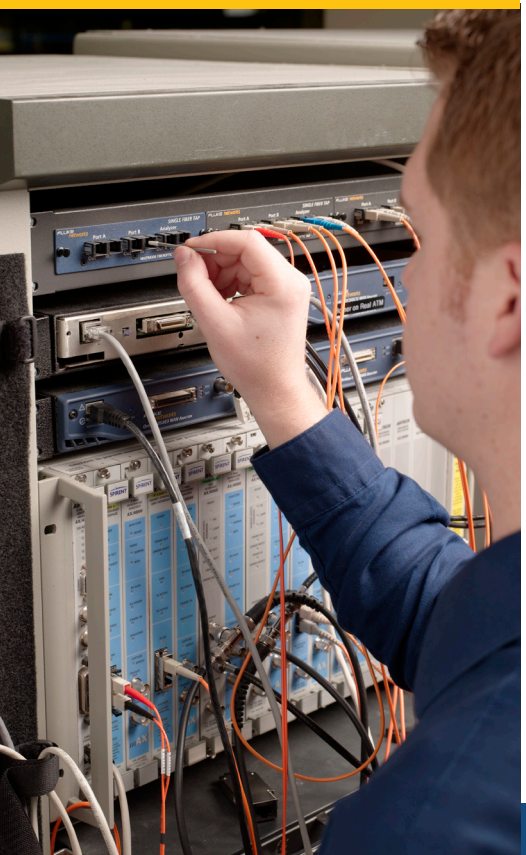
Fiber Inspection and Cleaning Series

Because 85% of fiber optic cabling failures are due to contaminated end-faces, it is imperative that all optical fiber connections are clean and free of contaminants. Fluke Networks' Fiber Inspection & Cleaning Tools are the solution. Whatever your particular needs are, Fluke Networks provides you with the solution to ensure your fiber connections don't bring your network down.



Eliminate the #1 cause of fiber failure

In a survey of installers and network owners commissioned by Fluke Networks, end-face contamination was found to be the leading cause of fiber failures. Dirt and contaminants cause insertion loss and back-reflection that inhibit the light transmission and causes havoc with transceivers. And because dirt can migrate from one end-face to another upon mating, both sides of any connection must be inspected. Further, mating contaminated connectors can cause permanent damage as microscopic debris is crushed between end-faces in physical contact. Therefore, you must always inspect and clean before mating as a preventative measure and not only after experiencing problems. Even factory-terminated patch cords or pigtails must be inspected as protective caps do not keep end-faces clean. Avoiding this common cause of failure starts with inspecting the end-face and eliminating any contamination before insertion into a bulkhead or piece of equipment.

Range of inspection options

With a range of solutions, Fluke Networks always has the right tool for you to easily inspect end-faces on a wide variety of connectors. The FT120 and FT140 FiberViewer™ microscopes allow for straightforward inspection. To inspect end-faces both on patch cords and inside ports,





the FT500 FiberInspector™ Mini and FT600 FiberInspector™ Pro video microscopes are required.

Safely inspect live fiber without harming eyes

Using Fluke Networks' microscopes ensures your eyesight is protected from harmful laser light on live fibers. Each FiberViewer is factory tested to verify performance of an internal safety filter. Even still, users should avoid inspecting live fibers with FiberViewer microscopes. For total assurance of eye safety, FiberInspector video probes project crisp, clear images onto portable screens. The video displays allow you to inspect the fiber end-face without looking directly at the fiber itself, eliminating any chance of harmful laser light from ever reaching your eye.



See how to improve network performance and reliability with Fluke Networks' Inspection & Cleaning Tools

Save valuable time inspecting fiber

FiberInspector Pro and FiberInspector Mini video microscopes give you superior vision into your network by enabling you to inspect all types of fiber in switches, routers, interface cards, patch panels, wall outlets and patch cables. They save time by eliminating the need to access the back of patch panels or disassemble hardware devices for inspection. Instead of removing each individual fiber, you only need to insert the video probe to inspect the end-face while it is still in place. This is the only practical way to inspect many hardware devices, where disassembly is not a realistic option. Plus, the FiberInspector mircoscopes never touch the termination so there's no risk of contamination or damage.

Ultimate tool for challenging environments

The FiberInspector Pro is the ultimate inspection tool. Its 3.5" screen provides a larger image from its dual magnification probe. The small probe fits in the palm of your hand and can be switched between 250x and 400x magnification with the turn of a dial. The Pro unit also has a protective boot for rougher outdoor environments and offers a greater range of adapter tips for specialized applications, such as multi-fiber connectors.



