



FVAm™ Series

Benchtop MPO Autofocus Microscope User Guide

22132675 Rev. 101, Standard

July 2019



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VIAMI has established a take-back processes in compliance with the EU Waste Electrical and Electronic Equipment (WEEE) Directive, 2012/19/EU, and the EU Battery Directive, 2006/66/EC. Instructions for returning waste equipment and batteries to VIAMI can be found in the [VIAMI Policies & Standards](#) web page.

If you have questions concerning disposal of your equipment or batteries, contact the VIAMI WEEE Program Management team at WEEE.EMEA@ViaviSolutions.com.

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EU Radio Equipment Directive

In accordance with Article 10.8 of the EU Radio Equipment Directive 2014/53/EU, the following table provides information on the frequency bands and the maximum RF transmit power of this product for sale in the EU:

| Frequency Range (MHz) | Channels Used | Max. Transmit Power (dBm) |
|-----------------------|---------------|--|
| 2400-2483.5 | 1 - 13 | ODFM: 13.5 dBm CCK: 17.25 dBm DSSS: 17 dBm |

China RoHS materials declaration

“中国 RoHS”

《电子信息产品污染控制管理办法》（信息产业部，第 39 号）

附录 (Additional Information required for the Chinese Market only)

本附录按照“中国 RoHS”的要求说明了有关电子信息产品环保使用期限的情况，并列出了产品中含有的有毒、有害物质的种类和所在部件。本附录适用于产品主体和所有配件。

产品系列: FVAm™ Series Benchtop MPO Autofocus Microscope
(Product Family)

环保使用期限:



本标识标注于产品主体之上，表明该产品或其配件含有有毒、有害物质（详情见下表）。

其中的数字代表在正常操作条件下至少在产品生产日期之后数年内该产品或其配件内含有的有毒、有害物质不会变异或泄漏。该期限不适用于诸如电池等易耗品。

有关正常操作条件，请参见产品用户手册。

产品生产日期请参见产品的原始校准证书。

有毒、有害物质的类型和所在部件

| 元器件 (Component) | 有毒、有害物质和元素 | | | | | |
|---|------------|--------|-------|----------------------------|---------------|-----------------|
| | 铅(Pb) | 汞 (Hg) | 镉(Cd) | 六价铬 (CR ⁶⁺) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 产品主体 (Main Product) | | | | | | |
| 印刷电路板组件 (PCB Assemblies) | X | O | O | O | O | O |
| 内部配线 (Internal wiring) | X | O | O | O | O | O |
| 显示器 (Display) | X | O | O | O | O | O |
| 键盘 (Keyboard) | O | O | O | O | O | O |
| 电池 (Batteries) | O | O | O | O | O | O |
| 电源 (Power Supply) | X | O | O | O | O | O |
| 机电零件 (Electro-mechanical parts) | X | O | O | O | O | O |
| 硬盘 (Hard Drive) | O | O | O | O | O | O |
| 光模块 / 辅助模块 (Optical modules) / (Auxiliary modules) | X | O | O | O | O | O |
| 金属外壳零件和紧固件 (Metal case parts and fixings) | X | O | O | O | O | O |
| 塑料外壳零件 (Plastic case parts) | O | O | O | O | O | O |
| 标签和胶带 (Labels and tapes) | O | O | O | O | O | O |
| 配件 (Accessories) | | | | | | |
| 外接电缆和适配器 (External cables and adapters) | X | O | O | O | O | O |
| CD ROMS | | | | | | |
| 手册和其它印刷材料 (Handbooks and other printed material) | O | O | O | O | O | O |
| 包装箱和绑带 (Carrying case and strap) | O | O | O | O | O | O |
| 其它配件 (Other accessories) | O | O | O | O | O | O |

本表是按照 S / T 11364 的规定编制的:

O: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

X: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

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About this guide

This guide provides information about the FVAm™ Series Benchtop MPO Autofocus Microscope.

Revision history

| Revision | Date | Details |
|----------|------------|--|
| 101 | July 2019 | Revised reference to IEC-61300-3-35-Ed. 2.0 in “Setting up Pass/Fail tests.” |
| 100 | April 2019 | This document is released. |

To access the latest version of this user guide, go to:

http://fcpro.updatemyunit.net/archives/FCPRO/User_Guide_FVAm.pdf

1 Overview

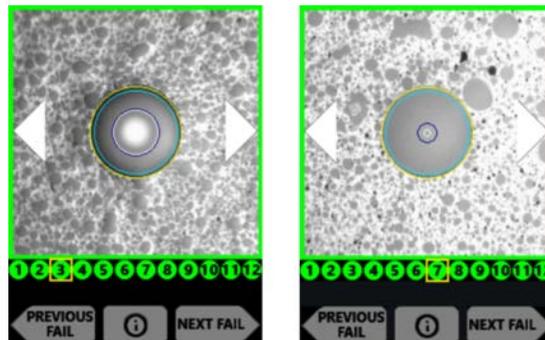
Inspection of fiber optic interconnects is essential for the optimal performance and longevity of fiber optic networks. Every time they are handled, fiber connectors must be inspected to ensure no debris or damage is present. VIAVI has made this critical task easier than ever with the FVAm™ Series Benchtop MPO Autofocus Microscope.

FVAm microscopes provide standalone operation using magnetic adapters that support a range of fiber optic connectors. Available with or without a color LCD touchscreen display module, FVAm microscopes interface with the FiberChekPRO™ Automated Fiber Inspection and Analysis software to provide reliable maintenance of optical connector quality.

Figure 1-1: FVAm Series Benchtop MPO Autofocus Microscopes



Figure 1-2: Touchscreen view - Pass/Fail test results, MPO fiber connectors

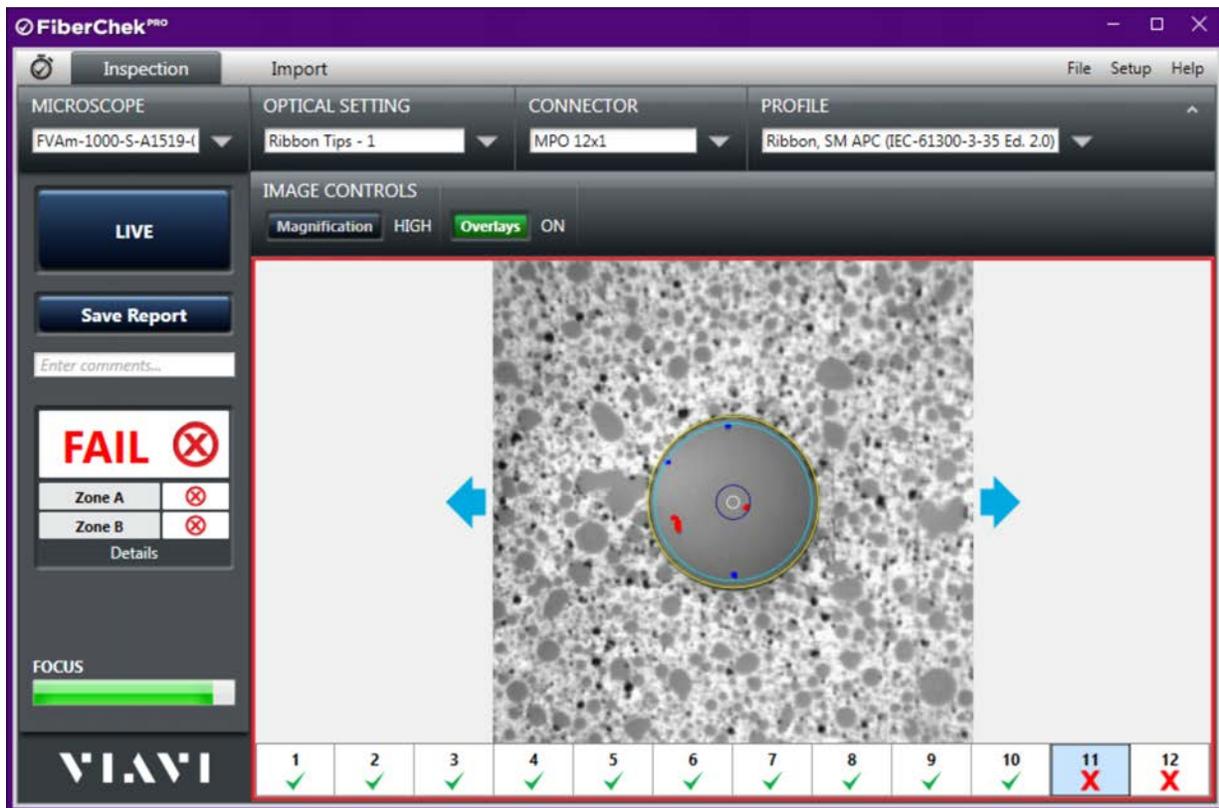


FiberChekPRO Fiber Inspection and Analysis software

FiberChekPRO software is designed to operate on a PC/laptop. It instantly captures, analyzes, and grades fiber end-face images to determine acceptability of the end faces.

FiberChekPRO identifies and characterizes defects and contamination, and then provides a pass or fail result according to a preconfigured failure criteria setting. In addition, users can create customized optical settings, connector definitions, and analysis profiles, as well as archive data and generate reports.

Figure 1-3: FiberChekPRO - Pass/Fail test results, MPO fiber connector



Note: This user guide provides information about using FiberChekPRO with FVAm Series Benchtop MPO Autofocus Microscopes. For detailed information about the features and navigation tools of the software, refer to the *FiberChekPRO Automated Fiber Inspection and Analysis Software User Manual*, which you can access from the FiberChekPRO **Help** menu.

Ordering information

Table 1-1: FVAm Series Benchtop MPO Autofocus Microscope kits and accessories

| Description | Part Number |
|---|-------------|
| Kitted packages | |
| FVAm Series Benchtop MPO Autofocus Microscope, No Display, Includes FMAG-MPO and Lens Cap | FVAM-1000 |
| FVAm Series Benchtop MPO Autofocus Microscope, With Display, Includes FMAG-MPO and Lens Cap | FVAM-1000-S |
| Accessories | |
| Magnetic Adapter for MPO Connector | FMAG-MPO |
| Magnetic Adapter for MT Ferrule | FMAG-MT |
| Magnetic Adapter for MT QSFP | FMAG-QSFP |
| Magnetic Adapter for LC Connector | FMAG- LC |
| Magnetic Adapter for SC Connector | FMAG-SC |
| Magnetic Adapter, Universal 1.25 mm | FMAG-U12 |
| Magnetic Adapter, Universal 2.5 mm | FMAG-U25 |

Technical Assistance Center and Knowledge Base

To find the Technical Assistance Center phone number and email in your region for the FVAm microscope product or to search the VIAVI Solutions Knowledge Base, visit the VIAVI Solutions Technical & Product Support site at support.viavisolutions.com.



