suite contains FTTR fiber termination tools (optical cable stripper, coating stripper, and fiber cutter), and needs to be used with a dedicated field mountable connector (FMC2105-SU). This product and solution does not require dedicated crimping tool or live device, facilitating onsite termination of optical fibers. FTK01 can be used to provide convenient, reliable, and elegant connection solutions for FTTx home connection, FTTR indoor optical networking, and ONU onsite installation scenarios.

Features & Benefits

User friendly

- Dedicated crimping tools and live devices, such as optical fiber fusion splicers, are not required.
- The one-time assembly success rate of skilled technicians is greater than or equal to 95%. Optical fibers can be terminated on site within three minutes.
- The FTK01 contains complete tools and is easy to carry. It needs to be used with an FMC2105-SU connector to implement precise fixed-length assembly.

Unique design

- An FMC2105-SU connector is white (YB816), same in color as Huawei master and slave FTTR units and indoor ODN devices.
- The FTK01 provides complete tools to ensure precise fixed-length stripping of fibers and reliable assembly of the FMC2105-SU connector. The FTK01 can be used together with an FMC2105-SU connector to terminate optical cables of 1.2 mm x 1.6 mm, 1.6 mm x 2 mm, and 2 mm x 3 mm onsite.
- An FMC2105-SU connector is compatible with standard SC adapters.

Reliable performance

- Reusable: An FMC2105-SU connector can be re-assembled for at least five times.
- Long-term reliability: An FMC2105-SU connector passes the 500-hour accelerated aging test at 75 °C/95% RH. The FTK01 has assembly times not less than 1000.
- Adaptability in extreme environments: In the real-time monitoring of optical indicators, the optical fiber connectors (FMC2105-SU) pass the temperature cycle test (12 cycles) at -40 °C to +80 °C, as well as the water immersion and salt spray tests.
- High security and environment-friendly: An FMC2105-SU connector and the FTK01 comply with RoHS and REACH certification standards.

2 Installation Preparation

2.1 Installation Tools and Accessories



No.	Item	Qty.
1	Diagonal pliers	1 PCS
2	Alcohol	1 PCS
3	Lint-free tissue	2 PCS
4	2 mm x 3 mm optical cable stripper	1 PCS
5	2 mm x 1.6 mm optical cable stripper	1 PCS
6	Coating stripper	2 PCS
7	Optical fiber cutter	1 PCS

 **NOTE**

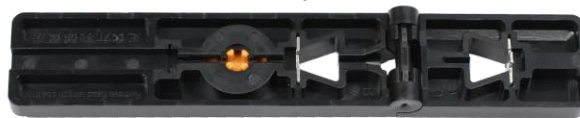
- The FTK01 contains tools 5, 6, and 7.
- Tools 1 (diagonal pliers) and 4 (2 mm x 3 mm optical cable stripper) are available in the open market and need to be prepared by the customer.
- Stripping the sheath of a 1.2 mm x 1.6 mm self-adhesive transparent optical cable: Use the diagonal pliers to cut off the sheath in the middle, split the sheath by hand, and then cut off the sheath.
- Stripping the sheath of a 2 mm x 3 mm flat drop cable: Use the 2 mm x 3 mm flat drop cable stripper (available in the common market and needs to be prepared by the customer) to strip the sheath.
- The structure of the coating stripper is as follows:

The side for removing coating by a fixed length

Closed



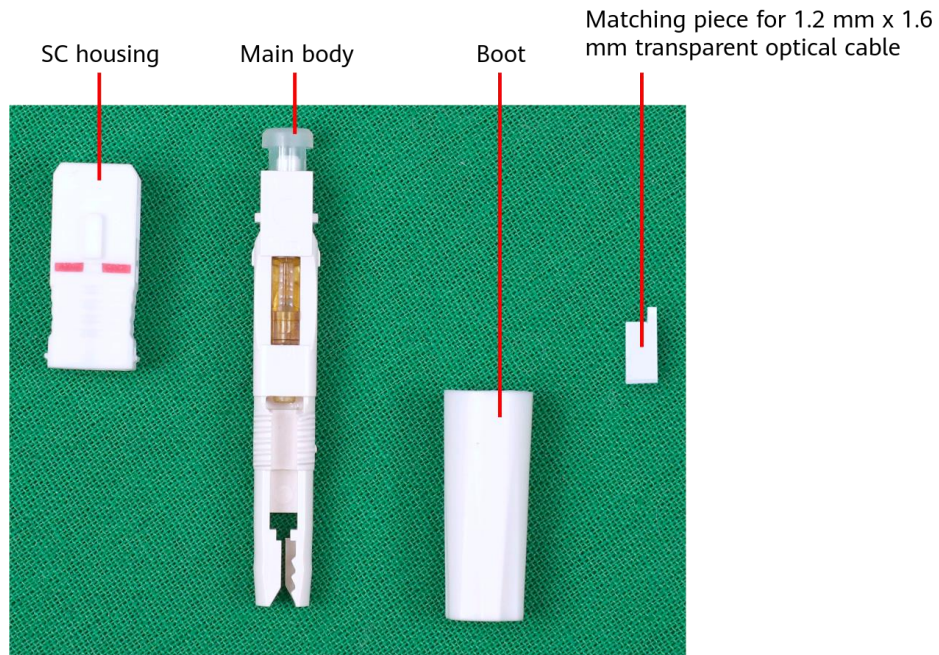
Open



The side for cutting the optical fiber by a fixed length



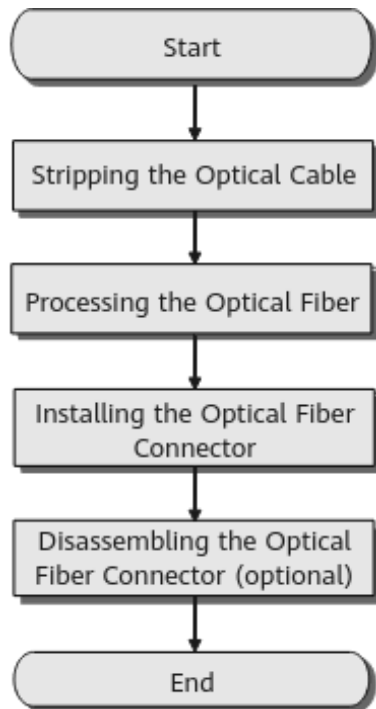
2.2 FMC2105-5U Structure



NOTICE

The FMC2105-SU is not included in the FTK01, and needs to be purchased separately and used together with the FTK01.

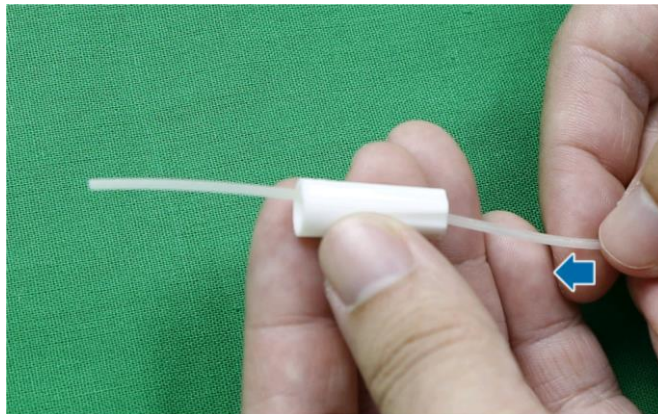
2.3 Installation Process



3 Stripping the Optical Cable

3.1 1.2 mm x 1.6 mm Transparent Optical Cable

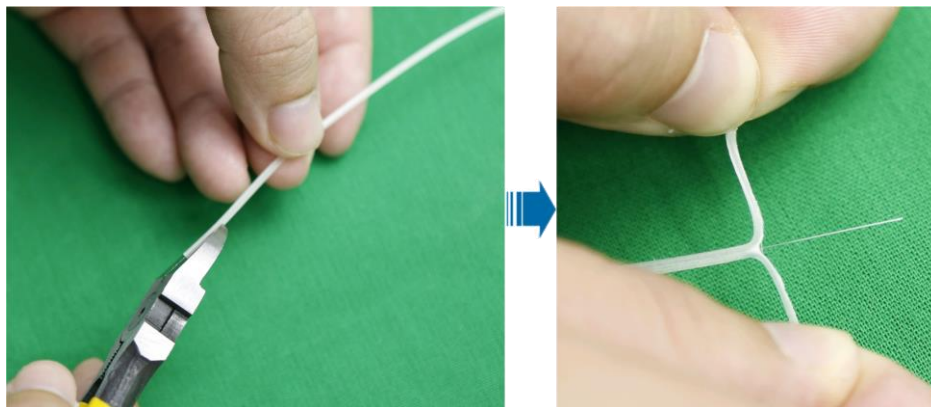
Step 1 Insert the optical cable into the boot.



NOTICE

Route the optical cable in from the smaller hole and out from the larger hole of the boot. Do not install the optical cable in the wrong direction.

Step 2 Use diagonal pliers to cut the optical cable from the middle, remove the sheath, and expose the bare fiber by 45–50 mm.

