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THORLABS

Part FBC1 - NOV 26, 2019

Item # FBC1 was discontinued on NOV 26, 2019. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

FIBER OPTIC CLEANING PRODUCTS



[Hide Overview](#)

OVERVIEW

Thorlabs offers a complete line of fiber cleaning products specifically designed for terminated fiber, unterminated fiber, or fiber bulkheads such as those found on the front panel of our fiber-coupled laser sources.

Cleaning Fiber Bulkheads and Fiber Connectors:

The FCS3 TravelSAFE[®] Precision Fiber Cleaning Solvent can be used with the MCC25 Connector Cleaning Sticks to clean any connectors or bulkheads, including FC/APC. The *Fiber Cleaning Techniques* tab has step-by-step directions for this cleaning method.

The FBC1 Cleaner cleans 2.5 mm FC/PC, ST, and SC connectors and bulkheads, and the FBC125 Cleaner cleans 1.25 mm LC or MU connectors and bulkheads with PC or APC polishes. They are designed to clean quickly and without the need for solvents. For examples and more information about how to use these cleaners, see the *Fiber Cleaning Techniques* tab.

To remove broken fibers from connectors, we suggest our WC100 clean-out wires. Each vial includes eight 3" long, Ø110 µm wires.

For fiber connectors, the FCC-7020 Universal Fiber Connector Cleaner is available. This handheld connector cleaner is a great alternative to alcohol or solvent. The cleaning cloth effectively removes dirt, dust, oil, grease, and debris from connector end faces.

Cleaning Unterminated Fiber:

For cleaning unterminated fiber, there are two options. The FCS3 Cleaning Solvent can be applied with LFW90 Lint-Free Wipes; this procedure is illustrated on the *Fiber Cleaning Techniques* tab.

A second option is to use a solvent such as alcohol with Kimwipes[®]. The solvent, which needs to be purchased from a chemical distributor, can be dispensed from our BD8 one-touch pump dispenser bottle, which is great for minimizing solvent evaporation.

Fiber Optic Cleaning Kit:

The CKF complete fiber optic cleaning kit bundles all of the products necessary to clean fiber. The kit contains our TravelSAFE fiber connector cleaner (FCS3), connector cleaning sticks (MCC25), lint-free wipes (LFW90), handheld connector cleaner (FCC-7020), and a replacement reel for the handheld cleaner (FCC-7021). Many of these products are utilized in the procedures demonstrated on the *Fiber Cleaning Techniques* tab.

Fiber Inspection Scope:

The FS201 Fiber Inspection Scope, which comes with a universal adapter for FC-, ST-, SC-, and APC-terminated fibers, produces a high-quality, low-distortion image of both the connector end and the fiber. The FS200-SMA adapter, for SMA-terminated fibers, is also included. With a high-intensity illumination system and 200X magnification, this microscope is powerful enough to offer a clear image of the fiber core as well as the surrounding cladding. In addition, there is the option to use an oblique illumination setting, which provides illumination at an off-center angle to the fiber end face. Additional adapters for LC connectors and PM fibers are sold separately.

- The TravelSAFE™ designation indicates that the product is safe for air shipment.
- Kimwipes[®] is a registered trademark of the Kimberly-Clark Corporation.

[Hide Fiber Cleaning Techniques](#)

Fiber Cleaning Techniques

This tab details techniques for cleaning fibers, connectors, and fiber bulkheads using the items on this page.

Click these links to jump to specific sections:

- [Cleaning a Fiber Bulkhead Using the CKF Fiber Connector Cleaning Kit](#)
- [Fiber Patch Cable Connectors Using the CKF Fiber Connector Cleaning Kit](#)
- [Cleaning Unterminated Fiber Using the CKF Fiber Connector Cleaning Kit](#)
- [Fiber Cleaning Using the FBC1 Cleaner](#)
- [Fiber Cleaning Using the FBC125 Cleaner](#)

Cleaning a Fiber Bulkhead Using the CKF Fiber Connector Cleaning Kit

For this task, you will need the FCS3 Fiber Connector Cleaner and the MCC25 Connector Cleaning Sticks. Both of these items are available in the CKF Fiber Connector Cleaning Kit.



Click to Enlarge
Step #1: Push down on the top of the FCS3 can to fill the shallow reservoir with the connector cleaner.