2 Getting started

This section covers the following information:

- [“FVAm microscope features” on page 2-2](#)
- [“Powering the FVAm microscope” on page 2-4](#)
- [“Using FMAG adapters” on page 2-5](#)
- [“Connecting fiber connectors and transceiver modules” on page 2-9](#)
- [“Connecting to FiberChekPRO” on page 2-11](#)
- [“Touchscreen display module and onboard controls” on page 2-12](#)
- [“Panning and auto-focusing in live view” on page 2-16](#)
- [“Setting up Pass/Fail tests” on page 2-19](#)
- [“Adding user information” on page 2-21](#)
- [“Setting up groups for Pass/Fail test results” on page 2-23](#)

FVAm microscope features

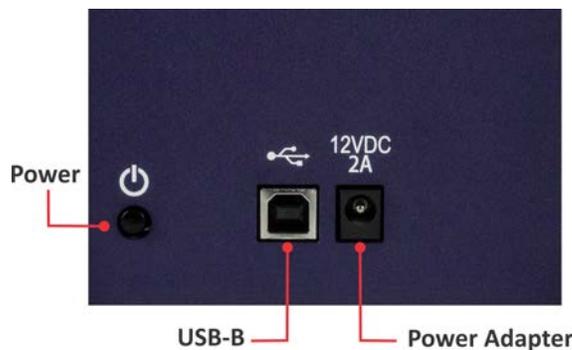
The FVAm microscope is available with a touchscreen display module (FVAM-1000-S) or without a touchscreen display module (FVAM-1000). Both models are designed to interface with the FiberChekPRO Automated Fiber Inspection and Analysis software (see [“Connecting to FiberChekPRO”](#) on page 2-11); however, the FVAM-1000-S model features onboard controls to facilitate using the touchscreen to set up and start Pass/Fail tests and then review test results (see [“Touchscreen display module and onboard controls”](#) on page 2-12).

Both FVAm microscope models support FMAG adapters (see [“Using FMAG adapters”](#) on page 2-5), and feature an **Auto Focus/Inspection Trigger** button with LEDs (see [“Auto Focus/Inspection Trigger and microscope LEDs”](#) on page 2-3) and a Y-Axis Adjustment dial (see [“Y-axis adjustment”](#) on page 2-17).

Figure 2-1: FVAm Series Benchtop MPO Autofocus Microscope - FVAM-1000-S



Figure 2-2: FVAm Series Benchtop MPO Autofocus Microscope - rear panel



CAUTION

Power off the device, and disconnect all cables connected to it before moving the device or performing maintenance procedures.

Auto Focus/Inspection Trigger and microscope LEDs

The Auto Focus/Inspection Trigger button lets you automatically focus a live view of fiber end faces (see [“Panning and auto-focusing in live view” on page 2-16](#)). You can also use this button to start a Pass/Fail test (see [“Starting a Pass/Fail test from the FVAm microscope” on page 3-5](#)).

Table 2-1 provides state information for each LED.

Table 2-1: FVAm microscope LED states

| LED | | State | Description |
|---|-------|-----------------|----------------------------------|
|  | Fail | Red | Pass/Fail test failed |
|  | Ready | Blue | FVAm microscope operation normal |
| | | Blue - Flashing | Pass/Fail test in progress |
|  | Pass | Green | Pass/Fail test passed |

Powering the FVAm microscope

- Step 1 Place the microscope on a flat, stable surface in a location close to an appropriate power source.
- Step 2 Connect the power adapter to the receptacle on the rear panel of the microscope and then to the power source.
- Step 3 Press the power button.
- Step 4 Observe the following LED sequence and, if available, the touchscreen:
 - Fail and Pass LEDs light momentarily
 - Ready LED lights and remains lit
 - Touchscreen initializes in low-magnification live view. See [“Live view” on page 2-13](#) for information.

Important: Always use the power button to power the microscope off. This allows the microscope to perform a shutdown routine that saves available data. If you inadvertently power off the microscope by disconnecting the power adapter from either the microscope or the power source, perform [Step 2](#) and [Step 3](#) of this procedure, and then press the power button to power off the microscope.

— End —

Using FMAG adapters

FMAG adapters are designed to be quickly mounted on and removed from the FVAm microscope. A single adapter supports inspection of both flat (PC) connectors and angled (APC) connectors, facilitating the process of setting up the microscope to inspect different types of fiber and fiber end faces.

For more information about FMAG adapters, refer to the [VIAVI Solutions Fiber Tips and Adapters Selection Guide](#).

Table 2-2: FMAG adapters

| Description | Adapter |
|--|--|
| Magnetic Adapter for MPO Connector (FMAG-MPO) |  |
| Magnetic Adapter for MT Ferrule (FMAG-MT) |  |
| Magnetic Adapter for MT QSFP (FMAG-QSFP) |  |
| Magnetic Adapter for LC Connector (FMAG-LC) |  |
| Magnetic Adapter for SC Connector (FMAG-SC) |  |
| Magnetic Adapter, Universal 1.25 mm (FMAG-U12) |  |
| Magnetic Adapter, Universal 2.5 mm (FMAG-U25) |  |

Adapter features

An FMAG adapter adheres to the magnetic adapter plate at the front of the FVAm microscope by magnetic force only.

A part number is etched on each FMAG adapter at the top of the side ring. Aqua and green markings at the front of the adapter identify the correct orientation for mounting it, as well as the correct adapter position for connector inspection. For information, see [“Mounting and positioning an adapter” on page 2-7](#).

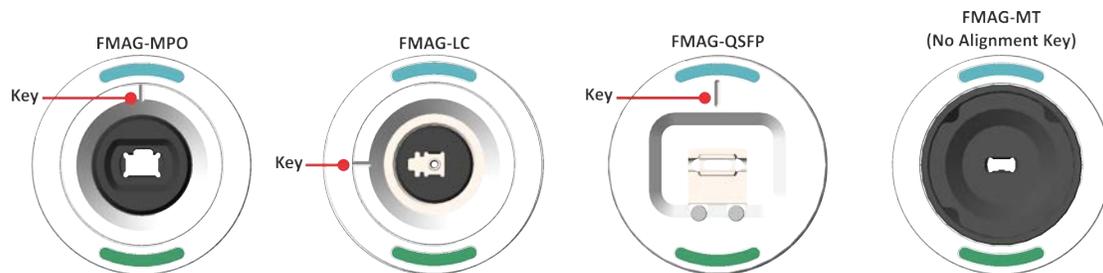
Figure 2-3: FMAG adapter markings



Important: An FMAG adapter must always be mounted onto the FVAm microscope with the part number and aqua marking at the top.

Most adapters also feature an alignment key to help you align a fiber connector or transceiver when connecting it to the adapter.

Figure 2-4: FMAG adapter alignment keys



Mounting and positioning an adapter

Step 1 If present, remove the lens cap from the adapter plate:

- Firmly grasp the lens cap on each side and pull it straight back.
- Store the lens cap in a dust-proof container.

Step 2 Holding the adapter with the part number and aqua marking at the top, place it on the magnetic adapter plate so that rounded posts of the plate are aligned with the corresponding recesses on the back of the adapter.



The adapter is positioned for inspecting flat (PC) fiber connectors.

Step 3 To position the adapter for inspecting angled (APC) fiber connectors, press the bottom of the adapter so that it tilts down and the bottom rests against the adapter plate.



Step 4 To reposition the adapter for inspecting flat (PC) fiber connectors, press the top of adapter so that it tilts up and the top rests against the adapter plate.



— End —

Removing an adapter

Important: Always replace an FMAG adapter with either the lens cap or another adapter. Replace with the lens cap whenever the FVAm microscope will not be used for an extended period of time (several days or weeks).

Step 1 Firmly grasp the adapter on each side, and pull it straight back.

Step 2 Store the adapter in a dust-proof container.

Step 3 Mount either another adapter or the lens cap onto the microscope.

Note: The lens cap has recesses that align with the posts of the magnetic adapter plate.

— End —

Connecting fiber connectors and transceiver modules

The FVAm microscope is designed to perform Pass/Fail tests on MPO fiber connectors and transceiver modules (QSFPs and CFPs) with MT ferrules.

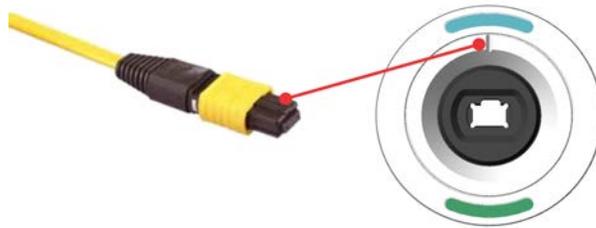
Connecting a fiber connector

Step 1 Mount and position the correct FMAG adapter for the fiber connector onto the microscope.

Step 2 Clean the fiber connector.

Step 3 Insert the connector straight into the adapter until it engages.

If the adapter has an alignment key, ensure that the top of the connector is aligned with the key.



Step 4 Set the adapter to the required position (PC or APC).



— End —

Connecting a QSFP or CFP transceiver module with MT ferrule



ELECTROSTATIC DISCHARGE (ESD)

Risk of damage to pluggable module

Wear a properly fitted electrostatic discharge (ESD) strap and work in an ESD-controlled area when handling pluggable transceivers.

- Step 1 Mount the FMAG-QSFP adapter onto the FVAm microscope.
- Step 2 Clean the MT ferrule in the transceiver module.
- Step 3 Ensure that the MT ferrule is aligned with the alignment key on the adapter.

Important: If the transceiver module is equipped with a pull tab, orient the module so that the end of the pull tab is aligned with the alignment key. The adapter and microscope are designed to accommodate the pull tab so that it does not interfere with Pass/Fail testing.



- Step 4 Insert the module straight into the adapter until it engages.



- Step 5 Set the adapter to the required position (PC or APC).

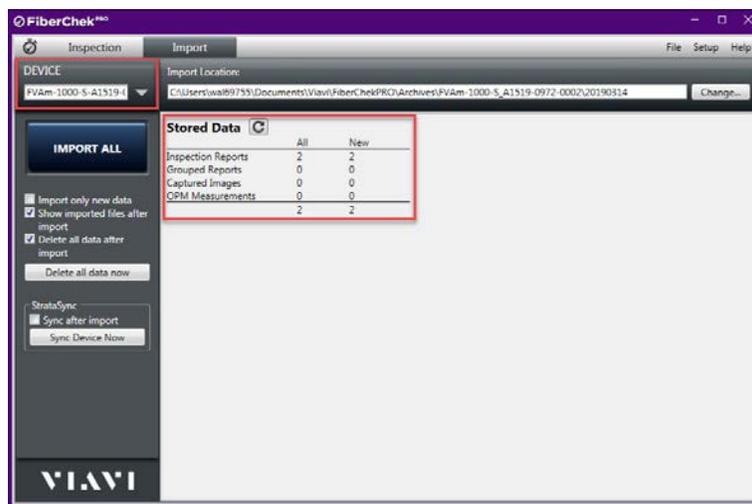
— End —

Connecting to FiberChekPRO

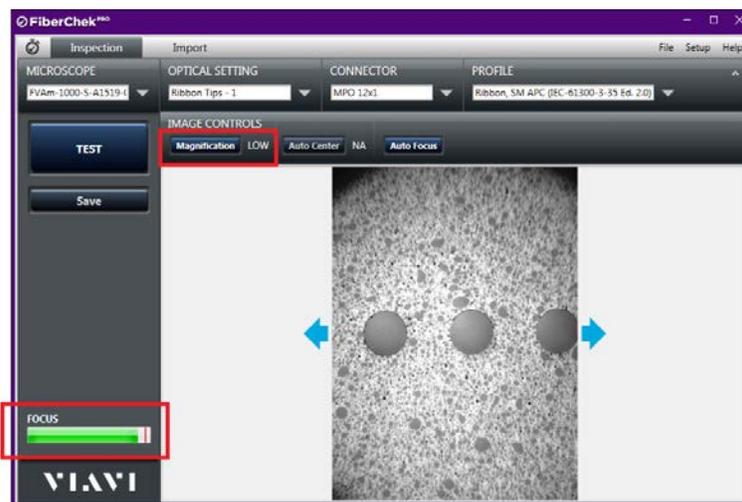
To operate an FVAm microscope that does not feature a touchscreen display module, you must use the FiberChekPRO Automated Fiber Inspection and Analysis software. For an FVAm microscope with a touchscreen, most operations can be performed using either the touchscreen plus onboard controls or FiberChekPRO. However, some operations, such as firmware updates, can be performed only via FiberChekPRO.