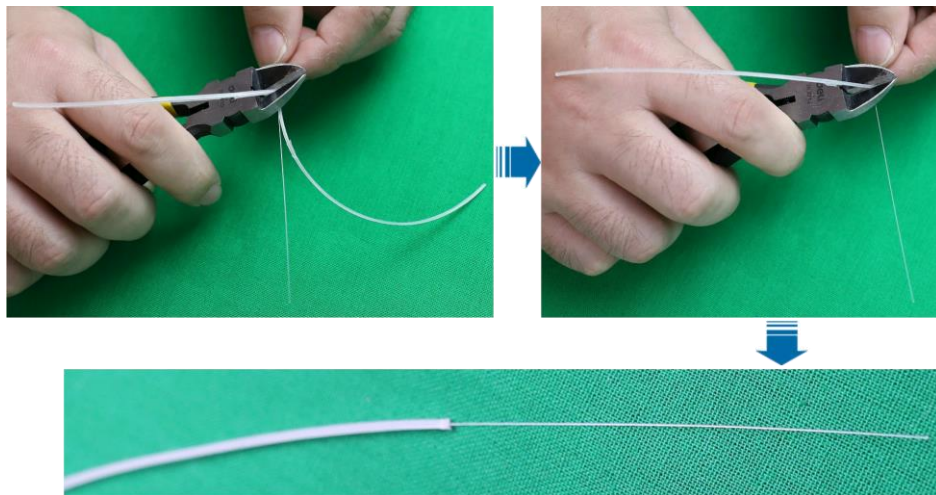


 **NOTE**

1. Stripping a 1.2 mm x 1.6 mm transparent optical cable: Use diagonal pliers to cut the sheath in the middle and, split the sheath by hand, and then cut off the sheath. Do not use the 2 mm x 1.6 mm optical cable stripper in the FTK01 to strip the sheath.
2. If no bare fiber is exposed after the sheath is removed, bend the sheath at the initial stripping point by about 180 degrees until the optical fiber is broken and the bare fiber is exposed, as shown in the following figure.



Step 3 Cut off the extra sheath of the optical fiber and ensure that the end faces of the sheath on both sides are flush.



NOTICE

Do not use the tip of the diagonal pliers to cut the sheath. Otherwise, the optical fiber may be damaged.

----End

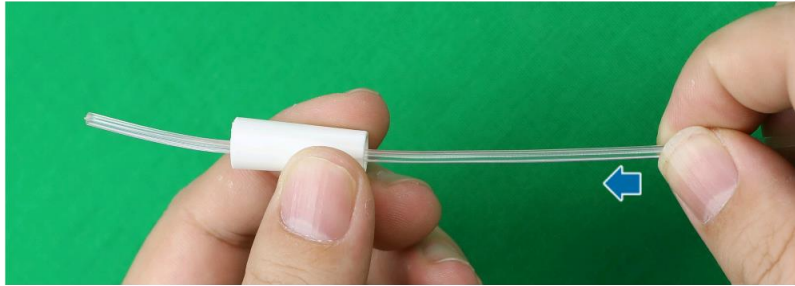
3.2 2 mm x 1.6 mm Transparent Optical Cable or Terminal Flexible Optical Cable

NOTE

The method of stripping 2 mm x 1.6 mm transparent optical cables or terminal flexible optical cables is the same.

Step 1 Insert the optical cable into the boot.

Transparent optical cable



Terminal flexible optical cable



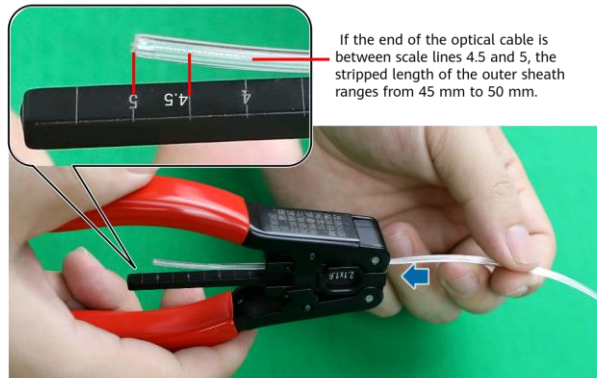
NOTICE

Route the optical cable in from the smaller hole and out from the larger hole of the boot. Do not install the optical cable in the wrong direction.

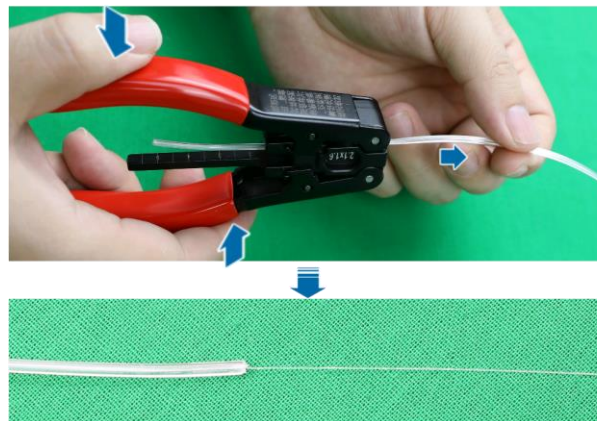
Step 2 Use the optical cable stripper in the toolkit to strip the sheath of the optical cable and expose the bare fiber by 45–50 mm.

- Transparent optical cable

- 1 Route the optical cable through the inlet on the top of the stripper until the end of the optical cable is between scale lines 4.5 and 5.