Click to Enlarge
Step #2: Immerse the tip of the MCC25 stick into the cleaning solution.



Click to Enlarge
Step #3: Use the stick to clean the fiber bulkhead (connector) on the fiber-coupled laser source as shown above or any other device with a fiber bulkhead.

Cleaning Fiber Patch Cable Connectors Using the CKF Fiber Connector Cleaning Kit

Before cleaning and prior to each use, Thorlabs recommends using an inspection scope (FS-200) to inspect each fiber endface. Every fiber optic connector should be cleaned every time it is mated, tested, or reconfigured. "Wet-Dry" cleaning as described below improves performance when cleaning. For this task, you will need FCS3 Fiber Connector Cleaner and LFW90 Lint-Free Wipes. Both of these items are available in the CKF Fiber Connector Cleaning Kit.



Click to Enlarge
Step #1: Pull a clean wipe out of the LFW90 mini-tub. Stop pulling when the next wipe is exposed. Pinch the next wipe against the opening in the mini-tub with your thumb. Pull sideways to remove.



Click to Enlarge
Step #2: Lay the wipe across the palm of your hand. Hold it in place with your thumb.



Click to Enlarge
Step #3: Place the wipe on top of the open FCS3 solvent container. Push down to dampen it. Note: Normally, only one pump is necessary.



Click to Enlarge
Step #4: Place the connector on the moistened area of the wipe. Drag the connector down to the dry area. Discard the wipe. Inspect the endface with the FS-200 inspection scope to verify cleanliness.

Cleaning Unterminated Fiber Using the CKF Fiber Connector Cleaning Kit

For this task, you need FCS3 Fiber Cleaner and LFW90 Lint-Free Wipes. Both of these are provided in Thorlabs' CFK Fiber Cleaning Kit.



Click to Enlarge
Step #1: After stripping the fiber, pull a clean wipe out of the LFW90 mini-tub. Stop pulling when the next wipe is exposed. Pinch the next wipe against the opening in the



Click to Enlarge
Step #2: Fold the wipe in half, so it is square.

mini-tub with your thumb. Pull sideways to remove.



Click to Enlarge
 Step #3: Place the wipe on top of the open FCS3 solvent container. Push down to dampen it. Note: Normally, only one pump is necessary.



Click to Enlarge
 Step #4: Wrap the damp wipe around the fiber. Squeeze gently. Slide the wipe towards the end of the fiber once or twice until it squeaks, indicating the fiber is clean.

Fiber Cleaning Using the FBC1 Cleaner

Using Extended Mode



Click to Enlarge
 To use extended mode, pull the tip outward while simultaneously pushing down on the lock button. Extended mode is useful for panels with multiple bulkhead connectors or other tight spaces.

Cleaning Fiber Bulkheads



Click to Enlarge
 Remove the guide cap completely from the device, and insert the tip of the cleaner into the bulkhead connector. Push the case to start the cleaning process: a click indicates that the cleaning is complete.

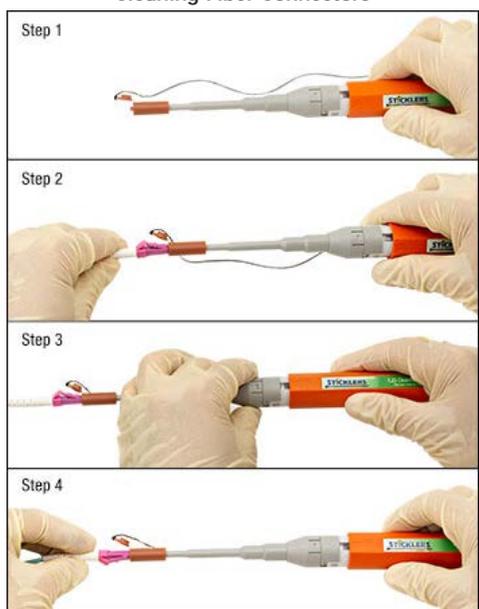
Cleaning Fiber Connectors



Click to Enlarge
 Open the cover on the guide cap, and insert the fiber connector over the guide cap. Push the case to start the cleaning process: a click indicates that the cleaning is complete.