- Step 1 Start FiberChekPRO.
- Step 2 Power on the FVAm microscope.
- Step 3 Connect the USB-B cable to the USB port at the rear panel of the microscope and to the computer where FiberChekPRO is running.

FiberChekPRO automatically discovers the microscope. The device ID and stored-data information appear on the **Import** page of the application window.



If a fiber optic cable or pluggable transceiver is connected to the FVAm microscope, click the **Inspection** tab to view a live image of the fiber connector. The **FOCUS** meter indicates whether the focus quality is suitable for inspection. To toggle between a low- and high-magnification view, click the **Magnification** image control.



— End —

Touchscreen display module and onboard controls

The FVAm microscope model FVAM-1000-S features a touchscreen display module and onboard controls. You can perform a broad range of operations—including setting up and starting Pass/Fail tests—using the touchscreen (see “[Settings menu](#)” on page 2-13) and onboard controls.

The touchscreen display module can either lie flat against the top of the microscope or be raised as needed.

Figure 2-5: FVAm microscope (FVAM-1000-S) with raised touchscreen

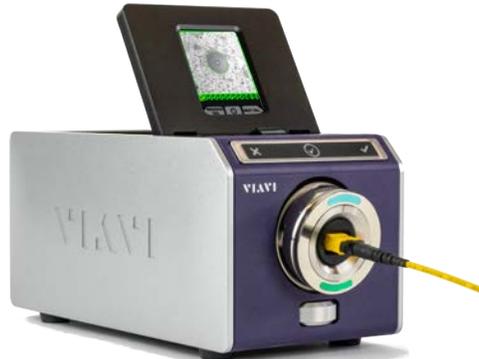


Figure 2-6: FVAm microscope (FVAM-1000-S) onboard controls

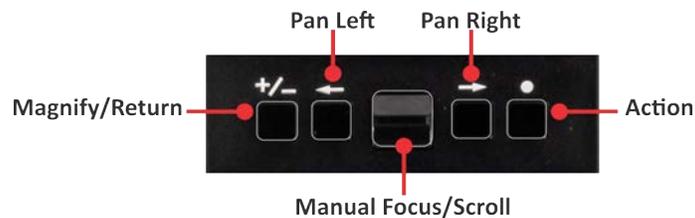


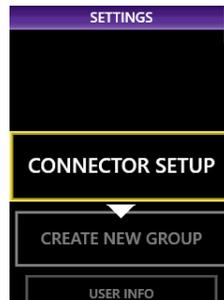
Table 2-3: FVAm microscope (FVAM-1000-S) onboard-control operations

| Control | Description | | |
|----------------------------|---|--|--|
| | In Live View | In Pass/Fail Analysis View | In Settings Menu View |
| Manual Focus/Scroll | Manual focus | — | Scroll up or down Settings menu or sub-menu options |
| Action | Start a Pass/Fail test | <ul style="list-style-type: none"> Save Pass/Fail test results Go to live view after saving test results | Select active Settings menu option or sub-menu option, and go to next sub-menu if available |
| Pan Left | View each fiber in the linear array individually | View previous fiber analysis | Go to Settings menu or to previous sub-menu |
| Pan Right | | View next fiber analysis | Select active Settings menu option or sub-menu option, and go to next sub-menu if available |
| Magnify/Return | Toggle between high magnification and low magnification | — | Go to Settings menu or previous sub-menu, or go to live view from Settings menu |

Settings menu

The touchscreen features a **Settings** menu with selectable options for operating the FVAm microscope. You can access the menu, scroll through it, and select and enable options either by tapping the touchscreen using your finger or a tablet stylus or by using the onboard controls (see [Table 2-3](#)).

Figure 2-7: Touchscreen Settings menu



The **Settings** menu also provides access to device information, firmware information, and configurable system settings and user information. An option for creating groups to manage Pass/Fail test results saved to the microscope is also available. For more information, see [“Adding user information” on page 2-21](#) and [“Setting up groups for Pass/Fail test results” on page 2-23](#).

As you navigate and use the **Settings** menu, a yellow border appears around the active menu option, and a red line appears under the sub-menu option you enable.

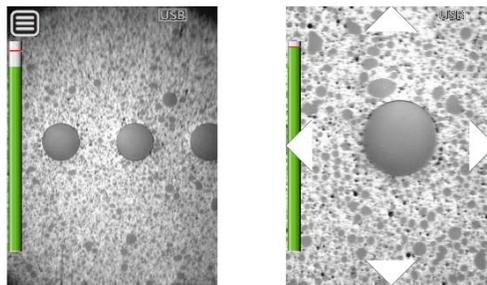
Figure 2-8: Touchscreen Settings menu - active option and enabled sub-menu option



Live view

The touchscreen displays low- and high-magnification live views of fiber end faces that you can pan across and focus to prepare for Pass/Fail tests. For information, see [“Panning and auto-focusing in live view” on page 2-16](#).

Figure 2-9: Low-magnification and high-magnification views



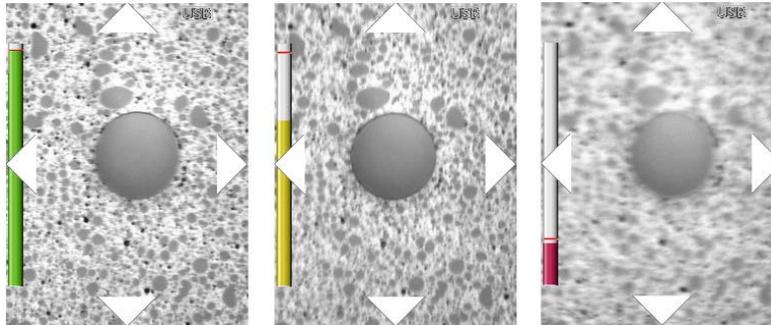
Note: Press the **Magnify/Return** button (see [Table 2-3](#)) to toggle between low- and high-magnification live views.

Focus-quality meter

By default, a color meter appears in a live view to indicate focus quality as you manually adjust the focus on the FVAm microscope or use the **Auto Focus/Trigger Inspection** button to auto-focus the live view. Green indicates that the focus quality is suitable for inspection; yellow, that the focus quality is less suitable; red, that the focus quality is unsuitable.

Note: You can turn the focus meter on or off. For information, see [“Microscope Settings”](#) on page A-2.

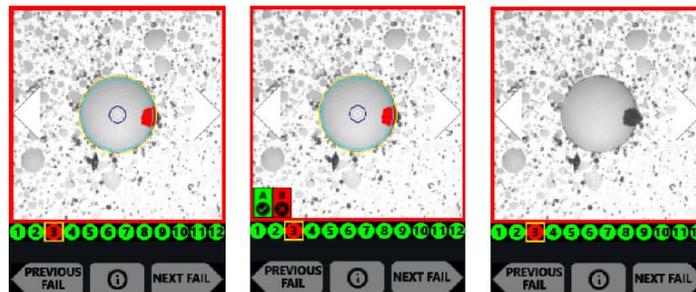
Figure 2-10: Focus-quality meter indications



Pass/Fail results and overlays

After a Pass/Fail test is performed, the results are automatically displayed on the touchscreen as fiber analysis images. You can scroll across the images and change the overlay mode applied to them. The following overlay modes are available:

- Show Overlay
- Show Overlay + Zone Pass/Fail Table
- No Overlay



For more information, see [“Starting a Pass/Fail test from the FVAm microscope”](#) on page 3-5.

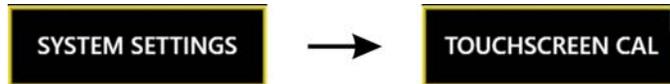
Calibrating the touchscreen

If touchscreen controls (such as menu options, keyboard keys, and icons) of the FVAm microscope do not respond as expected, you can calibrate the active areas of the touchscreen.

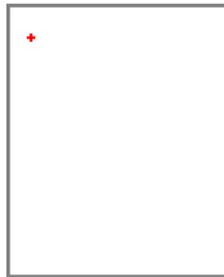
Notes:

- Calibration adjusts only the active areas of the touchscreen, not the amount of pressure required to use touchscreen controls.
- Use a blunt object, such as a stylus for tablets, to perform this procedure.

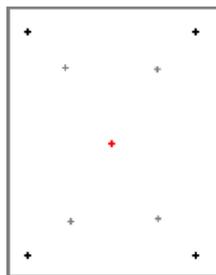
Step 1 On the **Settings** menu, select **SYSTEM SETTINGS > TOUCHSCREEN CAL**, and then press the **Action** button.



The Touchscreen Calibration view appears. The view consists of a white background with a small, red marker in the top corner.



Step 2 Using a stylus, tap the marker to reveal an additional marker in another area of the touchscreen, and repeat until a red marker appears in the center.



Step 3 Tap the red marker in the center of the touchscreen to view the results (PASS or FAIL) of the calibration.



Note: You can cancel the touchscreen calibration procedure at any time by pressing the **Magnify/Return** button. The calibration from the last successful touchscreen calibration are retained.

— End —

Panning and auto-focusing in live view

After you connect a fiber cable to the FVAm microscope, you can view live images of the fiber connector on the FiberChekPRO **Inspection** page and, if available, the touchscreen.

Notes:

- Ensure that the correct FMAG adapter for the fiber type is properly mounted and positioned on the microscope and that the appropriate options are active. See [“Mounting and positioning an adapter” on page 2-7](#) and [“Setting up Pass/Fail tests” on page 2-19](#) for information.
- For information about navigating a live view on an FVAm microscope with a touchscreen and onboard controls, see [“Touchscreen display module and onboard controls” on page 2-12](#).

Physical panning

When a fiber connector is connected to the microscope and the magnification is set to low, using the left and right arrow icons in the image pane of the FiberChekPRO **Inspection** page, or the **Pan Left** and **Pan Right** onboard controls, provides a live view of each fiber in the array as the microscope lens moves in the panning direction.