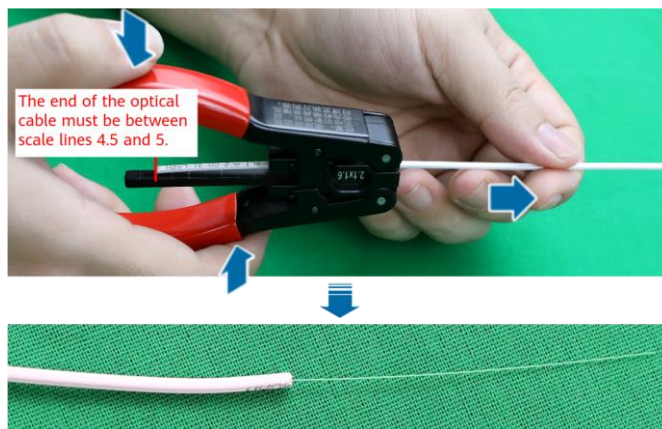
- 2 Press the handle downwards until you hear a click sound, and then pull the optical cable outwards until it is removed. The outer sheath of the optical cable is stripped.



NOTICE

The fiber coating of a 2 mm x 1.6 mm transparent optical cable is tightly clung on the cable sheath. Therefore, when using the 2 mm x 1.6 mm optical cable strippers to strip the cable, you can apply a little more force or strip the cable in two sections.

- Terminal flexible optical cable



----End

3.3 2 mm x 3 mm Terminal Flexible Optical Cable

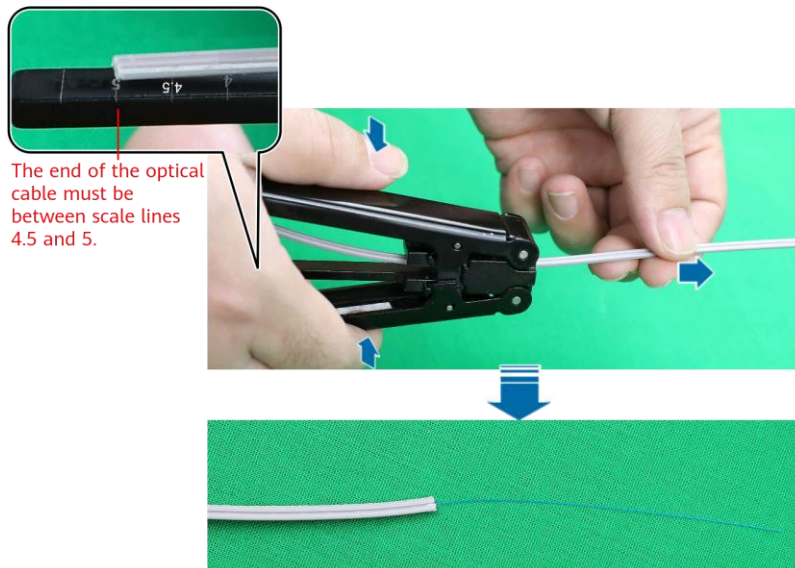
Step 1 Insert the optical cable into the boot.



NOTICE

Route the optical cable in from the smaller hole and out from the larger hole of the boot. Do not install the optical cable in the wrong direction.

Step 2 Use a 2 mm x 3 mm optical cable stripper to strip the sheath of the optical cable and expose the bare fiber by 45–50 mm.



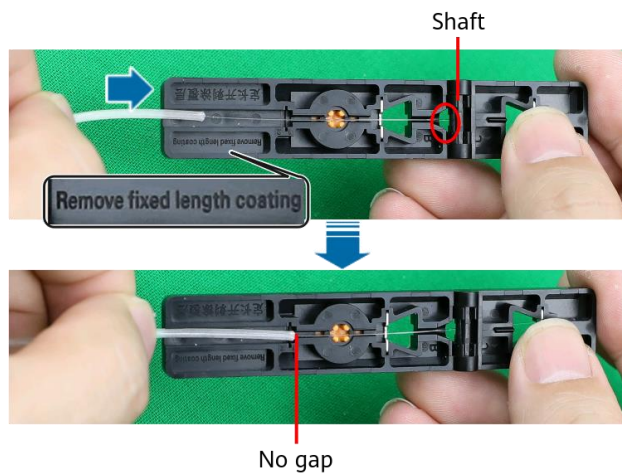
----End

4 Processing the Optical Fiber

NOTE

The operations for processing optical fibers are the same for different types of optical cables. The following uses a 1.2 mm x 1.6 mm transparent optical cable as an example.

Step 1 Open the coating stripper. On the side marked with "Remove fixed length coating", route the bare fiber through the hole near the shaft until the optical cable is clamped into the coating stripper.



NOTICE

Clean the tool before stripping the optical fiber. Otherwise, the residual coating may cause incomplete stripping of the optical fiber.

There is residual coating on the tool.



There coating of the optical fiber is not completely stripped.