Capture images for storage and reports

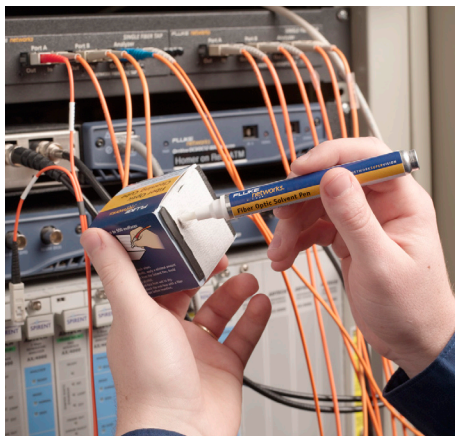
The FiberInspector Pro dual magnification probe can be attached to the OptiFiber® OTDR or the OptiView™ Integrated Network Analyzer to save and store images for reference and report generation. Use these captured images to prove the condition of the installation or as future reference if problems arise.

Proper cleaning of contaminants

Once end-face contamination is discovered, proper procedures are required to eliminate it. Shirtsleeves are not acceptable! In fact, improper cleaning processes are not only ineffective, but also potentially damaging. Though canned air has been used for years to blast dust away, it will not dislodge smaller static-charged particles. Also, it can leave behind propellants and tends to blow larger particles around rather than remove them. Proper fiber optic end-face cleaning involves two key components: specialized solvent and lint-free wipes or swabs.

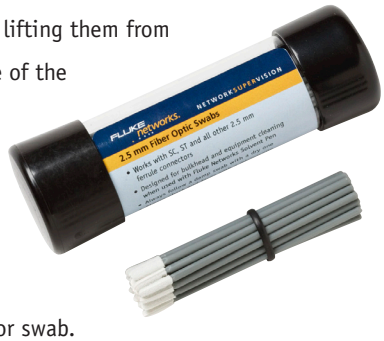
Clean wet and finish dry

Always use proper solvent in conjunction with either a wipe for a patch cord or a swab for a port. Solvent is required to dissolve any one of the many contaminants that may be present, such as finger oil or buffer gel. Further, wiping an end-face with just a dry wipe or swab can generate static electricity that draws more dust out of the air onto the end-face. Even worse, a dry wipe can drag debris across the end-face causing damage. Effective solvents will act as a lubricant for the safe removal of debris. Conversely, using too much solvent or only a wet application will result in the leftover solvent drying out and leaving behind the dissolved contaminants as a residue. Best practice is to clean wet and finish dry. After cleaning, always inspect the end-face again before insertion to guarantee all contaminants were removed. If necessary, repeat your cleaning steps to remove any lingering soils not removed by the first cycle.



Effective cleaning requires specialized solvent

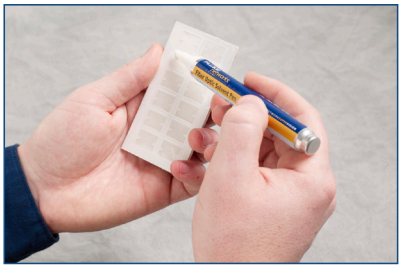
For years, isopropyl alcohol (IPA) was used to clean fiber end-faces, but now there are customized solvents that are far superior, such as Fluke Networks' Fiber Optic Solvent Pen. Most importantly, this specialized solvent is more effective than IPA at dissolving all contaminants, especially non-ionic compounds such as buffer gel and pulling lube. You will get a better clean every time and with every contaminant. Next, our solvent has a lower surface tension that allows it to envelop particles and debris, effectively lifting them from the surface of the end-face as they are carried away by a wipe or swab.



Many smaller particles carry a charge that bonds them to the ferrule or end-face. This solvent is oxygenated to neutralize this charge so the charged particle can be wiped away and additional particles are not attracted onto the end-face. When cleaning end-faces inside ports or equipment, the evaporation rate of solvents become significant as it is harder to guarantee removal of all solvent. Fluke Networks' customized solvent has an evaporation rate tailored to stay long enough to work yet still disappear before mating. It evaporates much faster than IPA. Last, IPA is highly hygroscopic and therefore draws water vapor that can then dry on the end-face and leave a residue, which sometimes appears as a "halo." Using Fluke Networks' solvent will avoid this problem.

Cleaning Instructions:

A. Fiber Optic Cleaning Cards



After removing one plastic cover, apply a small spot of solvent to the starting corner of the cleaning zone.

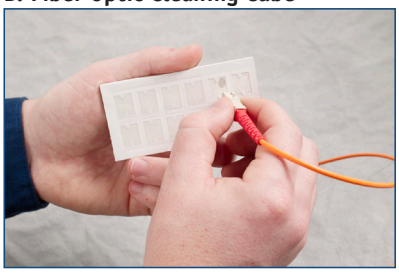


Holding the connector perpendicularly, swipe the end-face from the wet spot into a dry zone.