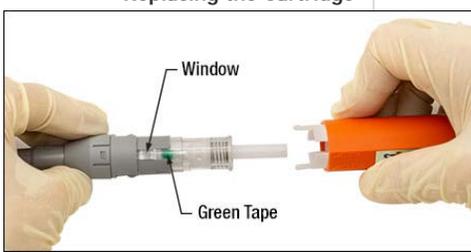
Fiber Cleaning Using the FBC125 Cleaner

Cleaning Fiber Connectors



Click to Enlarge
 To clean a 1.25 mm LC or MU fiber connector, begin by exposing the top of the guide cap and inserting the fiber connector tip. Rotate the cleaner handle from the LOCK position to the CLEAN position, and then carefully push the handle toward the connector to advance the cleaning string that cleans the connector. A click indicates that the cleaning is complete.
 To clean 1.25 mm fiber bulkheads, remove the guide cap completely, insert the tip of the FBC125 cleaner into the bulkhead, and proceed with the same steps.

Replacing the Cartridge



Click to Enlarge
 A new cartridge is shown being installed. The cartridge will need to be replaced when the green tape appears in the indicator window. To remove the FBC125R cartridge in the FBC125 cleaner, remove the guide cap completely and detach the old cartridge by firmly pulling it away from the handle. Perform this last step with care.

[Hide Fiber Connector Cleaning Fluid and Cleaning Sticks](#)

Fiber Connector Cleaning Fluid and Cleaning Sticks

TravelSAFE® Fiber Connector Cleaning Fluid (Item # FCS3)



- ▶ Optical-Grade, Fast Drying Cleaning Solution
- ▶ Engineered for Cleaning Connectors Within Alignment Sleeves
- ▶ Optimized for Use with MCC25 Connector Cleaning Sticks or LFW90 Wipes (Sold Below)
- ▶ Removes Fingerprints, Light Oils, Dust, Fibers, Water Spots, and Surface Films from Fiber Components
- ▶ Ideal Replacement for IPA and/or Acetone

Connector Cleaning Sticks (Item # MCC25)

- ▶ Molded Swabs Conform to Connector End Face Geometry and Trap More Particulate than Fabric-Style Counterparts (50 per Pack)
- ▶ Cleans the Entire End Face
- ▶ Made Without Fabric, Foam, Glue, or Particulates

▶ 3 oz. Ozone-Safe Can for 400+ Cleanings

For tips on using the FCS3, please see the *Fiber Cleaning Techniques* tab above.

*TravelSAFE designation indicates that the product is safe for air shipment.

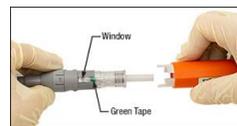
Part Number	Description	Price	Availability
FCS3	Precision Fiber Cleaning Fluid	\$23.27	Today
MCC25	Connector Cleaning Sticks	\$36.52	Today

[Hide Fiber Bulkhead and Connector Cleaners](#)

Fiber Bulkhead and Connector Cleaners



- ▶ FBC1 Cleans 2.5 mm FC/PC, ST, and SC Connectors and Bulkheads
- ▶ FBC125 Cleans 1.25 mm LC or MU Connectors and Bulkheads with PC or APC polishes
- ▶ Window to Indicate when to Replace Device or Cartridge
- ▶ Small Size Ideal for Constrained Spaces



Click to Enlarge

Shown is an FBC125R replacement cartridge being installed in an FBC125 cleaner. Both the FBC1 and FBC125 cleaners feature an indicator window to indicate when the device (Item # FBC1) or cartridge (Item # FBC125R) need to be replaced.

These fiber connector and bulkhead cleaners eliminate the need to use solvents when removing light dust, particulates, and oil contamination from connectors. They are ideal for fast cleanings and for use in tight spaces, such as panels with several closely-spaced fiber bulkheads. Both the FBC1 and FBC125 cleaners feature an indicator window to indicate when the device (Item # FBC1) or cartridge (Item # FBC125R) need to be replaced. FBC125R replacement cartridges for the FBC125 cleaner are available separately and are sold in packs of two.

Featuring a standard length of 7" (179 mm) and an extended length of 8" (203 mm), the FBC1 cleaner offers over 525 cleanings for 2.5 mm FC/PC, ST, and SC connectors and bulkheads. The FBC125 cleaner, which is 9.25" (235 mm) long, offers over 750 cleanings for 1.25 mm LC or MU connectors and bulkheads with PC or APC polishes.

For examples and more information about how to use these cleaners, see the *Fiber Cleaning Techniques* tab above.