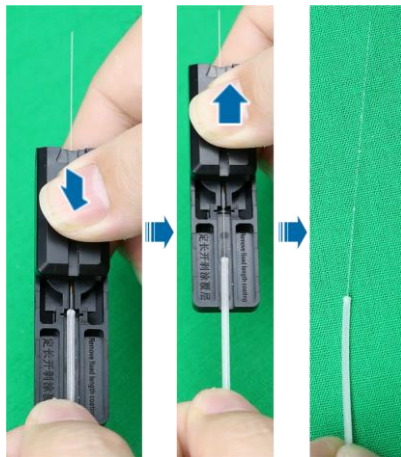


Do not leave a gap between the optical cable and the stripper.

- Step 2** Rotate the shaft to close the coating stripper. Hold the shaft end (edge side) of the coating stripper with one hand and horizontally pull out the optical cable with the other hand to strip off the coating.

NOTICE

Do not exert excessive force when holding the shaft end (edge side) of the stripper.



- Step 3** After confirming that the fiber is intact, clean the stripped fiber using alcohol.



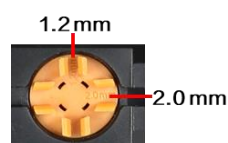
NOTE

Gently press the upper and lower, left and right sides with your fingers to 60 degrees, three times in each direction to confirm that there are no fiber cracks.

- Step 4** Rotate the optical cable fastener. For 1.2 mm x 1.6 mm optical cables, select the 1.2 mm channel. For 2 mm x 1.6 mm and 2 mm x 3 mm optical cables, select the 2.0 mm channel.

NOTICE

The narrow channel of the optical cable fixing piece is applicable to 1.2 mm x 1.6 mm optical cables, and the wide channel is applicable to 2 mm x 1.6 mm and 2 mm x 3 mm optical cables.



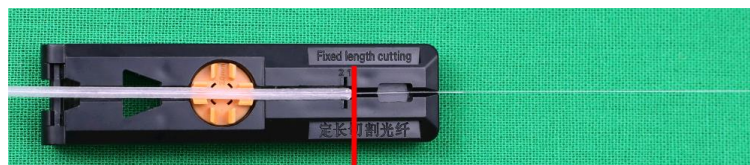


Step 5 Insert the optical cable whose coating is stripped into the slot on the side marked with "Remove fixed length coating". Do not leave a gap between the optical cable and the fixed-length limiting surface.

NOTICE

When inserting the optical cable into the slot, pay attention to the direction of the optical cable.

- **1.2 mm x 1.6 mm transparent optical cable, horizontally placed**



No gap

- **2 mm x 1.6 mm transparent optical cable, horizontally placed**



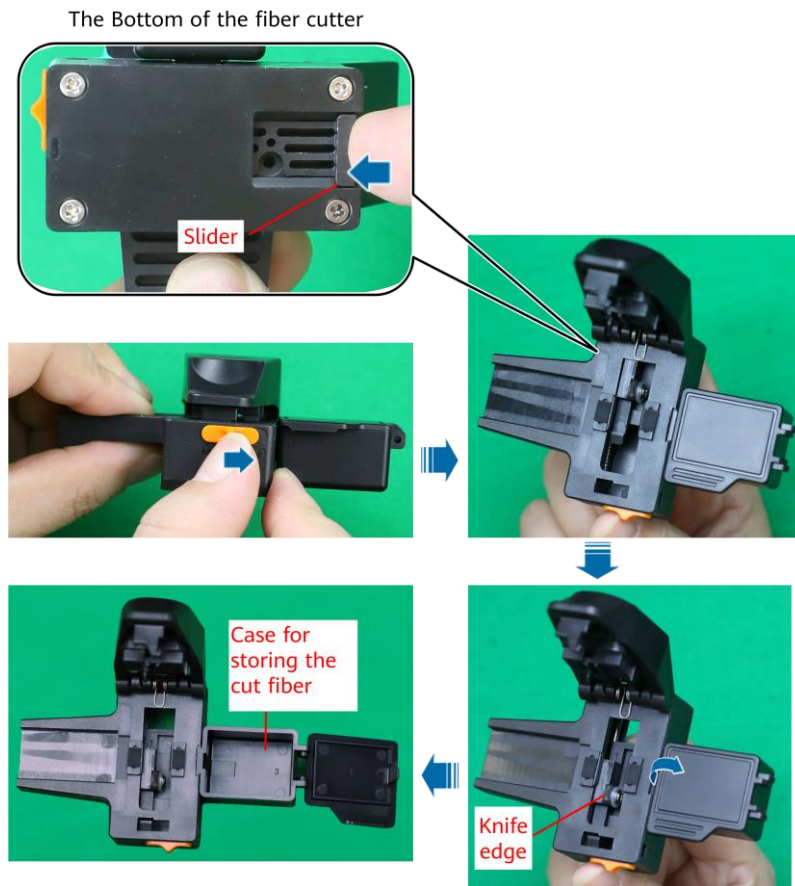
- **2 mm x 1.6 mm terminal flexible optical cable, horizontally placed**



