

P5000i Digital Analysis Microscope

Automated fiber end face inspection and analysis system

USER MANUAL



ZP-PKG-0574
REV 0

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PATENTS	RibbonDrive Tips: US Patent No. 6,751,017 / 6,879,439 CleanBlast: US Patent No. 7,232,262
TESTED EQUIPMENT	All pre-qualification tests were performed internally at JDSU, while all final tests were performed externally at an independent, accredited laboratory. This external testing guarantees the unerring objectivity and authoritative compliance of all test results. JDSU's Commerce and Government Entities (CAGE) code under the North Atlantic Treaty Organization (NATO) is 0L8C3.
FCC INFORMATION	Electronic test equipment is exempt from Part 15 compliance (FCC) in the United States.
EUROPEAN UNION	Electronic test equipment is subject to the EMC Directive in the European Union. The EN61326 standard prescribes both emission and immunity requirements for laboratory, measurement, and control equipment. This unit has been tested and found to comply with the limits for a Class A digital device.
INDEPENDENT LABORATORY TESTING	This unit has undergone extensive testing according to the European Union Directive and Standards.

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P5000i Digital Analysis Microscope

1

Overview The **P5000i Digital Analysis Microscope** is a portable handheld microscope used to inspect and certify both the bulkhead (female) and patch cord (male) sides of fiber connectors as well as other optical devices, such as transceivers. The probe is specially designed to fit and operate comfortably and easily in-hand, allowing the user to inspect hard-to-reach connectors that are installed on the back side of patch panels or inside hardware devices. The P5000i automatically inspects and analyzes the fiber end faces, detects scratches and defects, and provides instant Pass/Fail results. This eliminates subjectivity and time-consuming guesswork from the inspection process.

The P5000i can deliver these results to a PC/Laptop and JDSU test platforms, such as the MTS/T-BERD 2000/4000/6000 and HST-3000.



Controls

QuickCapture Button Instantly captures and analyzes the fiber image.

Focus Control Allows the user to adjust focus manually of the live fiber end face image on the display.

Magnification Control Allows the user to switch between LOW and HIGH magnifications of the fiber end face image.

Specifications

Dimensions	140 x 46 x 44 mm (5.5 x 1.8 x 1.7 in)
Weight	110 g (3.9 oz)
LOW-Mag field-of-view (FOV)	Horizontal: 740 μ m Vertical: 550 μ m
HIGH-Mag FOV	Horizontal: 370 μ m Vertical: 275 μ m
Live image	640 x 480; 8 fps
Connector	USB 2.0
Cord length	183 cm (6-ft)
Focus control	Adjustable, in-probe
Camera sensor	2560 x 1920, 1/2.5-in (1.02 cm) CMOS
Resolution	< 1 μ m
Light source	Blue LED, 100,000+ hour life
Lighting technique	Coaxial
Power source	USB port
Certification	CE
Warranty	1 year

FiberChekPRO Software / Driver Installation

2

Software Installation

(for use with a
PC/laptop)

IMPORTANT! *Install the software before attaching the microscope to PC.*

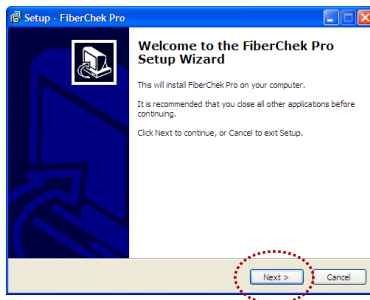
Minimum System Requirements

- PC/laptop with Pentium® III 1.0 GHz CPU or higher
- Windows® 2000 (SP4), XP® or Vista® Operating System
- 50 MB of hard drive space for application software
- One open USB 2.0 port
- 128 MB RAM

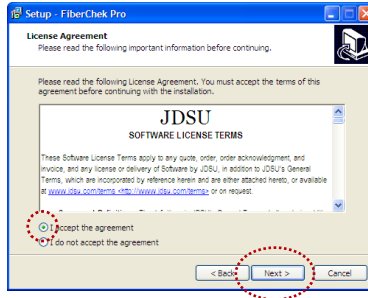
1. Insert FiberChekPRO™ CD

- Insert FiberChekPRO CD and wait for the automatic **Welcome to the FiberChekPRO Setup Wizard** menu to launch OR locate the **setup** file on the software CD and open.