Part Number	Description	Price	Availability
FBC1	2.5 mm FC/PC, ST, and SC Fiber Bulkhead and Connector Cleaner	\$93.61	5-8 Days
FBC125	Customer Inspired! 1.25 mm LC and MU Fiber Bulkhead and Connector Cleaner	\$93.61	Today
FBC125R	Customer Inspired! Replacement Cartridge for FBC125, Pack of 2	\$114.33	Today

[Hide Fiber and Connector Cleaning](#)

Fiber and Connector Cleaning



Lint-Free Wipes (Item # LFW90)

- ▶ Mini-Tub of Lint-Free Wipes for Cleaning Fiber and Connector End Faces (90 2" x 4" Sheets per Tub)

Universal Fiber Connector Cleaner (Item # FCC-7020) and Refill (Item # FCC-7021)

- ▶ Lint-Free Cleaning Cloth with Rubber Pad to Prevent Scratching and Sliding Cover to Prevent Contamination

Kimwipes®† (Item # KW32)

- ▶ 4.4" x 8.4" (11.2 cm x 21.3 cm), Durable, Extra Low Lint Sheets Ideal for Cleaning Connectors between Polishing Steps (Sorry, No Partial Cases)

Solvent Dispenser Bottles (Item # BD8)

- ▶ 8 oz. Bottle with One-Handed Operation

†Kimwipes® is a registered trademark of the Kimberly-Clark Corporation.

Part Number	Description	Price	Availability
LFW90	Lint-Free Wipes	\$13.32	Today
FCC-7020	Universal Fiber Connector Cleaner, 20' Spool	\$24.35	Today
FCC-7021	Customer Inspired! Replacement Cleaning Reel for FCC-7020, 20'	\$7.74	Today
KW32	Kimwipes®, 280 Kimwipes per Box, 12 Boxes Per Case	\$49.23	5-8 Days
BD8	8 oz One-Touch Pump Dispenser	\$21.86	Today

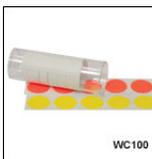
[Hide Clean Out Wires, Ø110 µm](#)

Clean Out Wires, Ø110 µm

- ▶ Remove Broken Fiber from Connectors with Bore Diameters >110 µm
- ▶ Eight Pieces of 3" Long Wire Included
- ▶ Colored Tabs Included to Assist with Holding Wires While Cleaning

These fiber clean-out wires allow the user to push broken fiber out from connectors with bore diameters larger than 110 µm. Each vial includes eight pieces of 3" long wire along with colored sticker tabs that can be folded over the wire to improve grip.

Part Number	Description	Price	Availability
WC100	Clean-Out Wires, Ø110 µm (8 Per Vial)	\$13.96	Today





- ▶ Scope Includes Two Fiber Adapters:
 - ▶ FS200-FC: FC/PC, FC/APC, ST®/PC, and SC/PC Connectors
 - ▶ FS201-SMA: SMA905 and SMA906 Connectors
- ▶ Additional Connector Adapters Sold Separately Below
- ▶ Batteries are Included



Click to Enlarge View of PANDA-Style PM Fiber with the FS201 Inspection Scope and FS201-PM Adapter

Optical Magnification	200X
Field of View	~Ø600 µm
Illumination	Coaxial and Oblique White LEDs (100 000 Hour Lifetime)
Optical Filter	Built-In IR Filter
Power	3 LR44 Button Batteries (Included)
Included Adapters	FS200-FC FS201-SMA

The FS201 Fiber Inspection Scope produces a high-quality, low-distortion image of both the fiber end and surrounding ferrule. With a high-intensity illumination system and 200X magnification, this microscope is powerful enough to offer a clear image of the fiber core as well as the surrounding cladding. The FS201 offers both coaxial and oblique illumination settings. The coaxial setting provides symmetric lighting for high-detail inspection, and the oblique setting provides light at an off-center angle to the fiber end face for higher contrast. The FS201 should not be used to inspect a fiber connected to an active light source; light sources must be disconnected or turned off prior to inspection.

The FS201 includes the FS200-FC adapter for FC-/ST-/SC-terminated fibers (Ø2.5 mm ferrules) and the FS201-SMA adapter for SMA905- and SMA906-terminated fibers (Ø3 mm ferrules). The FS200-LC adapter for LC-terminated fibers (Ø1.25 mm ferrules) and the FS201-PM for polarization-maintaining fibers are available separately below.