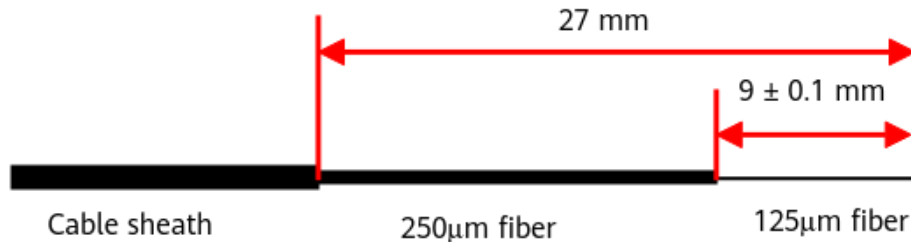
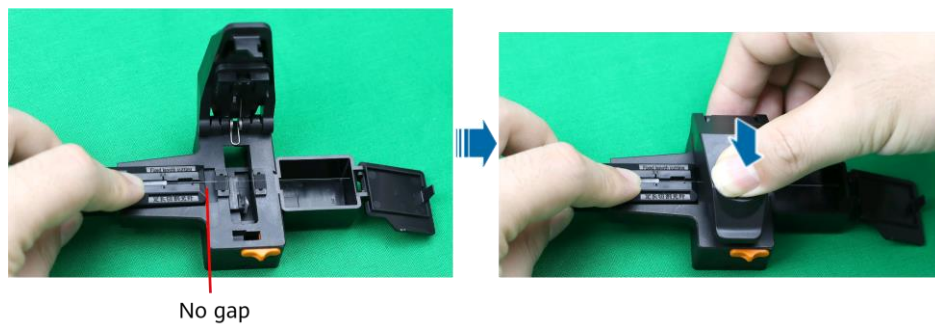
- **2 mm x 3 mm terminal flexible optical cable, vertically placed**



Step 6 Unlock the fiber cutter, push out the knife edge through the slider at the bottom of the fiber cutter, and open the case for storing the cut fiber.



Step 7 Insert the optical cable whose coating is stripped into the slot on the side marked with "Remove fixed length coating". Do not leave a gap between the optical cable and the fixed-length limiting surface.



----End

5 Installing the Optical Fiber Connector

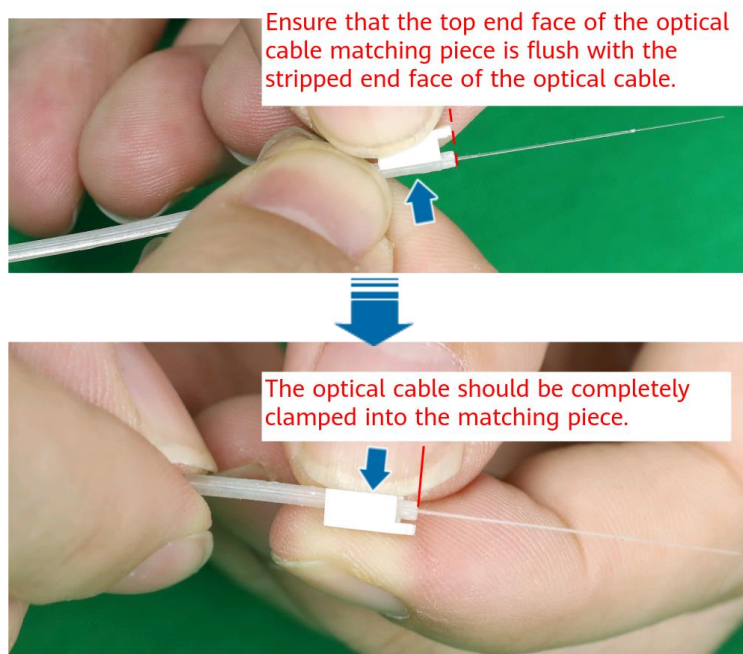
NOTE

The procedures for installing fiber connectors for different types of optical cables are similar. The following uses a 1.2 mm x 1.6 mm transparent optical cable as an example.

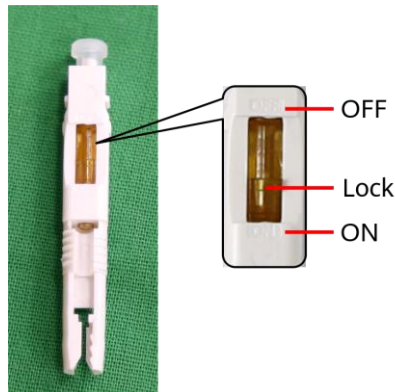
Step 1 Install the matching piece for the 1.2 mm x 1.6 mm transparent optical cable at the optical cable stripping point. Ensure that the top end face of the matching piece is flush with the stripped end face of the optical cable.

NOTE

- Perform this step only for 1.2 mm x 1.6 mm transparent optical cables. For other types of optical cables, skip this step.
- When clamping the optical cable into the matching piece, ensure that the optical cable is completely clamped.