Figure 2-11: Physical panning, MPO fiber connector - FiberChekPRO Inspection page view

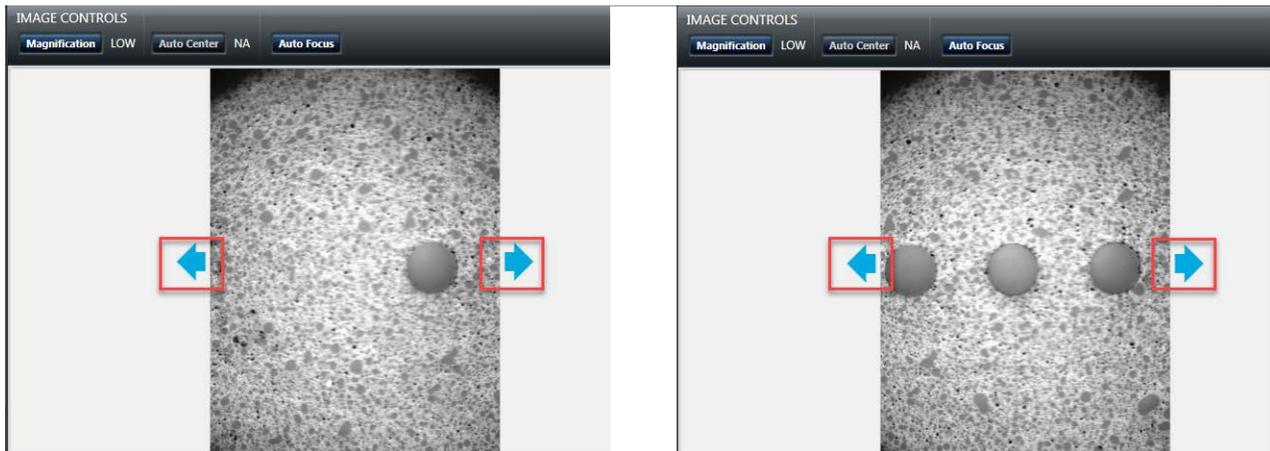


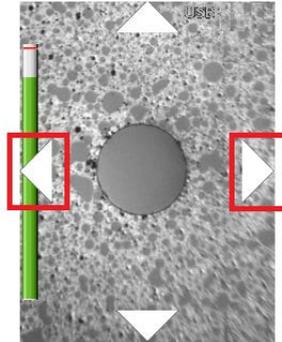
Figure 2-12: Physical panning, MPO fiber connector - touchscreen view



Digital panning

When a high-magnification live view of a fiber connector is displayed, you can use the left and right arrow icons in the image pane of the FiberChekPRO **Inspection** page to digitally pan the immediate area around a fiber end. On an FVAm microscope with a touchscreen, you can digitally pan using either the **Pan Left** and **Pan Right** onboard controls or the left and right arrow icons on the touchscreen.

Figure 2-13: Digital panning - touchscreen view

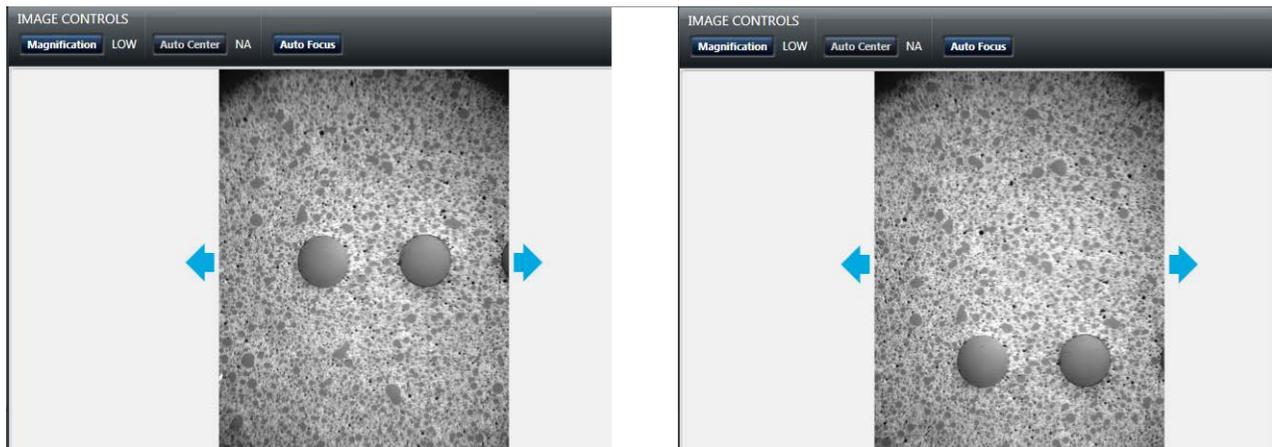


Note: For an MPO connector, the panning range is limited to the fiber end to the left or right of the magnified fiber end.

Y-axis adjustment

When a low-magnification live view of a fiber connector is displayed, using the **Y-Axis Adjustment** dial on the FVAm microscope (see “FVAm microscope features” on page 2-2) lets you center the fiber end faces; for example, when viewing an MPO fiber connector with two rows of fibers, the dial helps you ensure that both rows are visible and well aligned for testing.

Figure 2-14: Y-axis adjustment of MPO 12x1 fiber connector - FiberChekPRO Inspection page view



Auto-focusing a live view

You can automatically focus a live view of the fiber end faces displayed on either the FiberChekPRO **Inspection** page or the touchscreen.

To start the auto-focus process in FiberChekPRO, click the **Auto Focus** image control. To start the auto focus process from the FVAm microscope, press the **Auto Focus/Inspection Trigger** button. A focused live view appears when the process is completed.

Note: The Busy icon displays on the touchscreen during the auto-focus process.

Setting up Pass/Fail tests

The FVAm microscope provides factory-set options you can use to set up Pass/Fail tests. Factory-set options cover the following parameters:

- Analysis profiles, which define Pass/Fail thresholds for fiber types
- Connector definitions, which define fiber configuration
- Optical settings, which define lighting and sizing calibration applied during inspection

To set up the FVAm microscope for performing Pass/Fail tests, you can use either FiberChekPRO or, if available, the touchscreen and onboard controls to select the appropriate analysis profile for the fiber connectors or transceiver modules to be tested, and then the appropriate connector definition.

Table 2-4: Factory-set options for Pass/Fail tests

| Analysis Profile | Application | Connector Definition | Optical Setting |
|--|--|--|---|
| Ribbon, SM APC (IEC-61300-3-35-Ed. 2.0) | Ribbon cables with single-mode angle polished connectors. | <ul style="list-style-type: none"> • MPO 12 x 1 • MPO 12 x 2 • MPO 16 x 1 | <ul style="list-style-type: none"> • Ribbon Tips - 1 • Ribbon Tips - 2 • Ribbon Tips - 3 |
| Ribbon, MM (IEC-61300-3-35-Ed. 2.0) | Ribbon cables with single-mode (SM) ultra-physical contact (UPC) connectors. | <ul style="list-style-type: none"> • MPO 16 x 2 • MPO 8 x 1 | |

Note: FiberChekPRO provides tools that let you create custom options. For information, about creating customized analysis profiles and optical settings, refer to the *FiberChekPRO Automated Fiber Inspection and Analysis Software User Manual*. For information about creating customized connector definitions, see [“Managing custom connector definitions” on page 3-9](#).

Setting up Pass/Fail tests using FiberChekPRO

- Step 1 Connect the FVAm microscope to FiberChekPRO.
- Step 2 Click the **Inspection** tab to access options for the FVAm microscope.



Step 3 Select options from the following drop-down lists (see “Setting up Pass/Fail tests” on page 2-19):

- **OPTICAL SETTING**
- **CONNECTOR**
- **PROFILE**



Note: Only options available on the microscope are present in the drop-down lists.

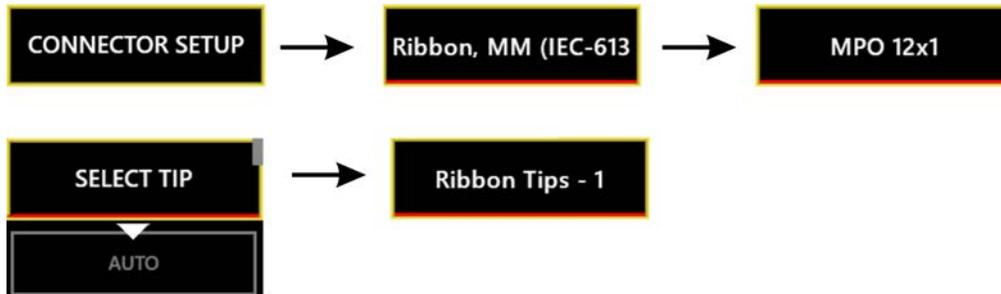
— End —

Setting up Pass/Fail tests using the touchscreen

The **Connector Setup** option on the **Settings** menu functions like an application Wizard, stepping you through the process of selecting applicable predefined options for the type of fiber connector or transceiver module with MT ferrule to be tested.

- On the **Settings** menu, select **CONNECTOR SETUP**, and then select an option from the **SELECT PROFILE**, **SELECT CONNECTOR**, and **SELECT TIP** sub-menus as they appear.

The following images show the sequence for selecting predefined options for testing MPO fiber connectors.



Note: The **AUTO** option automatically determines the appropriate optical settings for the fiber connector being tested.

— End —

Adding user information

User information (for example, customer name, location, job ID, connector ID) appears on reports generated when the results of Pass/Fail tests are saved or transferred to a computer. You can add user information using either FiberChekPRO or, if available, the touchscreen.

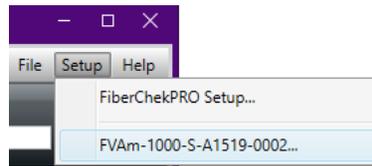
Connector ID and Connector ID base

By default, a connector ID is assigned to each set of test results saved to the FVAm microscope after a Pass/Fail test, and it appears on each fiber-end analysis image in the set of saved results (see [“Setting up groups for Pass/Fail test results” on page 2-23](#) and [“Recalling fiber analysis images” on page 3-10](#)).

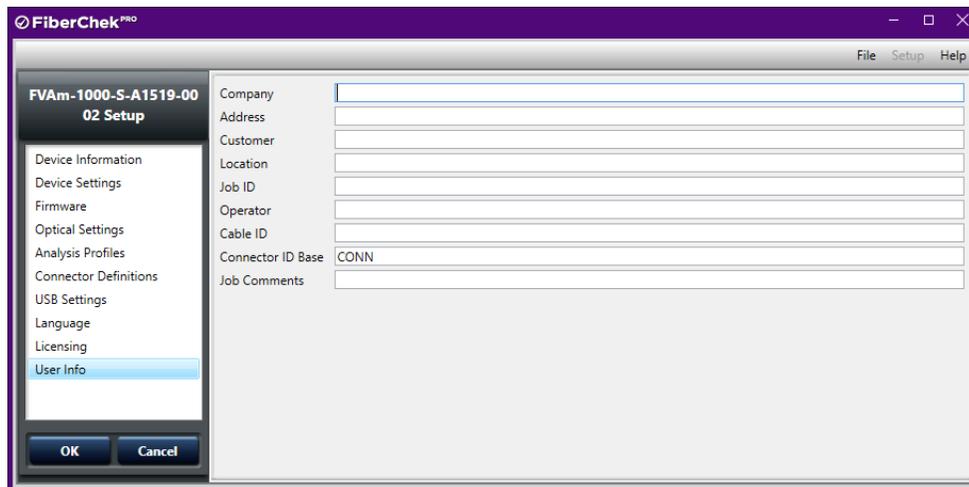
The connector ID features a prefix, or base, and a value that increments with each Pass/Fail test performed; for example CONN-001, CONN-002, and so on. The default connector ID base is CONN; however, you can change it as required when adding user information.