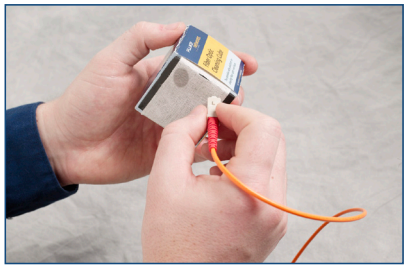


Fiber Optic Cleaning Kit
NFC-Kit-Case

B. Fiber Optic Cleaning Cube

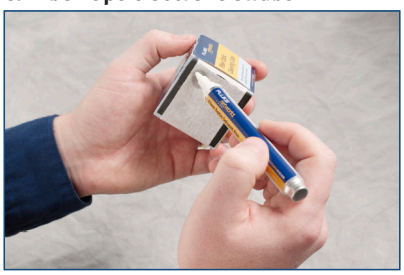


After pulling a clean wipe from the cube, apply a small spot of solvent to the starting edge of the wipe.



Holding the connector perpendicularly, swipe the end-face from the wet spot into a dry zone.

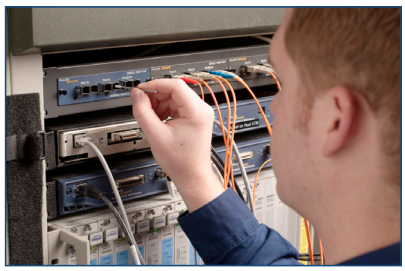
C. Fiber Optic Solvent Swabs



After pulling a clean wipe from the cube, apply a small spot of solvent to the starting edge of the wipe.



Touch the swab to the wet spot on the wipe for 3 seconds to absorb a minimal amount of solvent. A damp swab works better than a wet one. Applying solvent from the pen directly to the swab will likely result in excessive solvent.



Insert the swab into the port and turn several times while applying gentle pressure. Follow the damp swab with a dry one, using the same procedure to remove any remaining solvent from the end-face and alignment sleeve.

Ordering Information

Model	Description
NFC-Kit-Case	Fiber Optic Cleaning Kit includes cleaning cube with wipes, ten cards with sealed cleaning zones, solvent pen, 2.5 mm port cleaning swabs and 1.25 mm port cleaning swabs in a rugged carrying case.
NFC-Kit-Box	Fiber Optic Cleaning Kit includes cleaning cube with wipes, five cards with sealed cleaning zones, solvent pen and 2.5 mm port cleaning swabs.
NFC-Cube	Cleaning cube with wipes cleans up to 500 end-faces
NFC-Cards-5pack	5 cards with 12 sealed cleaning zones each – perfect for troubleshooting
NFC-SolventPen	Special solvent dispensed from pen (9g)
NFC-Swabs-1.25mm	LC and MU port cleaning swabs (25 count)
NFC-Swabs-2.5mm	SC, ST, 2.5 mm port cleaning swabs (50 count)
NFC-SWABS-MULTI	MTP/MPO port cleaning swabs (25 count)
NFC-Case	Carrying case for cleaning accessories

	FiberViewer		FiberInspector Mini		FiberInspector Pro					
Model	**FT120**	**FT140**	**FT500**	**FT525 (Kit)**	**FT600**		**OFTM-5352**		**OPV-FT600**	
Magnification	200x	400x	200x	200x	250x	400x	250x	400x	250x	400x
Field of View	950µm	475µm	700µm	700µm	670µm	420µm	670µm	420µm	670µm	420µm
Detection Capability	.75µm	.5µm	2µm	2µm	2µm	1µm	2µm	1µm	2µm	1µm
Display	N/A		1.8 in (4.6 cm) LCD	1.8 in (4.6 cm) LCD	3.5", in (8.9 cm) LCD					
View Patch Cords	•		•	•	•		•		•	
View Inside Ports	No		•	•	•		•		•	
Image Capture							•		•	
Universal 2.5 mm ferrules	•		•	•	•		•		•	
Universal 1.25 mm ferrules	NF350		NFM110 Tip Set	NFM110 Tip Set	NF368		NF368		NF368	
SC Ports			•	•	•		•		•	
ST Ports			•	•	•		•		•	
FC Ports			NFM110 Tip Set	NFM110 Tip Set	•		•		•	
LC Ports			NFM110 Tip Set	NFM110 Tip Set	NF362		NF362		NF362	
MU Ports					NF364		NF364		NF364	
MTP/MPO Ports					NF370		NF370		NF370	
MT-RJ Ports					NF360		NF360		NF360	
E2000 Ports					NF366		NF366		NF366	
Gold Support					GLD-INSPECTOR		GLD-OFTM-53XX		GLD-OPV-FT	
Cleaning Kit				•						

FT120/FT140



FT500



FT525



FT600



OFTM-5352
OPV-FT600



NETWORKSUPERVISION

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Fluke Networks operates in more than 50 countries worldwide. To find your local office contact details, go to **www.flukenetworks.com/contact**.

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