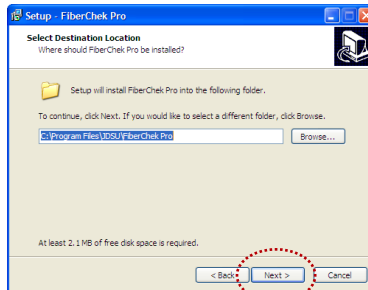
2. Install FiberChekPRO Software



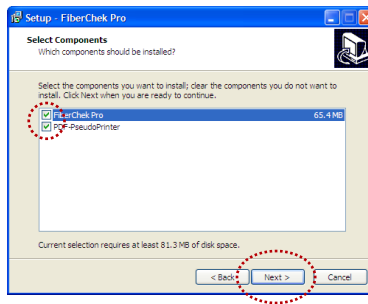
- At the **Welcome to the FiberChekPRO Setup Wizard** menu click **Next >** to continue.



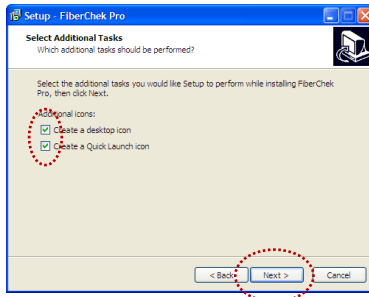
- At the **License Agreement** menu select **I accept the agreement** button, then click **Next >** to continue.



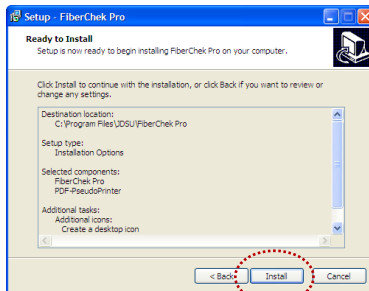
- At the **Select Destination Location** menu, accept the default location (**strongly recommended**) for the application files OR click **Browse** to select a user-defined location then click **Next >** to continue.



- At the **Select Components** menu, check all the components you want to install, and make sure the box next to **PDF-PseudoPrinter** is checked and click **Next >** to continue.

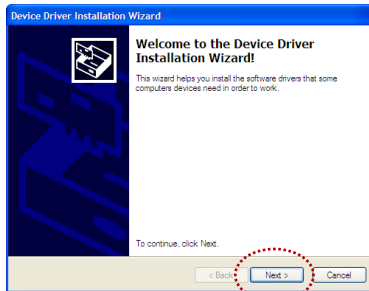


- At the **Select Additional Tasks** menu, select/check options for FiberChekPRO icon/shortcut placement then click **Next >** to continue.

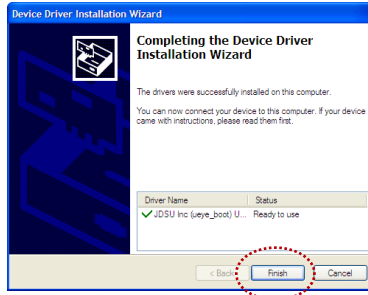


- At the **Ready to Install** menu, confirm settings then click **Install** to continue.

JDSU Inc (ueye_boot) Driver Installation

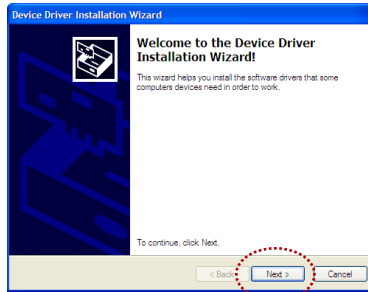


- At the **Welcome to the Device Driver Installation Wizard** menu, click **Next >** to continue.

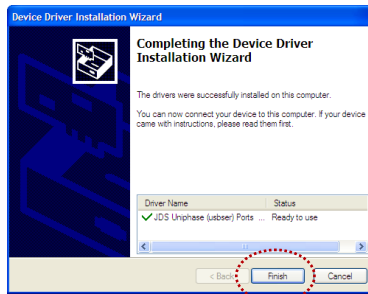


- At the **Completing the Device Driver Installation Wizard** menu, click **Finish** to complete **JDSU Inc (ueye_boot)** driver installation.