Adding user information using FiberChekPRO

- Step 1 Connect the FVAm microscope to FiberChekPRO.
- Step 2 On the **Setup** menu, select the microscope.



- Step 3 On the **Setup** page for the microscope, select the **User Info** option in the navigation pane to access the user-information text fields.



- Step 4 Type required information in each corresponding field, and then click **OK**.

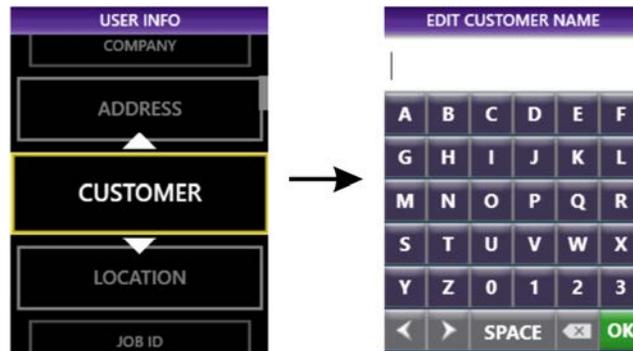
— End —

Adding user information using the touchscreen

Step 1 On the **Settings** menu, select **USER INFO**.



Step 2 Select an option in the **USER INFO** sub-menu, and then type the corresponding information using the touchscreen keyboard.



Step 3 Select **OK** to return to the **USER INFO** sub menu.

Step 4 Repeat [Step 2](#) and [Step 3](#) as required.

— End —

Setting up groups for Pass/Fail test results

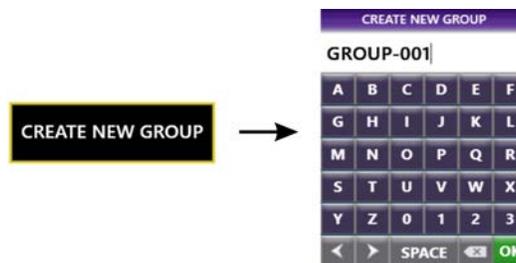
On an FVAm microscope with a touchscreen display module, you can create groups for results saved to the microscope after Pass/Fail tests. Organizing results in groups is helpful when you need to review fiber-analysis images saved to the microscope. For information, see [“Recalling fiber analysis images” on page 3-10](#).

When you create a group, it is automatically set as the active group to which test results are saved. Closing the active group allows you to save test results without adding them to that group.

Setting the active group

Step 1 On the **Settings** menu, select **CREATE NEW GROUP**, and then type a name for the group using the touchscreen keyboard:

- To create a group and set it as the active group, type a unique name for the group.
- To set an existing group as the active group, type the name of the group.



Notes:

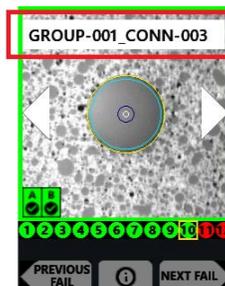
- The **CREATE NEW GROUP** option is available only while no other group is active.
- The FVAm microscope provides a default group name (GROUP-001) that automatically increments. For example, if you create a group using the default group name GROUP-001 and then save results to it, the group name GROUP-002 is automatically provided as an option when you close GROUP-001 and start creating a new group.

Step 2 Select **OK** to return to the **Settings** menu. The **CREATE NEW GROUP** option is replaced by the **CLOSE GROUP** option.



Optionally, select **CLOSE GROUP** to create or set another group as the active group.

Note: The name of the active group (and the connector ID) appears on the fiber images generated when test results are saved.



— End —



3 Performing Pass/Fail tests and working with saved test results

This section covers the following topics:

- [“Requirements for Pass/Fail tests” on page 3-2](#)
- [“Starting a Pass/Fail test from FiberChekPRO” on page 3-3](#)
- [“Starting a Pass/Fail test from the FVAm microscope” on page 3-5](#)
- [“Editing the active optical setting” on page 3-6](#)
- [“Managing custom connector definitions” on page 3-9](#)
- [“Recalling fiber analysis images” on page 3-10](#)
- [“Managing data stored on the FVAm microscope” on page 3-11](#)

Requirements for Pass/Fail tests

Pass/Fail tests inspect fiber connectors against preconfigured pass criteria for the active analysis profile. You can start a Pass/Fail test from either FiberChekPRO or, if available, the onboard controls on the FVAm microscope.

Notes:

- A Pass or Fail result applies to the entire connector. If only one fiber in the array fails to meet the preconfigured pass criteria, the test will return a Fail result for the entire connector. To achieve a Pass result, every fiber in the array must meet the pass criteria.
- For information about viewing the pass criteria for analysis profiles, refer to the *FiberChekPRO Automated Fiber Inspection and Analysis Software User Manual*, which you can access from the FiberChekPRO **Help** menu.
- For information about using the touchscreen and onboard controls, see [“Touchscreen display module and onboard controls” on page 2-12](#).

Table 3-1: Before you begin a Pass/Fail test

| Ensure that... | See... |
|---|--|
| A fiber connector or transceiver module (QSFP or CFP) with an MT ferrule is properly connected to the microscope. | <ul style="list-style-type: none"> • “Mounting and positioning an adapter” on page 2-7 • “Connecting fiber connectors and transceiver modules” on page 2-9 |
| A live image of the fiber connector is displayed on either the FiberChekPRO Inspection page or, if available, the touchscreen. | <ul style="list-style-type: none"> • “Connecting to FiberChekPRO” on page 2-11 • “Focus-quality meter” on page 2-14 • “Panning and auto-focusing in live view” on page 2-16 |
| The Pass/Fail test is set up. Note: When necessary, you can edit the optical setting to better suit fiber connectors to be tested. See “Editing the active optical setting” on page 3-6 . | “Setting up Pass/Fail tests” on page 2-19 |
| User information you want to appear on generated reports has been added. | “Adding user information” on page 2-21 |
| If required, the group that you want to add saved results to is active on the FVAm microscope. | “Setting up groups for Pass/Fail test results” on page 2-23 |

Starting a Pass/Fail test from FiberChekPRO

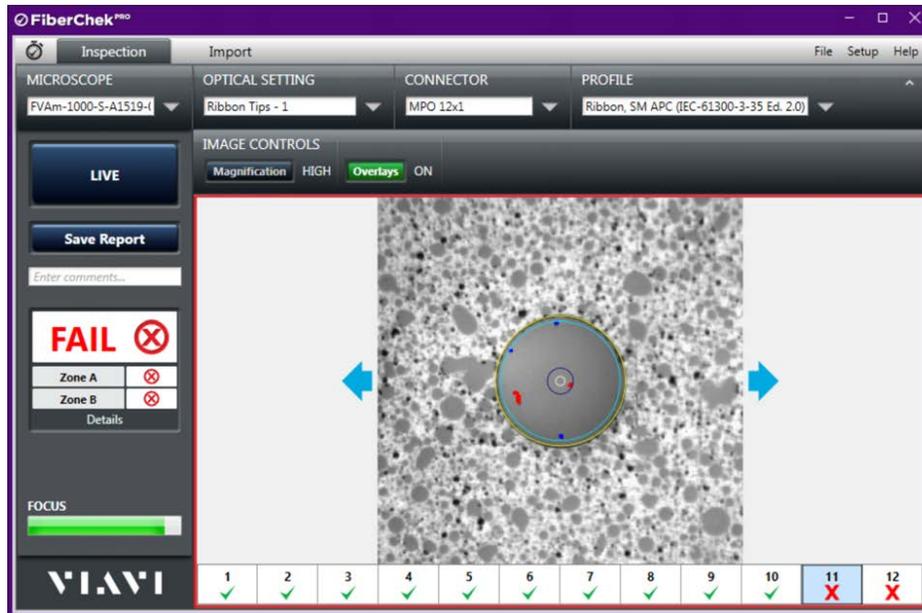
Note: The images used in this procedure show a Pass/Fail test performed on an MPO fiber connector.

Step 1 Review “Requirements for Pass/Fail tests” on page 3-2.

Step 2 Use the image controls on the **Inspection** page to ensure that the focus quality of the live image is suitable for inspection.

Step 3 On the FiberChekPRO **Inspection** page, click **TEST** to start the test.

When the test is completed, the results are automatically displayed with overlays.



Note: For information about using the tools of the inspection software to analyze test results, refer to the *FiberChekPRO Automated Fiber Inspection and Analysis Software User Manual*.

Step 4 Optionally, click **Overlays** to hide or show the overlays as needed.

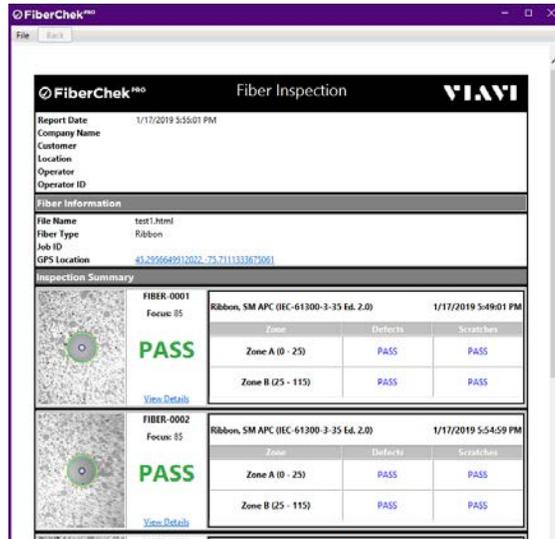
Step 5 Optionally, click **Save Report** to generate a report.

- In the **Save As** dialog, type a name for the report in the **File name** field, and then click **Save** to save the report to the default folder on the computer where FiberChekPRO is installed, or navigate to another location on the computer.

The default folder is located at

C:\Users\userName\Documents\Viavi\FiberChekPRO\Archives\FVAm-deviceID\YYYYMMDD.

The report is generated and appears in a separate window.



Step 6 Close the report window when you have finished viewing the information.

You can access the saved report later for viewing or sharing by navigating to the location where the report is stored.

Note: Refer to the *FiberChekPRO Automated Fiber Inspection and Analysis Software User Manual* for information about specifying the format (HTML or PDF) reports are saved to.

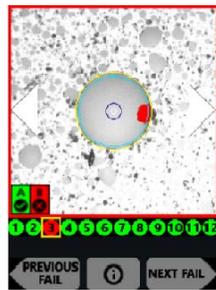
— End —

Starting a Pass/Fail test from the FVAm microscope

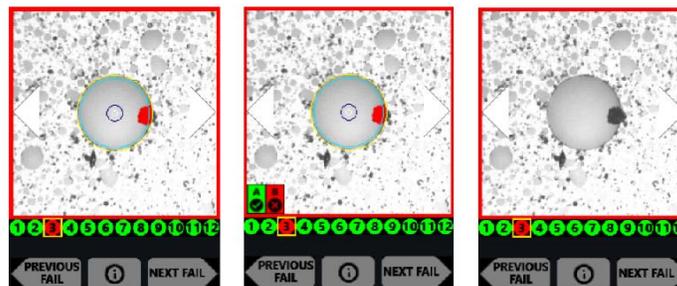
Note: The images used in this procedure show a Pass/Fail test performed on an MPO fiber connector.