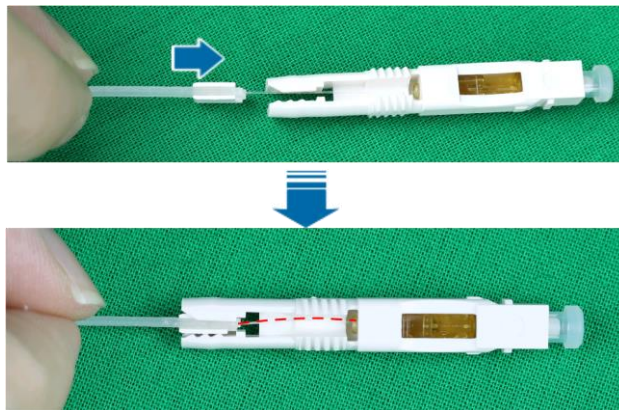
Step 2 Ensure that the lock of the optical fiber connector is in the ON position. Push the optical cable into the main body of the optical fiber connector until it reaches the end. In this case, the bare fiber is slightly bent. Pay attention to the direction of the optical cable when pushing it into the connector.



NOTICE

Push an optical cable into the main body of the connector with the 2 mm side parallel to the slot until it reaches the end, push the lock to OFF to clamp the optical cable, keep a certain pressure, and tighten the boot.

- **1.2 mm x 1.6 mm transparent optical cable (with a matching piece and vertically pushed in)**



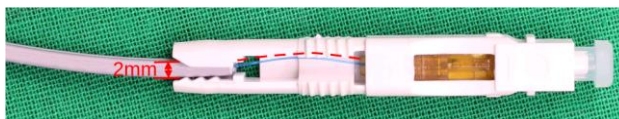
- **2 mm x 1.6 mm transparent optical cable (horizontally pushed in, the 2 mm side is clamped)**



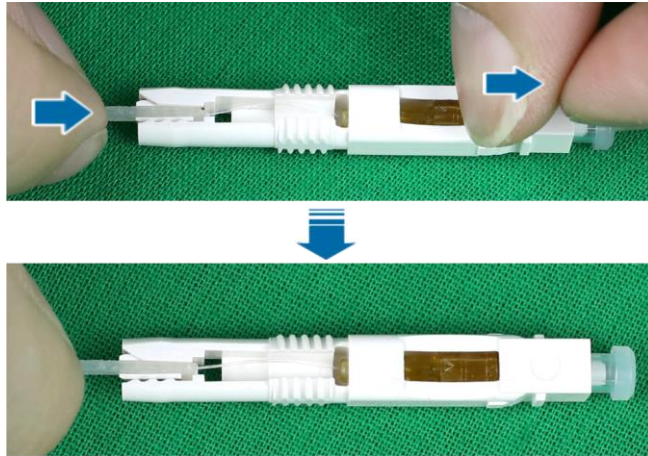
- **2 mm x 1.6 mm terminal flexible optical cable (horizontally pushed in, the 2 mm side is clamped)**



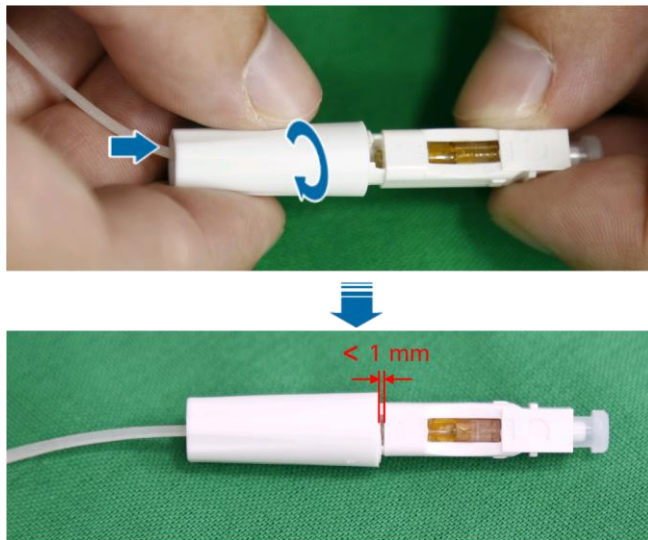
- **2 mm x 3 mm terminal flexible optical cable (vertically pushed in, the 2 mm side is clamped)**



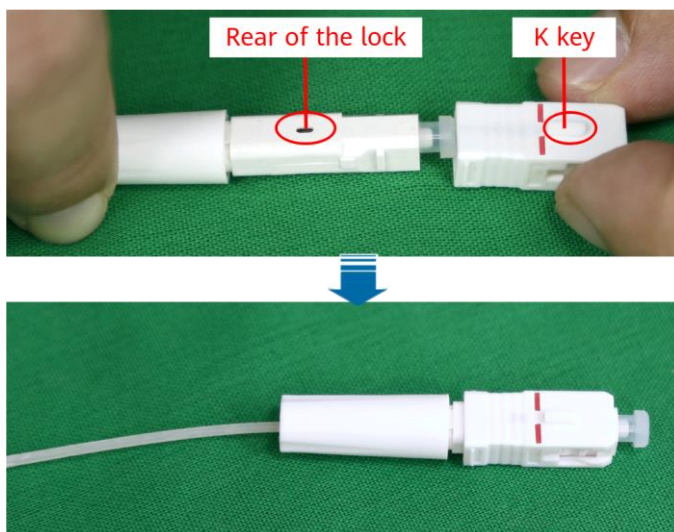
Step 3 Push the lock up to OFF to clamp the fiber.