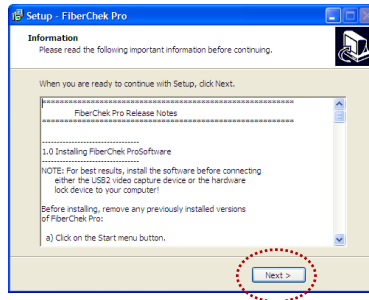
JDSU (usbser) Driver Installation



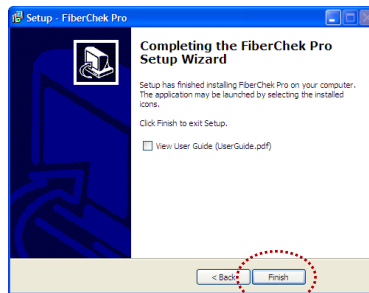
- At the **Welcome to the Found New Hardware Wizard** menu, click **Next >** to continue.



- At the **Completing the Device Driver Installation Wizard** menu, click **Finish** to complete **JDS Uniphase (usbser) Ports** driver installation.



- At the **Information** menu, click **Next >** to continue.



- At the **Completing the FiberChekPRO Setup Wizard**, click **Finish** to complete software and driver installation.

Hardware Installation

3. Hardware Installation



- Plug the probe microscope into the computer.
- Wait for the automatic **Found New Hardware Wizard** menu to launch.

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FiberChekPRO Software

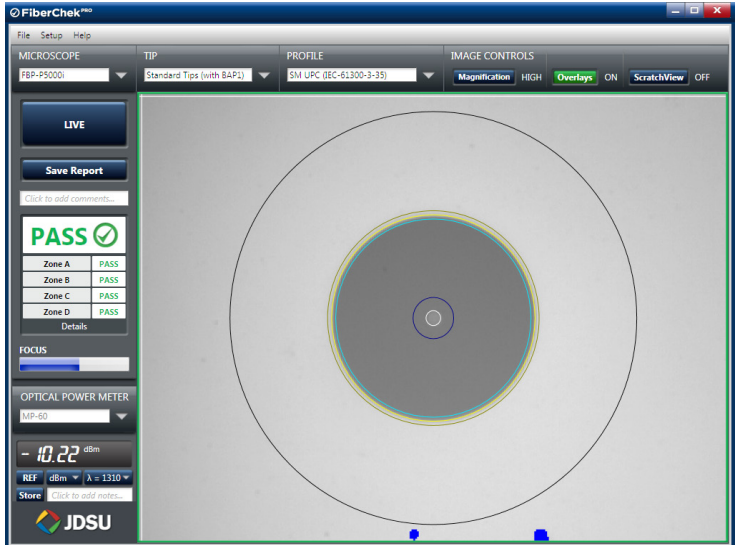
3

Overview The **P5000i Digital Analysis Microscope** uses **FiberChekPRO (automated analysis software)** to operate on a PC/Laptop, and instantly captures, analyzes and grades fiber endface images to obtain a PASS/FAIL result and generate certification reports.

FiberChekPRO is a software application used to determine the acceptability of optical fiber end faces through automated inspection and analysis. Used in conjunction with JDSU's P5000i Digital Analysis Microscope, FiberChekPRO will identify and characterize defects and contamination then provide a PASS or FAIL result according to a pre-configured failure criteria setting. In addition, the program allows users to archive data, generate reports and obtain an Optical Power Measurement (OPM) with both the MP-series and FI-series test tools from JDSU.