- Step 1 Review [“Requirements for Pass/Fail tests”](#) on page 3-2.
- Step 2 Use the onboard controls and the **Auto Focus/Trigger Inspection** button on the FVAm microscope to ensure that the focus quality of the live image is suitable for inspection.
- Step 3 Start the test by either pressing the **Action** button or pressing and briefly holding the **Auto Focus/Trigger Inspection** button.

When the test is completed, the results appear on the touchscreen and the Pass or Fail LED lights to indicate the test results for the fiber connector (see [“Auto Focus/Inspection Trigger and microscope LEDs”](#) on page 2-3).



- Step 4 Do any of the following:
 - Use the touchscreen arrows or press the **Pan Right** or **Pan Left** button to view an adjacent fiber.
 - Select **NEXT FAIL** or **PREVIOUS FAIL** on the touchscreen to view only fibers that failed the inspection.
 - Tap the touchscreen to change the overlay mode applied to the image of the fiber end. The following overlay modes are available:
 - Show Overlay
 - Show Overlay + Zone Pass/Fail Table
 - No Overlay



- Step 5 Optionally, press the **Action** button to save the results to the microscope. If a group is active, the saved results are added to it.

Note: You can transfer saved test reports to a computer. For information, see [“Managing data stored on the FVAm microscope”](#) on page 3-11.

— End —

Editing the active optical setting

Different manufacturers use different ferrule materials and polishing processes; consequently, connectors can appear very different from one another. When necessary, you can use either FiberChekPRO or, if available, the touchscreen and onboard controls to modify the active optical setting to better suit the fiber connectors you are testing.

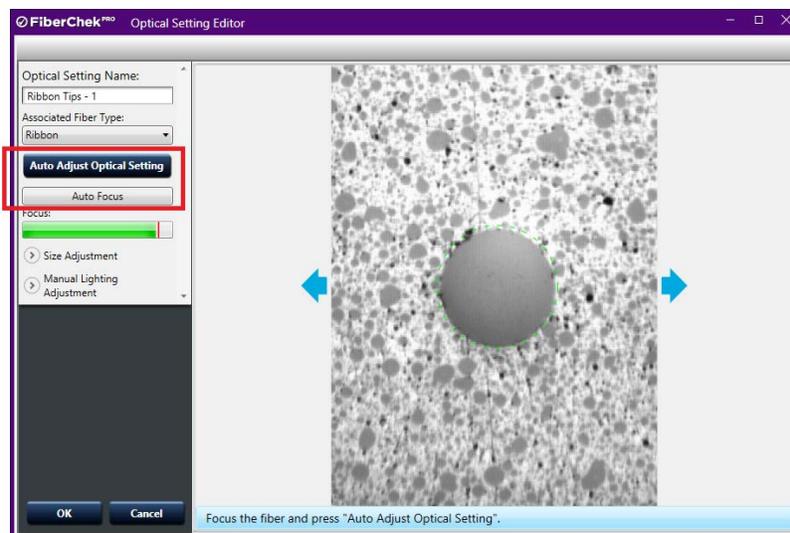
Notes:

- The FiberChekPRO inspection software also provides tools that let you create custom optical settings. For information, refer to the *FiberChekPRO Automated Fiber Inspection and Analysis Software User Manual*.
- Changes you make to the active optical setting will be deleted during a system reset. If you want to retain the modified settings, create a custom optical setting instead and ensure that it is available on FiberChekPRO before starting a system reset.

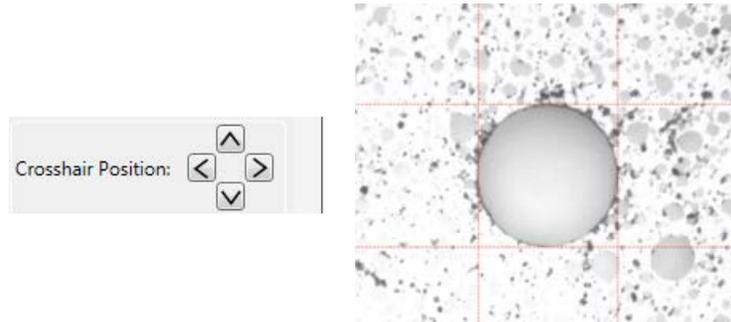
Important: Ensure that the correct FMAG adapter for the fiber type is properly mounted and positioned on the microscope and that the appropriate options are active. See [“Mounting and positioning an adapter for connector inspection”](#) on page 2-7 and [“Setting up Pass/Fail tests”](#) on page 2-19 for information.

Editing the active optical setting using FiberChekPRO

- Step 1 Connect the FVAm microscope to FiberChekPRO.
- Step 2 Connect a cleaned fiber connector to the microscope.
- Step 3 On the **Inspection** page, note the active setting in the **OPTICAL SETTING** drop-down list.
- Step 4 On the **Setup** menu, select the microscope.
- Step 5 On the **Setup** page for the microscope, select **Optical Settings** in the navigation pane to access the list of optical settings on the microscope (**On Device**).
- Step 6 In the **On Device** list, select the active optical setting, and click **Edit**.
- Step 7 In the **Optical Setting Editor** window, click **Auto Focus**, and then click **Auto Adjust Optical Setting** to start the lighting adjustment routine.



Step 8 When the lighting adjustment is completed, use the **Crosshair Position** tool to align the red crosshairs to the edges of the fiber.

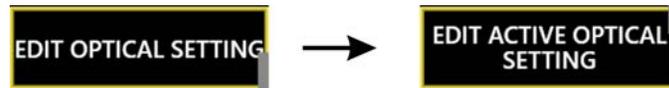


Step 9 Click **OK**.

— End —

Editing the active optical setting using the touchscreen and onboard controls

Step 1 On the **Settings** menu, select **EDIT OPTICAL SETTING > EDIT ACTIVE OPTICAL SETTING**.



Step 2 At the prompt, connect a cleaned fiber connector to the microscope.



Optionally, pan to the leftmost fiber so that optimal lighting can be achieved during the lighting adjustment routine. See [“Panning and auto-focusing in live view” on page 2-16](#).

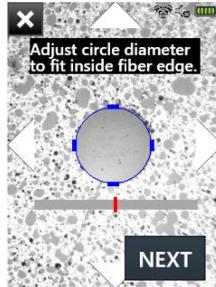
Step 3 Select **NEXT**.

The microscope locates a fiber in the array and displays an image of the fiber end with a blue circle around it.

Note: You can stop this procedure at any time by selecting the **X** icon at the top of the display.

Step 4 To adjust the sizing, position the blue circle until it is just inside the fiber edge.

Press the **Manual Focus/Navigation** button up or down, or move the touchscreen slider to the left or right.

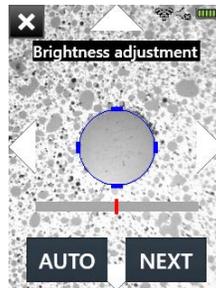


Step 5 Select **NEXT**.

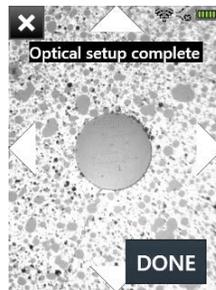
Step 6 To adjust the lighting, do one of the following:

- Select **AUTO** to perform an automated brightness adjustment.
- Manually adjust the lighting, and then select **NEXT**.

Press the **Manual Focus/Navigation** button up or down, or move the touchscreen slider to the left or right.



Step 7 Select **DONE**, and then select **EXIT**.



— End —

Managing custom connector definitions

FiberChekPRO provides tools that let you create customized connector definitions and make them available to the FVAm microscope for Pass/Fail tests.

You can create custom connector definitions based on new definition settings or on copies of existing connector definitions. Custom connector definitions are managed in the same way as factory-set connector definitions. For example, they can be exported and saved as files (*.fcon) to a location on the computer where FiberChekPRO is running, and then imported back into any instance of FiberChekPRO. When a custom definition is no longer required, you can move it from the microscope to FiberChekPRO, and then, if required, delete it.

Important: A system reset will delete all custom connector definitions stored on the FVAm microscope. Before starting a system reset, ensure that all custom connector definitions you require are either available on FiberChekPRO or exported and saved to a computer.

Creating a custom connector definition

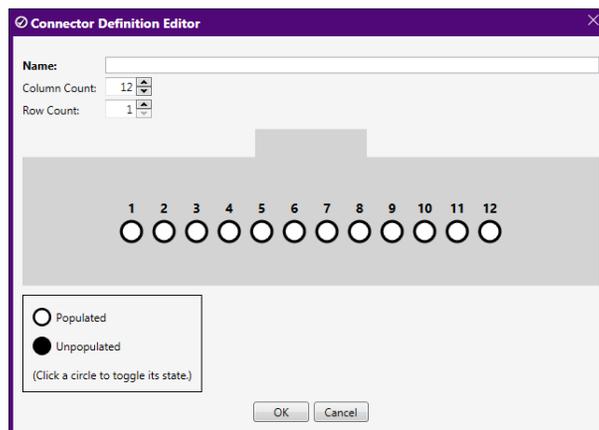
Step 1 Connect the FVAm microscope to FiberChekPRO.

Step 2 On the **Setup** menu, select the microscope.

Step 3 On the microscope **Setup** page, select **Connector Definitions**, and then click **New**.

Step 4 In the **Connector Definition Editor**, type a unique name for the definition in the **Name** field.

Note: The name you enter must not exceed 44 bytes.



Step 5 Specify the connector configuration by entering values in the **Column Count** and **Row Count** fields.

The connector-configuration image updates dynamically to reflect the column and row values specified.

Step 6 In the connector-configuration image, click a circle to identify the location of each fiber in the configuration.

Step 7 Click **OK**.

The custom connector definition is automatically added to the **On Device** list for connector definitions.

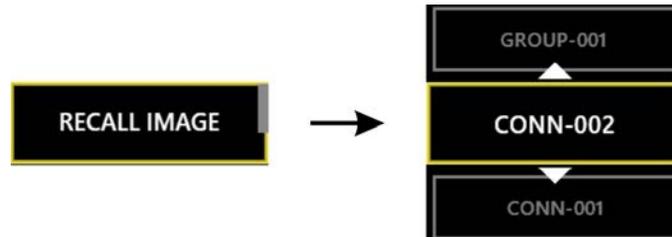
Note: You can also access the **Connector Definition Editor** from the FiberChekPRO **Setup** page. Each connector definition you create is automatically added to the **Available** list for connector definitions, but you can move it to the **On Device** list as required.

— End —

Recalling fiber analysis images

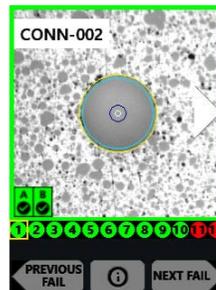
On an FVAm microscope with a touchscreen display module, you can view fiber analysis images for any set of results saved to the microscope after a Pass/Fail test.