Step 4 Keep the cable close to the stop dog and screw the boot. Ensure that the distance between the end face of the tightened boot and the lower end face of the main body is less than 1 mm.



Step 5 Install the SC housing to the main body, as shown in the following figure.



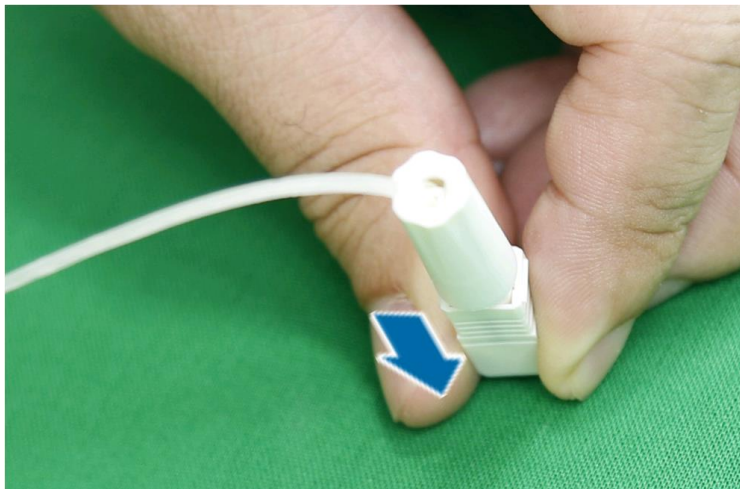
----End

6 Disassembling Optical Fiber Connector (Optional)

NOTE

The procedures for disassembling fiber connectors from different types of optical cables are the same. The following uses a 1.2 mm x 1.6 mm transparent optical cable as an example.

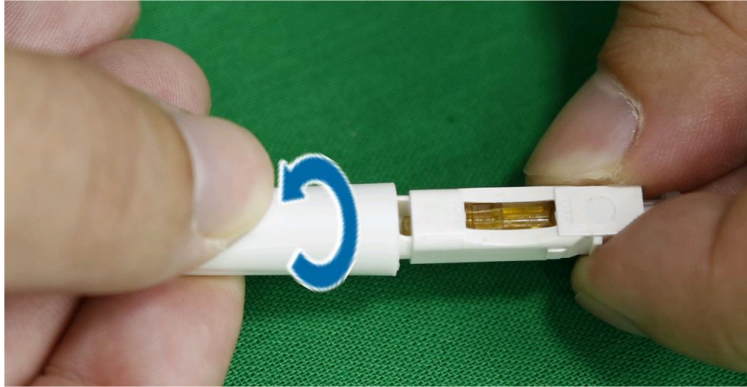
- Step 1** Remove the SC housing (Connectors must be installed with dustproof caps. Hold the SC housing on both sides and push it out vertically to remove it).



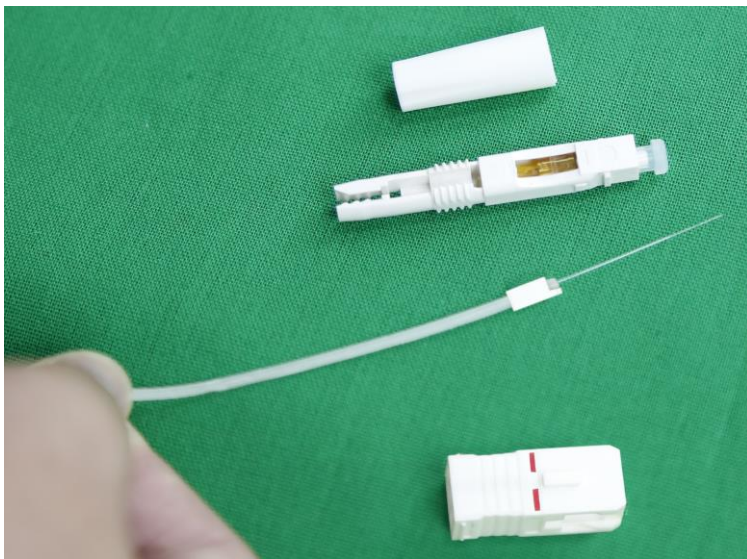
- Step 2** The lock of the connector body is exposed. Push the lock to the ON position.



Step 3 Unscrew the boot.



Step 4 Remove the cable.



----End