Fiber Scope Operation

Insert the fiber connector into the adapter until it stops and then firmly hold in place during inspection. To activate illumination, flip the switch on the bottom of the scope; "I" activates coaxial illumination, while "O" activates oblique illumination. Once finished, flip the switch back to "O" to turn the scope off.

To inspect the full surface area of fibers with larger cores or fibers with angled faces, it may be necessary to rotate the fiber connector. This is also useful for differentiating between contaminants on the face of the fiber connector and those on the scope optic itself. In order to see the entire field of view, the rubber eyepiece should be as close as possible to the operator's eye. Operators who normally wear eyeglasses should remove them to fully inspect the fiber. Please note that under normal operation, the focus adjustment knob should not be rotated to its limits. Doing so repeatedly may cause the unit to fail over time.

The FS201 should not be used to view an active emitting fiber. An attenuating laser safety filter in the FS201 reduces the risk of accidental viewing of active fiber emissions. However, due to the IR wavelengths commonly used in fiber optics, the natural aversion reflex to viewing bright light is suppressed and can result in a longer accidental exposure time. Therefore, Thorlabs recommends that light sources must be disconnected from the patch cable or turned off prior to inspection.

Adapter Alignment

Although each adapter comes pre-aligned for use with the FS201, it may be necessary to align the adapter to center the fiber in the field of view for fibers with poor centration. First, follow the basic steps above to inspect a test fiber. Using a 1.5 mm hex key or balldriver, loosen the three setscrews around the edge of the connector adapter at the end of the scope. Look through the illuminated scope, focus on the fiber ferrule, and align the connector until the ferrule face is centered within the field of view. Progressively adjust the three setscrews until the end face is in the center of the scope view.

Part Number	Description	Price	Availability
FS201	Fiber Inspection Scope with FS200-FC and FS201-SMA Adapters	\$223.99	Today

[Hide Connector Adapters for Fiber Inspection Scope](#)

Connector Adapters for Fiber Inspection Scope

- ▶ Connector Adapters Compatible with the FS201 Fiber Inspection Scope
- ▶ Options Available for FC, ST, SC, SMA905, SMA906, or LC Connector Types
- ▶ FS201-PM Adapter Features V-Groove Aligned to Wide Key Slot (2.2 mm) of the FC/PC Bulkhead

These connector adapters are used with the FS201 Fiber Inspection Scope sold above to enable compatibility with different ferrule and connector types (see table to the right for options). The FS201-PM adapter is like the FS200-FC adapter, except it features a V-groove that is aligned with the wide key slot on the FC/PC bulkhead. This provides a rough guide for determining the relative alignment of the connector key to the fiber stress members when used with polarization-maintaining patch cables.

Connector Adapters for the FS201 Fiber Inspection Scope ^a				
Photos (Click to Enlarge)				
Item #	FS200-FC	FS201-PM	FS201-SMA	FS200-LC
Compatible Connectors	FC/ST/SC	PM FC ^b	SMA905 SMA906	LC
Included with FS201	Yes	No	Yes	No

- All of these adapters are also compatible with the FS200 Fiber Inspection Scope.
- This adapter features a v-groove aligned with the FC connector key on polarization-maintaining patch cables. However, it is also compatible with standard FC, ST, and SC connectors.

Although each adapter comes pre-aligned for use with the FS201, it may be necessary to align the adapter to center the fiber in the field of view for fibers with poor centration. First, follow the basic steps above to inspect a test fiber. Using a 1.5 mm hex key or balldriver, loosen the three setscrews around the edge of the connector adapter at the end of the scope. Look through the illuminated scope, focus on the fiber ferrule, and align the connector until the ferrule face is centered within the field of view. Progressively adjust the three setscrews until the end face is in the center of the scope view.

Part Number	Description	Price	Availability
FS200-FC	FC-Type Connector Adapter for FS201 Fiber Inspection Scope	\$38.69	Today
FS201-PM	Customer Inspired! FC-Type Connector Adapter with Key Alignment Groove for FS201 Fiber Inspection Scope	\$47.74	Today
FS201-SMA	SMA-Type Connector Adapter for FS201 Fiber Inspection Scope	\$31.12	Today
FS200-LC	Customer Inspired! LC-Type Connector Adapter for FS201 Fiber Inspection Scope	\$31.12	Today