Step 1 On the **Settings** menu, select **RECALL IMAGE**, and then select either the group name where the set of results were added or the connector ID assigned to the set of results.



Note: If you select a group name, a sub-menu listing the connector ID assigned to each set of results added to the group appears. Select a connector ID.

The first fiber-analysis image contained in the set of results appears on the touchscreen.



Step 2 Do any of the following:

- Use the touchscreen arrows or press the **Pan Right** or **Pan Left** button to view an adjacent fiber.
- Select **NEXT FAIL** or **PREVIOUS FAIL** on the touchscreen to view only fibers that failed the inspection.
- Tap the touchscreen to change the overlay mode applied to the image of the fiber. The following overlay modes are available:
 - Show Overlay
 - Show Overlay + Zone Pass/Fail Table
 - No Overlay

— End —

Managing data stored on the FVAm microscope

The FVAm microscope can store up to 2000 fiber-analysis images; however, the number of sets of results that can be stored depends on the number of fiber ends inspected.

Table 3-2: Examples of test storage limits for common ribbon configurations

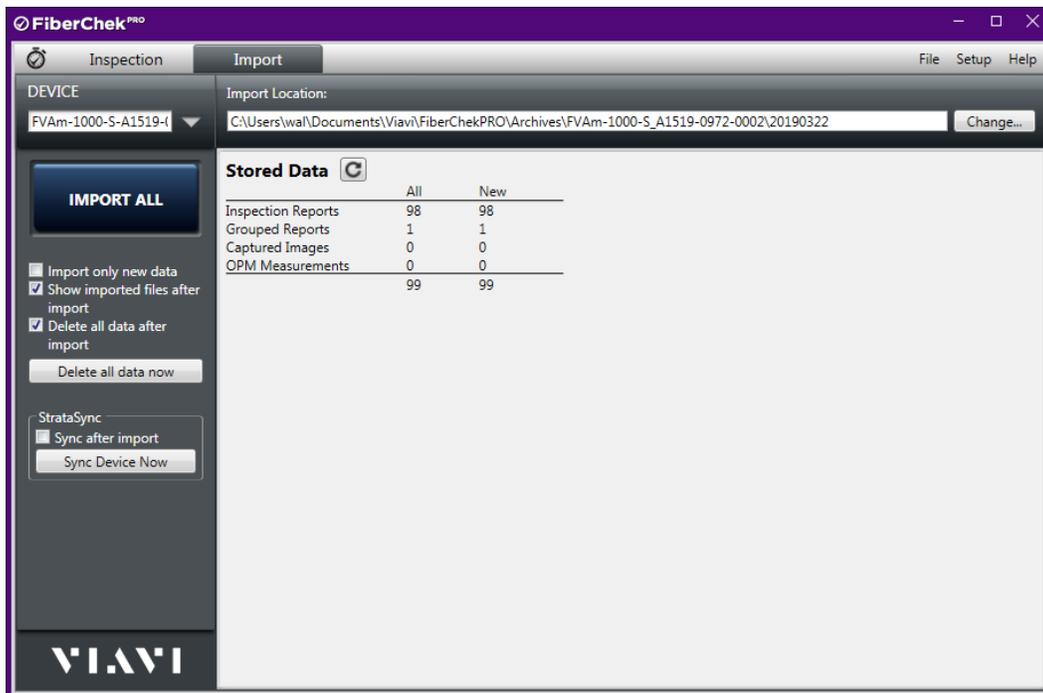
| Geometry | Sets of results |
|----------|-----------------|
| 8x1 | 280 |
| 12x1 | 166 |
| 12x2 | 83 |
| 16x1 | 128 |
| 16x2 | 62 |

To ensure that Pass/Fail test results saved to the FVAm microscope are retained for your records, VIAVI strongly recommends regularly importing them to a computer using FiberChekPRO. A test report for each set of results is automatically generated when results are imported. Also, you can delete data from the microscope as part of the import operation or separately.

Importing stored test data

Step 1 Connect the FVAm microscope to FiberChekPRO.

A summary of the data stored on the microscope appears on the **Import** page of the FiberChekPRO application window.



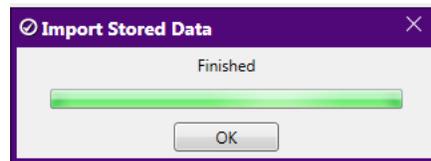
Step 2 Select the import options you require:

- **Import only new data:** To import only the test data acquired after the last import operation.
- **Show imported files after import:** To allow FiberChekPRO to automatically open the default folder where the generated test report is saved after the import operation is completed. The name of the folder appears in the **Import Location** field on the **Import** page.
- **Delete all data after import:** To delete imported data from microscope.

Step 3 Click **IMPORT NEW** or **IMPORT ALL**.

Note: The import control is labeled **IMPORT NEW** only after the **Import only new data option** is selected at [Step 2](#).

The import operation starts, and a progress dialog indicates when the operation is completed.



Step 4 Click **OK**.

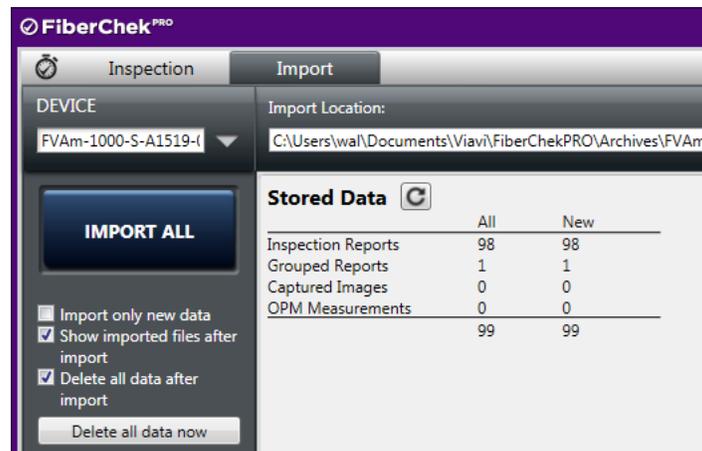
Note: For information about specifying the format (HTML or PDF) reports are saved to, refer to the *FiberChekPRO Automated Fiber Inspection and Analysis Software User Manual*.

— End —

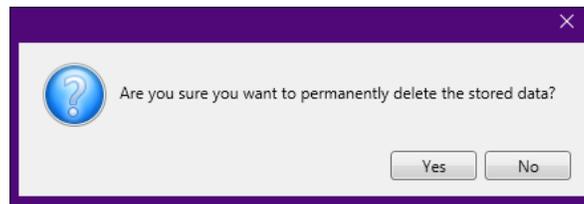
Deleting stored test data

Step 1 Connect the FVAm microscope to FiberChekPRO.

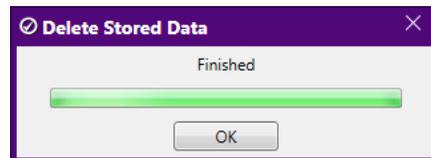
Step 2 On the **Import** page, click **Delete all data now**.



Step 3 Click **Yes** to confirm the operation.



The delete operation starts, and a progress dialog indicates when the operation is completed.



Step 4 Click **OK**.

— End —



Appendix A Touchscreen Settings menu

This section covers the following information:

- [“Connector Setup” on page A-2](#)
- [“Create New Group” on page A-2](#)
- [“User Info” on page A-2](#)
- [“Recall Image” on page A-2](#)
- [“Edit Optical Settings” on page A-2](#)
- [“Microscope Settings” on page A-2](#)
- [“System Settings” on page A-3](#)

Connector Setup

See “Setting up Pass/Fail tests” on page 2-19.

Create New Group

See “Setting up groups for Pass/Fail test results” on page 2-23.

User Info

See “Adding user information” on page 2-21.

Recall Image

See “Recalling fiber analysis images” on page 3-10.

Edit Optical Settings

Edit Active Optical Settings

See “Editing the active optical setting” on page 3-6.

Microscope Settings

| | | |
|-------------------------|------------------|---|
| Show Focus Meter | On (default)/Off | Turn display of the focus meter on or off in live view. |
| AF on Insert | On/Off (default) | Perform an auto focus automatically when a fiber is inserted. |
| Test on AF | On/Off (default) | Test a connector immediately after auto-focusing. |

Note: When used together, **AF on Insert** and **Test on AF** can speed up fiber testing significantly.

System Settings

Language

Select the interface language for the FVAm microscope. Only languages selected during a firmware update are available. You can install languages at any time from by reinstalling the firmware. See [“Firmware update” on page B-1](#).

Date and Time

Select time settings, which are used to time stamp test results and appear on reports.

| | | |
|--------------------|--|---------------------------------------|
| Hour Format | <ul style="list-style-type: none"> • 12 hour (default) • 24 hour | Select the hour format |
| Year | 2015 to 2035 | Scroll up or down to select the year. |
| Month | January to December | |
| Day | 1 to 31 | |
| Hour | 12 AM to 11 PM | |
| Minute | 0 to 59 | |

AF Calibration

Recalibrate lens auto-focus. This feature should only be used at the direction of VIAVI support.

Panmotor Calibration

Recalibrate the motor used to pan the FVAm microscope lens between fibers. This feature should only be used at the direction of VIAVI support.

Power Options

The following options can be used to conserve power on the FVAm microscope.

| | | |
|-------------------|--|---|
| Screen Dim | <ul style="list-style-type: none"> • Never • 1 minute (default) • 5 minutes • 10 minutes • 15 minutes • 30 minutes | Dim the screen after the set amount of time. |
| Auto Off | <ul style="list-style-type: none"> • Never • 1 minute • 5 minutes • 10 minutes (default) • 15 minutes • 30 minutes | Turn the FVAm microscope off after the set amount of time |

Touchscreen Cal

Calibrate the touchscreen. For information, see [“Calibrating the touchscreen” on page 2-15](#).

Colorblind Mode

Turn colorblind mode on or off (default). Colorblind mode adjusts colors to make information on the touchscreen easier for persons with red-green color sensitivity to distinguish.

Screen Brightness

Set the brightness of the built-in screen to 100% (default), 80%, 60%, 40%, or 20%.

USB Connect Mode

| | |
|-----------------------|---|
| Full Speed | Set the USB connection to operate at USB 2.0 speed. |
| High Speed | Set the USB connection to operate at USB 1.1 speed. |
| Auto (default) | Set the USB connection to operate at the highest speed available. |

System Information

| Label | Information |
|---------------|---|
| SNO | Device ID |
| LBL | Device serial number |
| FCC ID | Federal Communications Commission ID number |
| IC | Industry Canada ID number. |
| TELEC | Telecom Engineering Center Radio Equipment Conformity Certification number. |
| REV | Hardware revision |
| FW | Firmware revision |

Appendix B Firmware update

FiberChekPRO facilitates firmware management by identifying available firmware update versions for each device it supports, including FVAm Series Benchtop MPO Autofocus Microscopes.

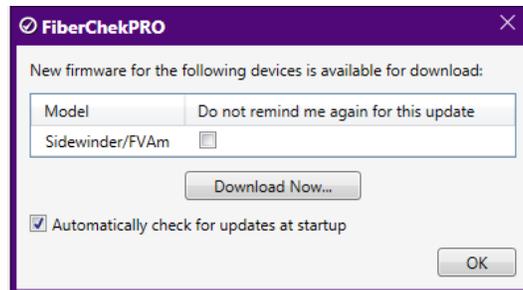
Updating the firmware

Step 1 Connect the FVAm microscope to FiberChekPRO.