FiberChekPRO™

**FiberChekPRO Performs the Following Automated Procedures**

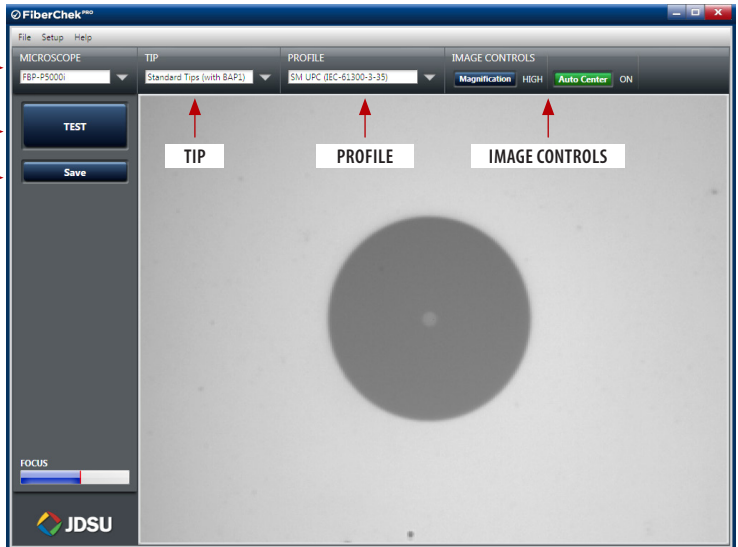
1. Acquires the fiber image.
2. Analyzes the image.
3. Finds defects and their location to fiber core.
4. Measures and evaluates the defects within each specified Zone.
5. Determines whether defects within the Zones are acceptable according to the pre-configured failure criteria for each Zone.
6. Displays the results as PASS or FAIL.
7. Saves or prints all relative results in designated directory or printer, respectively.

Controls (LIVE VIEW)

MICROSCOPE →

TEST →

SAVE →



MICROSCOPE Allows the user to select the specific microscope they want to have active for displaying on the screen. If multiple microscopes are connected, each one will appear in a drop down list.

TIP Allows the user to select the best optical settings for the type of inspection tip that is attached to their probe. Users can select from several pre-configured optical settings or create their own. *For more information, see the OPTICAL SETTINGS section on page 18.*

PROFILE Allows the user to select from various PROFILES, which contain the analysis parameters by which PASS/FAIL criteria are determined. Users can select from several pre-configured PROFILES or create their own. *For more information, see the PROFILES section on page 19.*

IMAGE CONTROLS Provide specific controls for fine tuning the image. In LIVE view, users can select between viewing at LOW or HIGH magnification.

FOCUS QUALITY METER A visual gauge that aids the users in finding the optimal focus point. Optimal focus level is reached when the blue bar is closest to the red line.

TEST Initiates the automated PASS/FAIL test process.

SAVE Allows the user to capture and save the image as it appears on the screen.

Controls (TEST VIEW)

MICROSCOPE →

LIVE →

SAVE REPORT →

DETAILS →

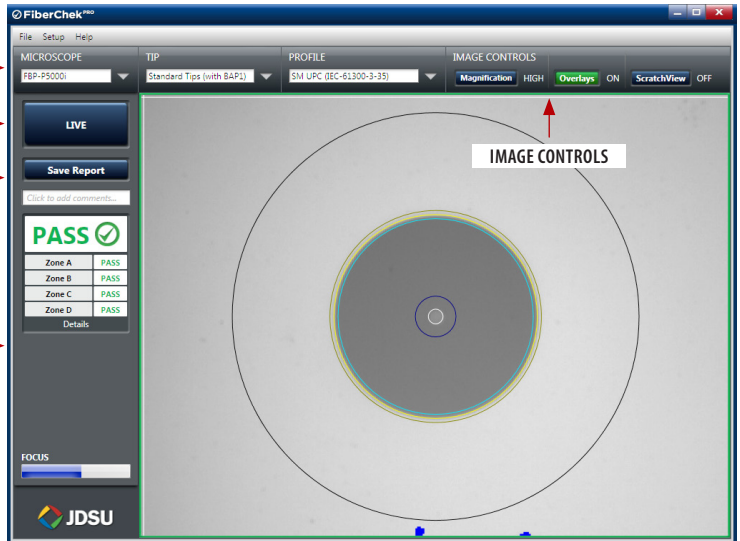


IMAGE CONTROLS Provides specific controls for fine tuning the image. In TEST view, users can:

- Select between viewing at LOW or HIGH magnification
- Turn the overlay details ON or OFF
- Turn the Scratch View feature ON or OFF

LIVE Allows the user to return back to a live image.

SAVE REPORT Generates a summary report of the tested fiber on the screen.

DETAILS Allows the user to view more specific information on the analysis results for the tested fiber on the screen.

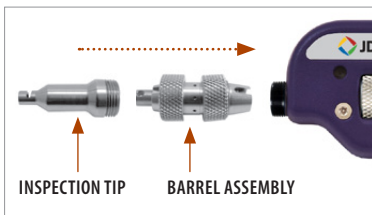
Using FiberChekPRO with P5000i Digital Analysis Microscope

1. Open/Launch FiberChekPRO

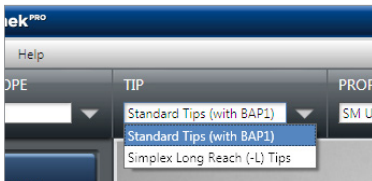


- Locate FiberChekPRO application and open.

2. Install Inspection Tip

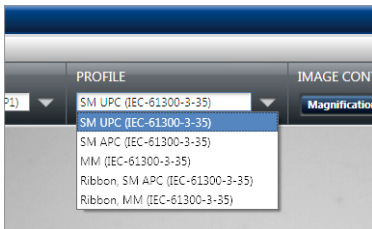


- Select the appropriate inspection tip that corresponds to the connector type and side being inspected and attach to probe.



- In the **TIP** section, select the pre-configured Optical Setting from the dropdown list (see page 18 for descriptions).

3. Select Profile Setting



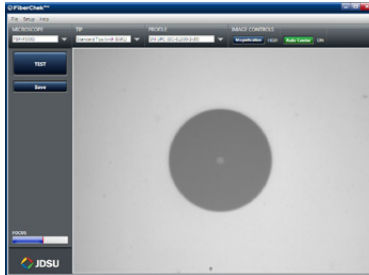
- From the pre-configured **PROFILE** settings dropdown list, select the appropriate connector being inspected.

4. Inspect Fiber



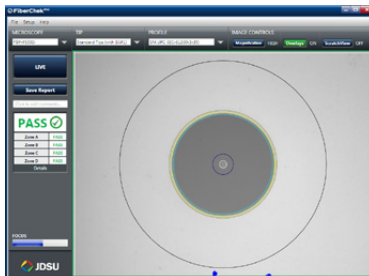
- Insert the probe into the bulkhead (for probe) or insert the path cord ferrule into the probe tip.

5. Focus the Fiber End Face Image On Screen



- Adjust the focus of the fiber end face image on the computer screen by turning the **Focus Control** on the microscope.

6. Test



- Press the **QuickCapture** button on the probe OR click the **TEST** button from the FiberChekPRO toolbar to run analysis.

Optical Settings Optical Settings configure the P5000i for optimal performance with a given tip. Users can select the best optical settings for the type of inspection tip that is attached to their probe. The P5000i comes pre-configured with the following optical settings:

- **Standard Tips (with BAP1)**

Select when using **standard tips with FBPP-BAP1** barrel assembly. *Tips that use this setting include FBPT-SC, FBPT-LC, FBPT-ST, FBPT-FC, FBPT-SC-APC & FBPT-FC-APC.*

- **Standard Tips (with BAP2)**

Select when using **standard tips with the FBPP-BAP2** barrel assembly for longer reach inspection. **Note:** *The FBPP-BAP2 accepts the same tips as the FBPP-BAP1.*

- **Mil/Aero Tips & Guides (with BAP3)**

Select when using **guides designated for inspecting Military & Aerospace connectors** with the narrow barrel assembly (*FBPP-BAP3*).

- **Long Reach (-L) Tips**

Select when using **long reach inspection tips**. **Note:** *Long Reach inspection tips are noted with the suffix “-L” on the part number (ex: FBPT-SC-L, FBPT-LC-L, etc.).*

- **Ribbon Tips**

Select when using **tips designated for inspecting ribbon connectors**. **Note:** *Ribbon connectors contain an array of multiple fibers in a single connector (ex: FBPT-MTP).*

- **E2000 Tips**

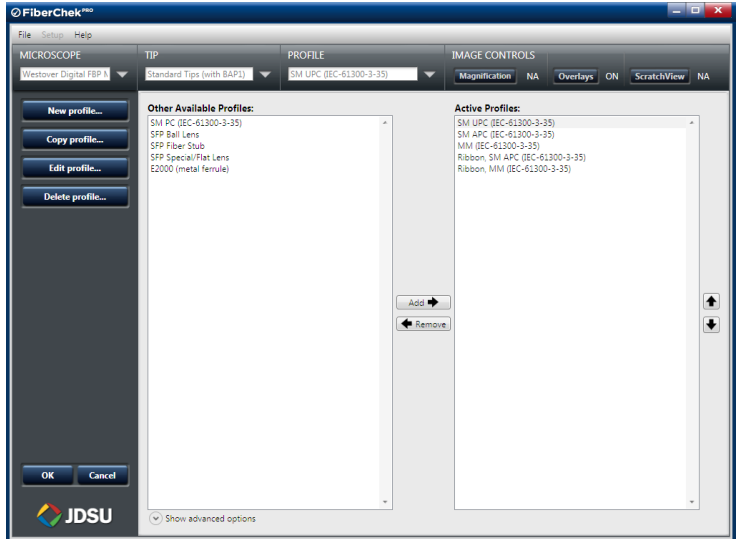
Select when using **long reach E2000 inspection tips** (ex: *FBPT-E2000*).