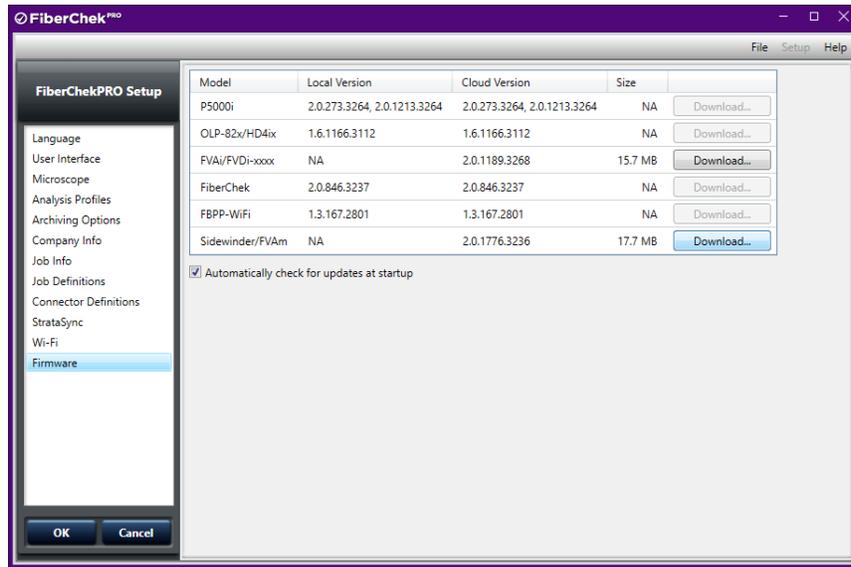
If the FVAm microscope is running an earlier firmware version and FiberChekPRO is set up to automatically check for updates at startup, the **New Firmware** dialog appears on the **Import** page of the FiberChekPRO application window, prompting you to download the updated firmware to your computer.

Do the following:

- In the **New Firmware** dialog, click **Download Now**.

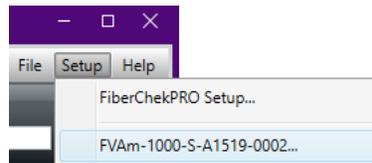


- In the **FiberChekPRO Setup** dialog, click **Download** for the **Sidewinder/FVAm** model.

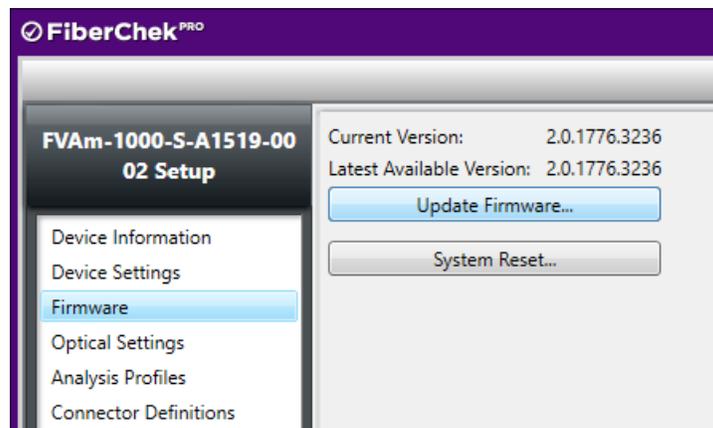


- When the download is completed, click **OK** in the **FiberChekPRO Setup** navigation pane to return to the **Import** page.

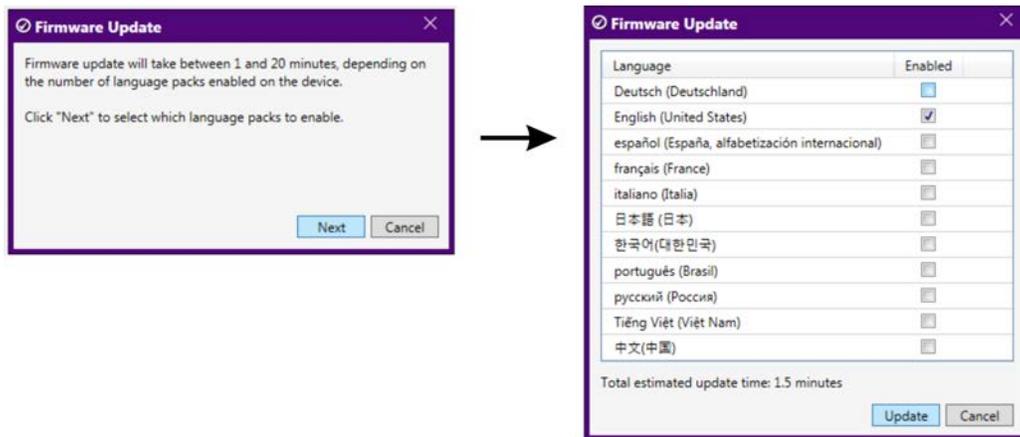
Step 2 On the **Setup** menu, select the microscope.



Step 3. On the **Setup** page for the microscope, select the **Firmware** option in the navigation pane, and then click **Update Firmware**.

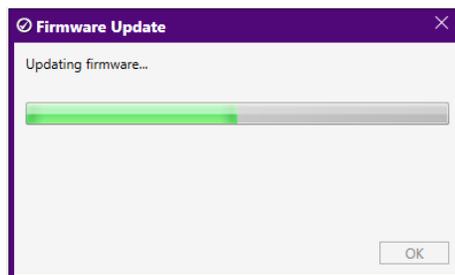


Step 4 In the **Firmware Update** dialog, click **Next** to view available language packs. Select the check box for each pack you want to enable, and then click **Update**.

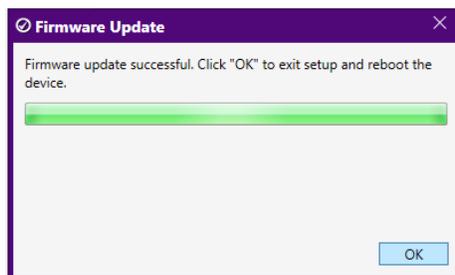


Note: Enabling multiple language packs increases the amount of time the firmware update requires.

Step 5 Click **Update** to start the update.



Step 6 When the update is successfully completed, click **OK** to reboot the FVAm microscope.



After the microscope reboots, it automatically reconnects to FiberChekPRO.

Step 7 Access the **Firmware** option on the **Setup** page for the microscope, and note the firmware version.

— End —

Appendix C System reset

When required, you can perform a system reset to return the firmware running on an FVAm microscope to an earlier version. From that version, you can update to the firmware version you require. This facilitates maintaining firmware version stability and uniformity across a fleet of deployed microscopes.

Note: If you must return to an earlier version of the firmware, you must first perform a system reset. You can then update to a firmware version later than the version defined by the system-reset threshold.

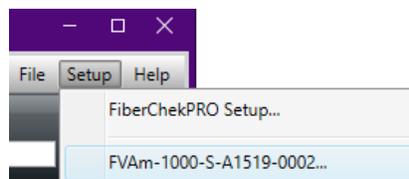
Important: VIAVI strongly recommends that you refer to the document [Standardizing Device Firmware](#) for information about the system reset process, including limitations, before you perform this procedure.

Important: A system reset deletes all test results, custom optical settings, custom connector definitions, and custom analysis profiles stored on the microscope, and restores all factory-set options (see [Table 2-4 on page 2-19](#)). Therefore, before you start a system reset, ensure that all required test results are transferred to a computer (see [“Managing data stored on the FVAm microscope” on page 3-11](#)) and all required custom options are available on FiberChekPRO (refer to the *FiberChekPRO Automated Fiber Inspection and Analysis Software User Manual*, which you can access from the FiberChekPRO **Help** menu).

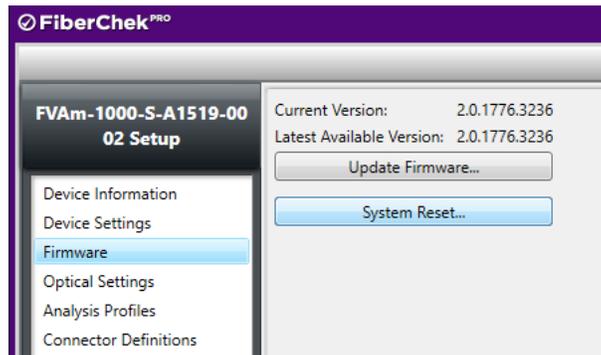
Performing a system reset

Step 1 Connect the FVAm microscope to FiberChekPRO.

Step 2 On the **Setup** menu, select the microscope.



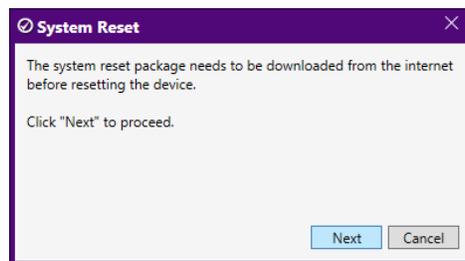
Step 3. On the **Setup** page for the microscope, select the **Firmware** option in the navigation pane, and then click **System Reset**.



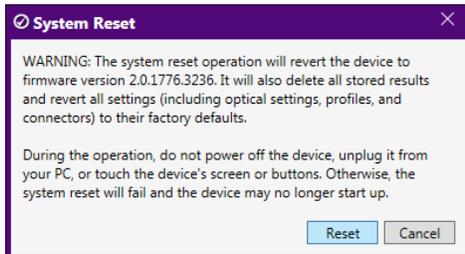
Note: The **System Reset** button is available only while the firmware version installed on the FVAm microscope is either the same version defined by the system-reset threshold or a later version.

Step 4 Click **Next** to either download the system reset package or proceed to the next dialog.

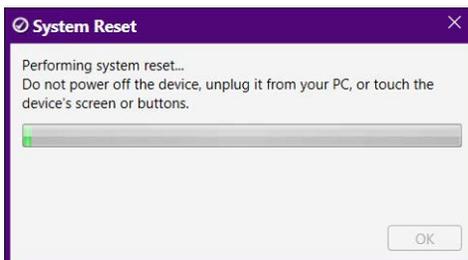
Note: The system reset package is downloaded only during a first-time system reset.



A dialog containing warning information appears.

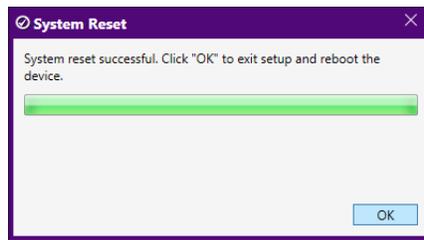


Step 5 Review the information, and then click **Reset** to start the system reset.



Note: A system reset can take several minutes to complete.

Step 6 When the system reset is successfully completed, click **OK** to reboot the FVAm microscope.



After the microscope reboots, it automatically reconnects to FiberChekPRO.

— End —



FVAm™ Series Benchtop MPO Autofocus Microscope

User Guide

22132675 Rev. 101, Standard

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