- **SC-A6 Tip (60 Degree Angle)**

Select when using **SC inspection tips with a 60 degree angle**. **Note:** *Angled inspection tips are typically noted with the suffix “-A6” on the part number (ex: FBPT-SC-A6, FBPT-SCA-A6).*

NOTE: *Users can also create new Optical Settings for specialty tips or applications. See the FiberChekPRO user manual for details.*

Profiles Contains the analysis parameters by which PASS/FAIL criteria are determined. Users can activate which profiles they want to appear in the **PROFILE** drop down list on the main menu by selecting **Setup > Analysis Profiles**.



Profiles listed in the ACTIVE section will appear in the drop down menu. Users can select from several pre-configured PROFILES or create their own.

NOTE: Double-click on an active profile to find out more information about it.

Device Platforms

4

Overview The **P5000i Digital Analysis Microscope** also operates on several other JDSU handheld test platforms to instantly capture, analyze and grade fiber endface images to obtain a PASS/FAIL result and generate certification reports. P5000i will operate on these platforms in a similar way to FiberChekPRO. The user will always specify what profile to test against and what tip is attached (*found in setup or options menu*). For more information on using the P5000i with other device platforms, see the user manuals for the specific tool or platform.

Compatible Platforms Other platforms that P5000i connects to include but are not limited to:

- **MTS/T-BERD 2000**
- **MTS/T-BERD 4000**
- **MTS/T-BERD 6000**
- **T-BERD 5800**
- **HST-3000**
- **MAP-200**



Profiles JDSU platforms capable of using the P5000i will come pre-loaded with profiles matching the requirements in IEC-61300-3-35. Users can create new profiles using FiberChekPRO and export them to the JDSU test platform as follows:

1. Create the new profile in FiberChekPRO and close the application.
2. Use Windows Explorer and Browse to the FiberChekPRO install folder (the default location is C: Program Files/JDSU/FiberChekPro).

3. Select the folder named "Profiles - Shortcut" (*this opens up a folder with all of your profiles in FiberChekPRO*).
4. Copy the Profiles you want to add onto the test platform and save to a portable USB memory stick.
5. Connect the USB memory stick to the test platform and save the profile file(s) to the location specified in the platform manual.

Optical Settings

Optical Settings configure the P5000i for optimal performance with a given tip. Users can select the best optical settings for the type of inspection tip that is attached to their probe. The P5000i comes pre-configured with a selection of default optical settings (*see page 18*). Additional settings can be added to the P5000i using FiberChekPRO. See the FiberChekPRO user manual for further details on this process.

Operating the P5000i on JDSU Test Platforms

While each JDSU test platform will have its own user interface, all platforms will have common controls for inspection and analysis.

Live View Controls

Focus Quality: A visual gauge that aids the users in finding the optimal focus point. Optimal focus level is reached when the blue bar is closest to the red line.

Test: Initiates the automated PASS/FAIL test process.

Magnification Selection: Select between viewing at LOW or HIGH magnification.

Test View Controls

Live: Allows the user to return back to a live image.

Overlays: Toggles an overlay of the zones and analysis details ON or OFF.

Magnification Selection: Select between viewing at LOW or HIGH magnification inspected image.

Save Report: Generates a summary report of the tested fiber on the screen.

Device Setup Controls

Tip: Allows the user to select the best optical settings for the type of inspection tip that is attached to their probe. Users can select from several pre-configured optical settings or create their own. *For more information, see the OPTICAL SETTINGS section on page 18.*

Profile: Allows the user to select from various PROFILES, which contain the analysis parameters by which PASS/FAIL criteria are determined. Users can select from several pre-configured PROFILES or create their own. *For more information about PROFILES, see the PROFILES section on page 19.*

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